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Strengthening Research Management and  
Open Science Capacities of HEIs in Moldova and Armenia

*26 th International Scientific Conference*

# “COMPETITIVENESS AND INNOVATION IN THE KNOWLEDGE ECONOMY”,

September 23-24, 2022,

## Conference Proceeding.

Chisinau  
Republic of Moldova, 2022



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## **PLENARY SESSION**

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## INTERNATIONAL COMPETITIVENESS, PRODUCTIVITY AND INNOVATIONS

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**Abstract.** *The countries that seek to increase their wealth and the wellbeing of their population should promote policies to increase their competitiveness and therefore to strengthen their ability to obtain decent incomes on external markets from the sales of goods and services they produce.*

*Exports are a mean to avoid the small size of the internal market. They let companies to increase economies of scales by extending the market, to specialize and improve production processes and their products and services. Exporting companies may have access to a more sophisticated demand, to new knowledge, technologies. Thus increasing exports should spur aggregate productivity and economic growth. On the other side exports performance is a reflection of a country competitiveness.*

*The competitive advantage of countries depends on the ability of companies to innovate and upgrade and the national environment is very important in this regards (Porter, 1990).*

*The objective of the research is to evaluate the innovation environment, productivity and international competitiveness of the Republic of Moldova comparing to Central European countries. Some of the conclusions the authors have drawn from the undertaken research are as follows. Moldova rank significant lower comparative to the benchmark countries as concerns the innovation input sub index and knowledge impact index of the Global Innovation Index produced by Global forum of intellectual property. The knowledge impact expressed in production and exports complexity, labor productivity growth, and high tech exports of total trade is small that explains the share of Moldova in the world export market.*

**Keywords:** international competitiveness, technological intensity of exports, productivity, innovations

**JEL Classification:** F43, F68, O47

### **Introduction**

Republic of Moldova is a small European economy that is implementing the Association Agreement with EU since 2014 and on June 2022 it was granted the EU candidate status. An important task for decision makers is to foster structural reforms and to reduce the development gap with other EU countries.

Previous researches concluded that Moldova lags far behind the developed European countries as concerns the GDP per capita and the productivity level that is an important factor for economic development (Stratan A., Toaca Z., Fala V., 2021). Small productivity is associated with a low international competitiveness measured as world market share of trade in goods and services compared to other former European transition economies that are now EU members and have the status of developed economics. International competitiveness is

also measured by exports sophistication that result from the complexity of the economy that in turn explains the size and change of world market shares.

Despite the big gap in GDP per capita compared to the benchmark countries from Central Europe – Poland, Czech Republic, Croatia, Estonia, Latvia, Lithuania, Slovakia, Slovenia, Romania, Bulgaria, Turkey - the economic growth in Republic of Moldova is slowing down in long term, and a part of this trend is explained by a decelerating Total Factor Productivity that used to be an important factor of growth during the last two decades (World Bank, 2019). At the same time, the business environment does not encourage entrepreneurship or capital accumulation.

Moldova’s little progress to increase productivity and international competitiveness can be explained by a low performance in developing innovations. Although there have been implemented many reforms to improve business climate and to foster innovations the number of enterprises that implement some innovations is small and is decreasing over the last years. According to the National Bureau of Statistics, during 2019-2020 only about 1 out of 10 surveyed enterprises with more than 10 employees have made some innovations and this number has declined since the last surveys made for 2017-2018 and 2015-2016 years.

Increasing population income from sustainable sources by fostering productivity growth and developing opportunities for entrepreneurship and innovations is of the general objectives of the National Development Strategy 2030 draft. Thus many public commitments should be made to achieve the established targets by this period, including exports acceleration to a 10% annual average during 2020-2030 and increasing Global Innovation Index Rank score from 32,3 in 2021 to 42 in 2022-2025 and to 45 by 2026-230.

### **Literature review**

According to Ketels Ch. (2010), the ability of a country to generate high productivity explains its capacity to compete internationally and to gain incomes form trading abroad goods and services and vice versa.

According to Porter (1990) a country’s competitive advantage and the sophistication of its export basket depends on the ability of companies to innovate and upgrade. To be innovative, means for companies to identify those activities were they can create a higher value added today or in the future preserving at the same time the valuable production factors that can emigrate in the condition of open economies (Porter, M., 1990).

Many empirical researchers have found a causation between exporting activity of firms and innovations (Hashmi H.M.A., Voinea C.L., Ooms W., Caniels M., C., J., 2022; Ortigueira-Sánchez L. C., Welsh D. H. B., [Stein](#) W, 2022; Filipescu D.A., Prashantham S., Rialp A., Rialp J, 2013). The existing works argue as well for the relevance of different type of innovations on export performance of firms, highlighting especially the importance of technological innovations. They confirms the importance of public support in supporting exports through innovations, including by offering innovations subsidies and the opportunity offered for firms by converging innovation and export promotion policies (Ortigueira-Sánchez L. C., Welsh D. H. B., [Stein](#) W, 2022). At the same time Recica F, Hashi I., Jackson I., Krasniki B. (2018) researching innovations and the export performance in Transition countries concluded that in medium reforming countries like Moldova process innovation and product

upgrading are especially important to spur exports activity of firms. At the same time in the most reforming countries that is introducing new products by firms contributes more to increasing exports performance of firms. A study performed for Republic of Moldova confirms that firms that are introducing product and services innovations are more productive, innovations entailing 4% productivity premium (World Bank, 2016).

As Porter says in “The competitive advantage of nations” (1990), “in a world of increasingly global competition, nations have become more, not less, important. Differences in national values, culture, economic structures, institutions, and histories all contribute to competitive success”. The business environment created by governments is very important to support or prevent entrepreneurship and innovations. And there are many policy options and areas of Government interventions to improve innovations performance in a country. According to Jaumotte, F., Pain N., (2005) every kind of public policy has either a direct or an indirect impact on factors that affect innovative activity. Thus the Government interventions to sustain innovations are not limited to investments in research and development (R&D) activity, despite their extremely important role (Veugelers, R., 2021). According to Sandu S. and Ciocănel B. (2014) increasing R&D expenditures in the business sector as a share of GDP by 1% will lead to the growth of high-tech export share in total merchandise exports by + 3.68% in the same year in 26 EU countries. At the same time, investments in R&D in the public sector has a delayed positive effect on the high-tech merchandise export. With a 5 year lag they will lead to a growth of high tech manufacturing exports share by 14.42%.

In this context it is important for every economy to identify the main constrains that should be eliminated in view to stimulate innovations and productivity growth.

The aim of this paper is to identify the challenging factors for developing innovations in Republic Moldova comparative to Central European Countries in order to address some public policy needs in order stimulate aggregate productivity growth and international competitiveness improvement in Republic of Moldova.

### **Data and methods**

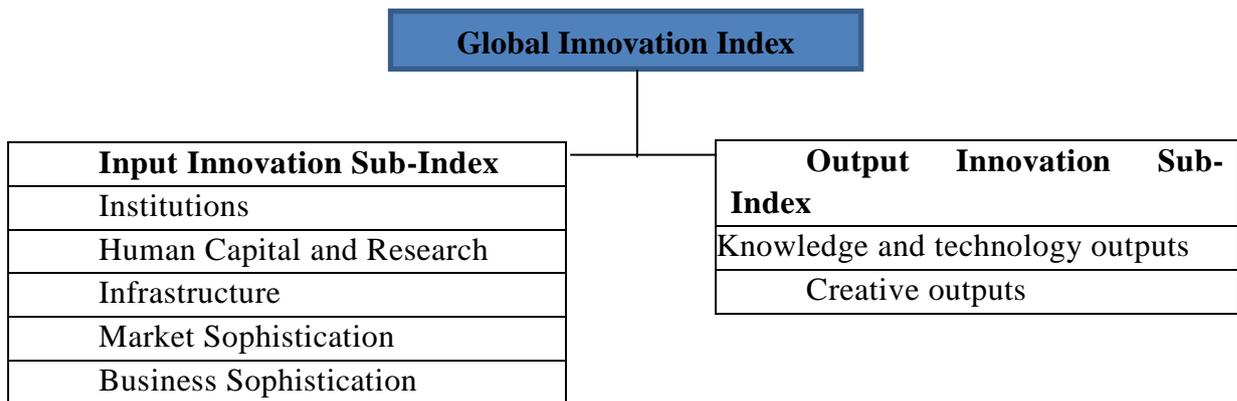
Within this research the international competitiveness has been evaluated using the export market share and exports complexity index. The first is computed both for exports of goods and services using data from UNCTAD database. The Economy complexity index (ECI) and technological intensity of exports has been used to compare the complexity of Moldova’s exports to those of benchmark countries. ECI is a relative measure of an economy knowledge intensity produced by The Observatory of Economy Complexity. It is used by World Intellectual Property Organization (WIPO) to measure complexity of production and exports basket, while computing Innovation Output sub-index within the Global Innovation Index. The level and growth rate of labor productivity has been estimated in constant USD PPP. Estimations have been made by authors in a previous work (Stratan A., Toaca Z, Fala V., 2021), although labor productivity have been estimated in this work based on recalculated data on GDP due to new statistics on population number that have changed after the 2014 population census. New population number data refers to population with usual residence in Republic of Moldova. Thus the data on labor productivity for Moldova consists from a broken series of

data (2014-2018, 2019-2021) due to changes in methodology of employment statistics. Data on GDP for 2021 are preliminary. To compute labor productivity for Moldova and benchmark countries there have been used the data of the National Bureau of Statistics from Moldova, World Bank, UNCTAD and Eurostat. The indicator has been computed for Moldova and 12 Central European countries: Hungary, Czech Republic, Poland, Estonia, Latvia, Lithuania, Bulgaria, Romania, Slovakia, Slovenia, Croatia, Turkey according to the formula below (formula 1).

**Labor productivity =**

$$\frac{\text{GDP national currency in 2017 base year * PPP conversion rate 2017}}{\text{Employed population of 15 years and over}} \tag{1}$$

The Global Innovation Index data have been used to benchmark Moldova’s innovation performance comparative to Central European Countries across Input Innovation sub-index pillars (figure 1) and some Innovation results – productivity and production and exports complexity.



**Figure 1. Global Innovation Index structure**

Source: Global [innovation Index 2021. What is the future of innovation-driven growth \[online\]. WIPO 2021](#)

**Discussions and results**

Because of the small size of the Moldovan economy, local companies have to import and export in order to increase their productivity and, accordingly incomes from selling in the local market and abroad what they produce. Exporting and importing is important for enterprises to grow. At the same time, the exports performance of Moldova is rather small comparative to benchmark countries.

The economic openness of Republic of Moldova is relative low comparative to other small countries in Central Europe – Latvia, Lithuania, Estonia. Moldova exports and imports less relative to its GDP. Exports of goods and services in Republic of Moldova account for less than 1/3 of GDP compared to 80% in Lithuania and 64% in Latvia (2021). The Ratio of exports to imports in Moldova is small. Exports covers only 53% of the imports of goods and services.

Small exports of goods compared to imports causes a huge current account deficit in Moldova. It reached 1,6 bilion USD or about -11,6% of GDP in 2021. The current account imbalance is persistent in time increasing the risks of economic development of the country.

Moldova gains only a small share of world market of goods and services comparative to other small territorial countries in Central Europe and progresses to increase it are small over time (table 1).

**Tabelul 1. Share of world market, %**

Country	Services			Country	Merchandise		
	2011	2021	Change 2021/2011		2011	2021	Change 2021/2011
Moldova	0,022	0,027	0,005	Moldova	0,012	0,014	0,002
Latvia	0,107	0,094	-0,013	Latvia	0,072	0,094	0,022
Slovenia	0,154	0,162	0,008	Estonia	0,091	0,097	0,005
Estonia	0,126	0,165	0,039	Croatia	0,073	0,102	0,029
Bulgari	0,166	0,182	0,016	Lithuania	0,153	0,183	0,030
Slovakia	0,162	0,186	0,024	Bulgari	0,154	0,183	0,030
Lithuania	0,124	0,253	0,129	Slovenia	0,189	0,256	0,066
Croatia	0,271	0,278	0,007	Romania	0,344	0,392	0,048
Hungary	0,502	0,433	-0,070	Slovakia	0,435	0,465	0,030
Czech Republic	0,560	0,493	-0,067	Hungary	0,612	0,636	0,024
Romania	0,269	0,547	0,278	Turkey	0,736	1,011	0,275
Turkey	0,919	0,944	0,025	Czech Republic	0,889	1,016	0,127
Poland	0,889	1,337	0,448	Poland	1,029	1,516	0,487

Source: Author’s calculation based on UNCTAD Statistics

During the transition period the commodity and geography structure of external trade has changed and diversified while EU became the main trade partner. Moldova imports mainly goods for processing, transport and travel services, and a wide range of goods: including mineral products, machinery and transport equipment, chemical products, foods and others. At the same time, it exports mainly goods after processing (insulated wires, clothes, footwear), agrifood products, IT, travel and transport services. Although Moldova has a Revealed Comparative Advantage for the production of many goods, the value added of exports is rather low even of the products that would be normally considered medium-high technological intensive (example: products from automotive industry). The exports of high technological intensive products are small and remains rather unchanged during the last two decades (table 2).

In the Table 2, it can be seen that countries in Central Europe with a higher score of economy complexity exports more high technological products as a share of total merchandise exports. Moldova ranks significantly behind the Central European countries as concerns world export market share, share of high technological intensive products in total merchandise exports, the economy complexity and GDP per capita.

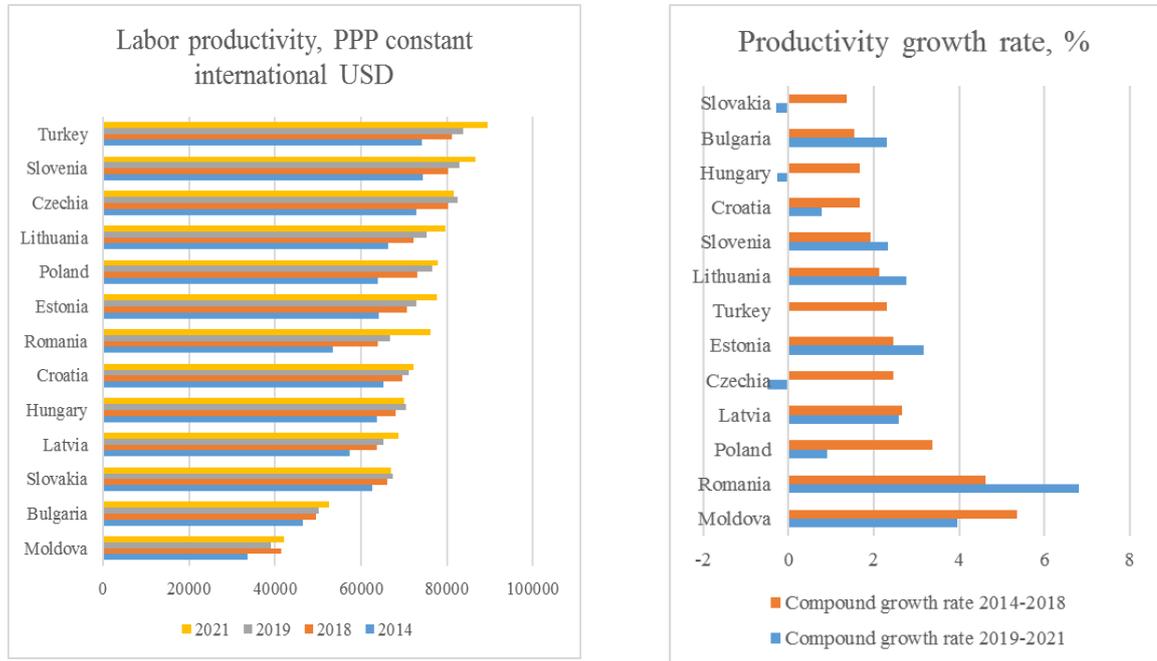
**Tabelul 2. Countries by Economy Complexity**

Country Economy Complexity ranking (2020)	Country	Country Economy Complexity score (2020)	GDP per capita, USD PPP (2021)	Share of High technological intensive products in total merchandise exports, % (2021)
6	Czech Republic	1,78	44261	27
9	Hungary	1.54	36753	23
11	Slovenia	1,54	43625	15
13	Slovakia	1,43	33010	16
26	Poland	1,02	37503	14
19	Romania	1,27	35414	10
27	Estonia	0.99	42192	18
29	Lithuania	0,86	42665	9
32	Croatia	0,80	33800	9
35	Latvia	0.71	34469	12
39	Bulgaria	0,63	26705	9
41	Turkey	0,63	30472	4
63	Moldova	-0,04	15637	2

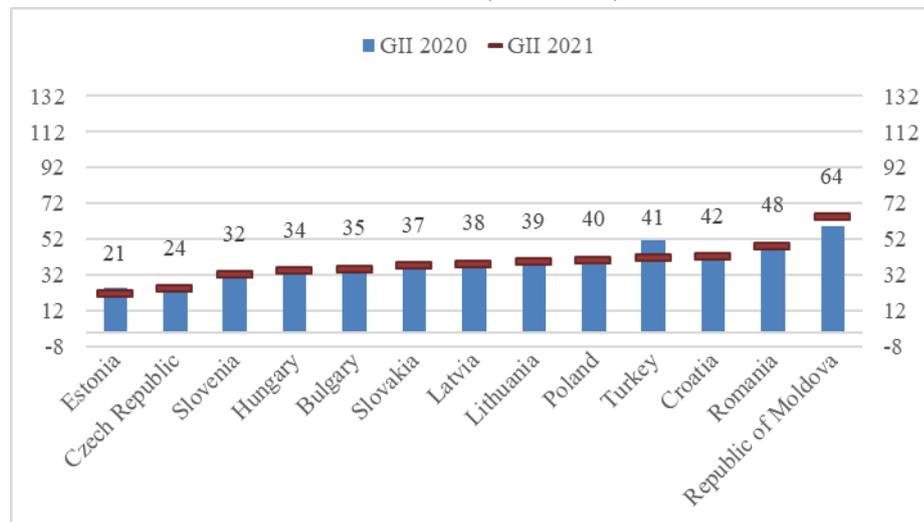
Source: Harvard Growth Lab, Atlas of Economic Complexity, World Bank, WITS

Labor productivity is significant lower comparative to other Central European countries. It increased at a relative higher rate comparative to many benchmark economies, although during 2014-2018 the growth in labor productivity was supported including by a negative trend in number of employed persons. There are some concerns in this regard. First of all, employment rate in Moldova is very low, while NEET rate is very high and a trend of population ageing is recorded. The second refers to the relative slow growth rate of labor productivity if consider the significant big gap between Moldova and Central European countries. Total Factor Productivity growth significantly slowed down during the last decade. The economy structure hinders productivity growth and it is changing at a slow pace, while Moldova has arrears in implementing reforms to develop a functional market economy (Stratan A., Toaca Z, Fala V., 2021). Agriculture and food industry accounts for an important share of total GDP in Moldova. With some exceptions, labor intensive economic activities used to be most attractive to local and foreign entrepreneurs. At the same time access to labor force and its quality became one for the most major constraints of the entrepreneurs in Republic of Moldova (World Bank, 2019; Vinogradova N. et all, 2021). The capital level per employed person, private credit to GDP ratio and FDI inflows per employed person is very low. During the last decade some economic activities that are medium-high knowledge and technology intensive like TIC services and automotive industry have developed. At the same time, even in these sectors the sales level per employed person is low comparative to the average on economy. There is little progress to shift

the resources from low to high productive sectors, and to stimulate entrepreneurship and firms’ innovation activity (World Bank, 2019).



**Figure 2. Labor productivity, PPP constant international USD**  
 Source: Author’s calculations based on NBS, UNCTAD, World Bank and Eurostat data



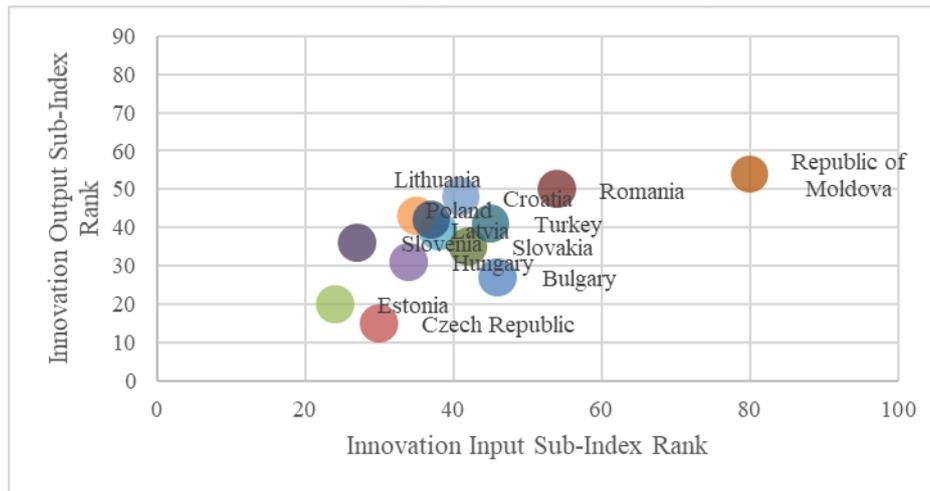
**Figure 3. Change in GII rank of Moldova and Central European countries, 2020-2021**

Source: Author’s calculations based on NBS, UNCTAD, World Bank and Eurostat data

There is no doubt that innovations are very important for productivity growth, economic and social development of a country. It is imperative for enterprises to be innovative to succeed in in the global market that where competition is stiff. The challenges faced by the world, regional and national economy in the last 2 decades – the 2008 crisis, the crisis caused by the Covid-19 pandemic, the war between Russia and Ukraine highlighted the importance of innovations in view to overcome different challenges related to supply of row materials and production factors, export of goods, and threats to economic security of countries. With a score of 32.3 out of 100, which is

half of the score of the country with the best performance in the field (Switzerland), the Republic of Moldova ranks 64th out of 132 countries evaluated in the ranking of the Global Innovation Index 2021. Compared to 2020 year, Moldova went back in the ranking 5 positions.

Although Moldova is evaluated with a higher GII score comparative to its development level, there are some important aspects to be considered. As previous analyzed indicators, Moldova stand far behind other Central European countries as concerns investments and policies made to stimulate innovations and, accordingly the innovations outputs.



**Figure 4. Innovation Input Sub-Index versus Innovation Output Sub-Index for Moldova and Central European countries**

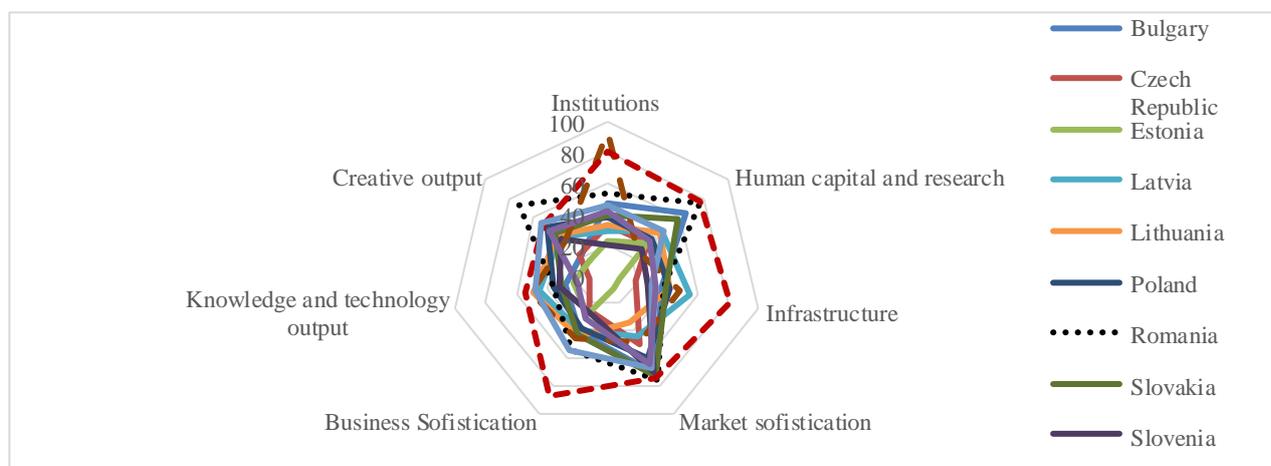
Source: WIPO (2021). Global Innovation Index 2021. Tracking Innovation through the Covid-19 Crisis

With some exceptions Moldova ranks behind the benchmark countries for almost all 5 pylons of the Innovation Input Sub-Index that are intended to stimulate innovations (figure 5). Although the gap is especially large in areas like: quality of institutions, business sophistication and infrastructure. Some of the weakest points that give to Moldova a low score across these three pillars in the ratings are political stability and the state of low. Although the lowest score and the biggest gap is recorded for the Business sophistication pillar because of weak business linkages and state of cluster, as well as firm expenditures in the R&D activities as a share of GDP. As mentioned above only a small share of enterprises are making innovations and one third of them are performing only organizational and marketing innovations. Thus there are necessary more state incentives to strengthen entrepreneurship, to support innovative ideas to turn into successful business including process and product innovations. They are mandatory to overcome many supply and distribution challenges linked to very small market and many constrains raised by the Covid-19 world economic crisis and the Russia-Ukraine war.

Infrastructure is another pillar of Innovation Input Sub-Index very low ranked comparative to all benchmark countries. According to many survey (World Bank, 2019; Stratan A., Vinogradova N., Novac A., Maier L., Ianiogo A., 2021) infrastructure is less challenging for enterprises comparative to other major obstacles like quality of institutions, quality of labor force, informality and corruption, tax rates, access to finances. Moldova is a land lock country that rely significantly on road infrastructure, that is perceived as the worst among other components of

infrastructure and that is deteriorating over time (Stratan A., Vinogradova N., Novac A., Maier L., Ianiogo A., 2021). International ratings put Moldova among the countries with the poorest logistic quality and GDP per unit of energy. On the other side Moldova has made significant progress and has some regional strengths in terms of information and communications infrastructure. Although additional efforts are needed to be strengthen ICT access and use. Moldova has a high score and an advanced position in the ranking in terms of the ease of doing business, but the constraints mentioned above, among others, discourage both the creation of enterprises and the sustainability of the businesses created, their level of sophistication

Another very important innovation input pillar is Human Capital and Research. Research and development expenditures as a share of GDP and number of researcher per million inhabitants are two targets of the ninth Sustainable Development Goal “Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation”. Although the amount of expenditures in R&D in Moldova represented 0.23% of GDP in 2021 that is very small comparative to 1.99% in Czech Republic, 2.15% in Slovenia, 1.79% in Estonia, 1.61% in Hungary, 1.39% in Poland, 1.16% in Lithuania, 0.71% in Latvia according to the World Bank data for the 2020 year. In 2020, 89% of expenditures for R&D have been made in the public sector, the share decreasing to 81% in 2021. Despite the low level of researchers per 1 million inhabitants, the number of researchers is decreasing in Moldova, while the sector is facing a lot of challenges that makes an appeal for improving the public policy in this area.

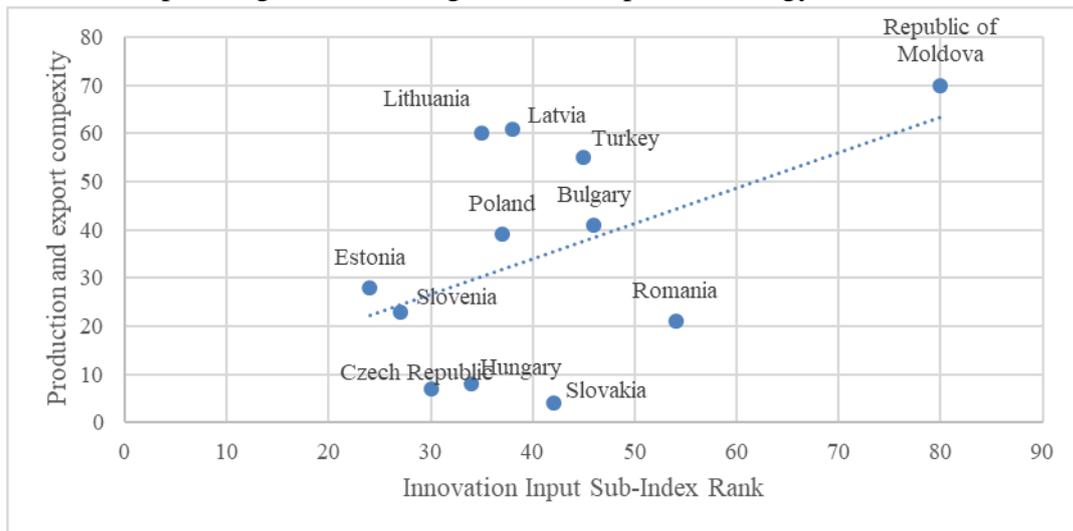


**Figure 5. Moldova and Central European countries across the 5 pylons of the Innovation Input sub-index and 2 pylons of Innovation Output sub-index.**

Source: WIPO (2021). Global Innovation Index 2021. Tracking Innovation through the Covid-19 Crisis

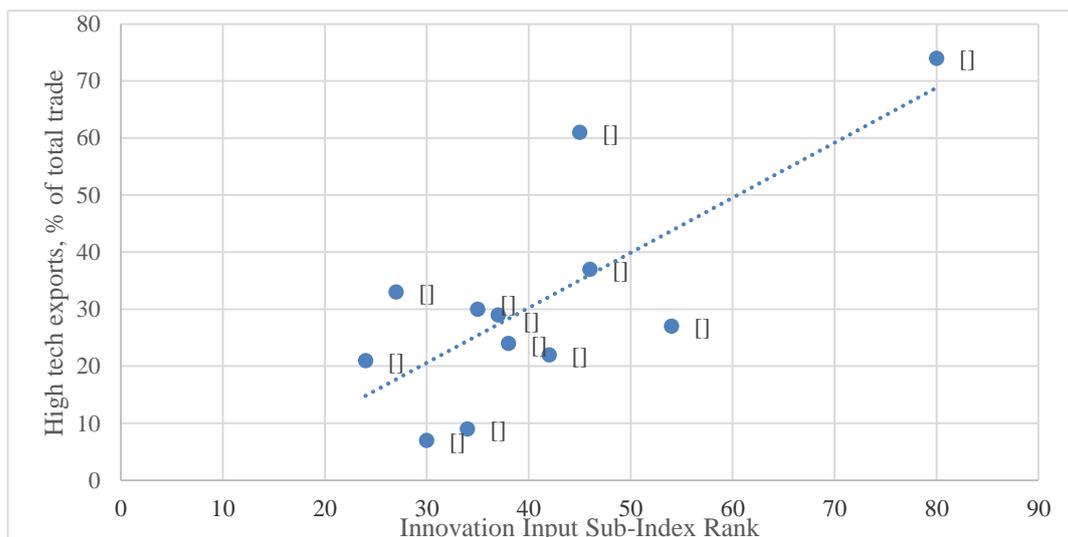
The low level of Moldova's rank in the Innovation Input Sub-Index correlates with a low position of the country in the ranking in terms of productivity growth, the complexity of production and exports, which in turn explains the low share of technology-intensive exports in the total value of foreign trade of Moldova. Therefore, the Republic of Moldova ranks 74th in the GII 2021 in terms of the share of exports of technology-intensive products in total trade, recording an extremely large gap compared to the countries of Central Europe. The country ranks better in terms of knowledge creation (34 out of 132 countries worldwide) compared to knowledge dissemination (51 out of 132) and knowledge impact (104 out of 132) the last being measured by the mean of 5 indicators – productivity growth, new business density per 1000 people of age

15-64, software spending ratio to GDP, ISO 9001 quality certificates per billion PPP\$ GDP and high-tech manufacturing, %. Moldova is lagging behind the most Central European countries especially as concert the density of new business ISO 9001 quality certificates and manufacturing production. That confirm the previous results that supports the necessity to create a favorable business environment favorable for business creation and development by implementing more product and process innovations, becoming more complex and productive. This way will be developed premises for an increase in international competitiveness and achievement of innovation and export targets within long term development strategy.



**Figure 6. Production and export complexity versus innovation inputs**

Source: Elaborated by authors based on WIPO (2021). Global Innovation Index 2021. Tracking Innovation through the **Covid-19 Crisis**



**Figure 7. High-technology exports versus Innovation input sub-index rank**

Source: Elaborated by authors based on WIPO (2021). Global Innovation Index 2021. Tracking Innovation through the **Covid-19 Crisis**

**Conclusions:**

- Republic of Moldova is hardly competing on international market to increase its share in world export. Although during the last two decades there have been made little progress to

increase the share of world market for merchandise exports from Moldova that is significant smaller comparative to other economies from Central Europe with similar population size and territory;

- The low International competitiveness is explained by a reduced complexity of the economy, that ranks Moldova the 70<sup>th</sup> out of 132 countries as concerns high tech manufacturing and production and export complexity in GII 2021. The share of high technological intensive products in total merchandise exports account for about 2% comparative to 18% in Estonia, 12% in Latvia, 10% in Romania, 9% in Lithuania. Thus Moldova lag behind Central European countries on increasing production and exports complexity, international competitiveness and income per capita;

- Labor productivity is increasing faster comparative to the benchmark economies during 2019-2021, except Romania, but the gap between the labor productivity level is significant just as in the case of previous mentioned indicators. The intensity of capital is low, while TFP is slowing since the 2008-2009 world crisis;

- The above mentioned results makes Moldova in an unfavorable position in the GII 2021 ranking comparative to Central European countries as concerns the knowledge impact and dissemination;

- Business sophistication, institutions quality and available infrastructure are three pylons that determines innovation inputs were Moldova is recording the biggest gap comparative to benchmark countries in the rank;

- Some insights for public policy to foster innovation activity in Moldova are:
  - ✓ increasing institutions quality and diminish costs of doing business;
  - ✓ improving key infrastructures: logistic services, energy production, access and use of internet, energy sustainability etc.;
  - ✓ developing innovation linkages through increasing university-industry collaboration, business investments in R&D activities or increasing business demand in R&D services, developing clusters etc;
  - ✓ increasing investments in R&D sector in the public sector. The empirical results for EU countries shows that increasing public expenditures in R&D activity will have a long term impact on exports technological intensity, making them more intensive in high technology, while investments in R&D in the private sector will produce effects in short-run.
  - ✓ diversifying and facilitating access of business to external financing sources, developing the risk capital;
  - ✓ human capital development by increasing school life expectancy, tertiary enrollment.

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## **SESSION I**

# **INNOVATIVE APPROACHES AND NEW TRENDS IN THE FIELDS OF “BUSINESS AND ADMINISTRATION”**

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## RESEARCH ON THE DEVELOPMENT OF RECIPES FOR NOODLES FROM NON BREADABLE CHICKPEA FLOUR FOR PEOPLE WITH GLUTEN INTOLERANCE

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**Abstract:** *In the Republic of Moldova, currently, there is an increasing trend in the number of people suffering from celiac disease (CD), one of the most common chronic digestive ailments. The existence of people affected by this disease implies the presence of gluten-free products on the market. Bread, cereals, and floury pasta that are produced from wheat flour are prohibited in this diet they must be replaced with products made from non bread flours, obtained from cereals whose proteins do not generate gluten. The purpose of the work: the development of recipes for noodles from non bread chickpea flour for people with gluten intolerance. The research object - the technology of obtaining noodles from non bread chickpea flour and noodles from non bread chickpea flour with various additions, such as: flax seed flour; tomato paste; chopped spinach and addition of chopped beets. The research methods are: sensory, laboratory, technological and counting. Calculations are made regarding the energy value and the nutritional value index of the varieties of noodles made from non bread chickpea flour with various additions, as well as the cost price of these noodles. As a result of the scientific research carried out, it was proven that chickpea flour can be used in the technology of manufacturing gluten-free noodles. For implementation in production, the most suitable sort of noodles is the one made from chickpea flour without additives, which has superior physico-chemical, technological and organoleptic properties. We believe that the possibility of using chickpea flour for the manufacture of noodles can be very convenient for producers, for public alimentation units, thanks to the existence of the rich source of raw material, but also for consumers, because the flour obtained from chickpeas has an increased biological value.*

**Key words:** celiac disease, gluten-free products, noodles, chickpea flour

**JEL Classification:** L66, L81, M31, O32

## **Introduction**

In Republic of Moldova, as in other countries of the world, the number of people suffering from celiac disease, one of the most common chronic digestive disorders, is increasing. Epidemiological studies show that 15% of the world population suffers from celiac disease, with the number of cases being higher in Europe and lower in the USA and Asia.

According to the statistics of the Romanian Association for Gluten Intolerance, the number of people who follow a gluten-free diet on the advice of their doctor is estimated at 1 million in Romania [1]. In the Republic of Moldova, the first patients with celiac disease were diagnosed in 1998. Since then, more than 300 children with this disease and 37 patients with celiac disease with some degree of disability have been registered [7]. Some experts [3] believe that the real number of celiac disease patients in our country is unknown, because the diagnosis is difficult due to the wide range of symptoms and the only treatment is a strict diet avoiding the consumption of gluten-containing products.

Gluten sensitivity is a disorder in which the body cannot tolerate gluten, a protein found in grains such as wheat, barley, and rye. Experts believe that this is not life-threatening, although it can cause discomfort and affect daily life.

For the first time in the Republic of Moldova, a unique registry for celiac disease patients has been created to ensure centralized registration of patients with this disease [7]. People in our country diagnosed with celiac disease face problems such as a limited range of local gluten-free foods sold in stores, but also the lack of public food facilities where gluten-free dishes can be consumed. Thus, each patient is often forced to buy imported gluten-free products, which are expensive compared to the income of the population, and prepare their own food.

This article analyzes the range of gluten-free products from the Republic of Moldova and presents new technologies for the production of noodles from gluten-free chickpea flour, whose sensory, physicochemical and technological characteristics are acceptable and accessible to all social groups of people with gluten intolerance.

## **Research methods used**

Carrying out the research in question, the following methods were used: observational, experimental, organoleptic (scoring) and calculation.

So, for the analysis of information on the range of gluten-free products sold in grocery stores on the territory of Moldova, the observational method was used. Information was collected on the types of gluten-free products by manufacturer categories. The research was conducted in the period from March 2021 to September 2022.

The experimental method was used to develop new technologies for the production of noodles from gluten-free flour with various additives.

For the analysis of organoleptic indicators (appearance, color, consistency, taste, smell) of the noodles assortments produced in the laboratory, a rating scale from 0 - 5 points was applied; and the technological characteristics, such as cooking time, increase in the volume of pasta, were determined by experimental laboratory methods.

The energy value and nutritional indicators were determined by the calculation method.

## **Results and discussions**

In the Republic of Moldova, there is no organized environment for celiac patients, there are no grocery stores that would have gluten-free dishes on the menu, and the menus in schools and kindergartens do not include gluten-free dishes, so each patient is forced to prepare their own food or order imported products online, the quality of which they cannot be sure, but which cost less than the imported products sold in stores in the country. There are few local manufacturers in the field of milling and baking, such as BioEM SRL, whose main product is sorrel. The company offers sorrel flour and hemp seeds, both gluten-free; Art-ProEco SRL, brand "Ronți" - cereal flakes, including gluten-free flakes. According to the sources [5, 6], the list of manufacturers from Moldova and stores offering gluten-free products is as follows:

- Artisanal bakery [Natka Minunatka](#) - gluten-free bread;
- The Kaufland and Nr. 1 the BIO shelf German gluten-free bread, biscuits and other dishes from this category
- [Pure tastes - desserts without gluten and sugar](#) bread and buckwheat
- George Standart - an online store with bakery products, including gluten-free;
- [Gluten-free sorghum products](#). [6].

Although in recent years some producers of gluten-free products have appeared on the local market. Their assortment is very limited, especially some types of flour, bread and cookies, and there are no gluten-free pasta, they are only imported.

Moldova is a country where the cultivation of wheat and the production of bread is a traditional custom. The traditional flour pasta is homemade noodles used in various traditional dishes such as "zeama", "baba alba", noodles with cheese, noodle pudding, etc. These noodle dishes are traditionally made only from wheat flour, which limits the consumption of these traditional dishes for people with gluten intolerance.

Analyzing the offer of noodles sold in grocery stores on the territory of Moldova, we note that about 7 types of gluten-free pasta made of white and brown rice, buckwheat, corn, hemp, sorghum and millet are offered for sale, imported from Ukraine by the manufacturer Ms. Tailly. The Kaufland store produces 3 types of corn pasta with the addition of 2% chickpea flour (spaghetti, penne, fusilli) under the K-free brand. From the Italian manufacturer "Di Nunzio" you can find three types of gluten-free pasta - beans, lentils and green peas.

Based on the above, we set out to develop new recipes and technologies for gluten-free noodles made from non-baking chickpea flour with various additives. It is well known that the dough made from non-bakeable flour is very difficult to stretch. To prevent sticking and deformation, a large amount of flour is needed during stretching. To reduce the preparation time and consumption of flour for stretching and cutting, KINGH off 3113 pasta machine was used. Chickpea flour from the manufacturer Ms. Tailly from Ukraine was used for the investigation.

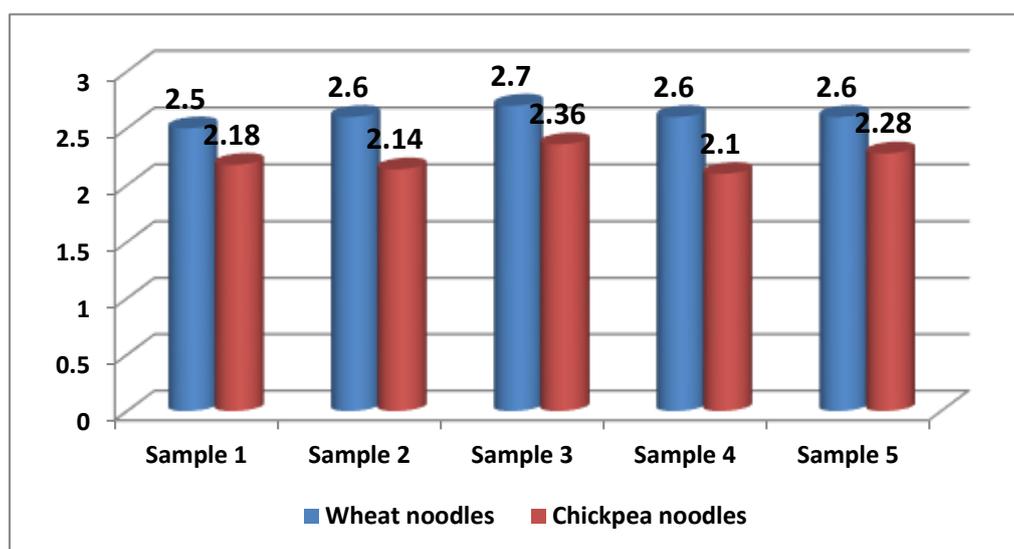
Before the study, tests were conducted in order to determine the optimal ratio between the raw materials used, and the recipe for 100 g of dough was developed, which is shown in the table below (nr. 1).

**Table 1 Sample recipe for 100 g of chickpea flour dough**

No. Sample	Name	Flour (%)	Eggs (%)	Salt (%)	Addition (%)
1	chickpea flour noodles	61	35	4	-
2	- with the addition of flour from flax seeds	51	35	4	10
3	- with the addition of tomato paste	61	25	4	10
4	- with the addition of chopped spinach	61	25	4	10
5	- with the addition of chopped beets	61	25	4	10

**Source:** elaborated by the authors

Compared to noodles made with wheat flour, fewer eggs and more flour are used. During the stretching of the dough, no sample showed deformations. The obtained samples were cooked for 7 minutes to obtain noodles with soft consistency, and for noodles with "al dente" consistency, the cooking time was 5 minutes. The increase in volume of noodles made from chickpea flour after cooking compared to noodles made from wheat flour is shown in Figure 1.



**Figure 1. Increase in volume of chickpea and wheat noodles ( n times)**

**Source:** elaborated by the authors

Following the experiment it was found that during cooking, the noodles did not deform, and foam formed on the surface during the first 4 minutes of cooking. This can be explained by the fact that chickpea is a legume that contains an increased amount of protein, which coagulates and forms foam during cooking.

Samples 1, 2 and 4 increased in volume by 2.1 times, sample 3 - by 2.36 times and sample 5 - by 2.28 times after cooking. Noodles made from chickpea flour showed 15% less volume

increase compared to those made from wheat flour. The results of the psycho-sensory analysis are shown in Table 2.

**Table 2 Organoleptic indices of chickpea flour noodles**

Sample No.	Consistency	Appearance	Color	Smell	Taste
1	Soft	Wavy shape, without deformations	Uniform, golden yellow	Specific to flour, without foreign smell	Salty with pronounced taste of chickpeas
2	Soft with a tendency to agglomerate when chewing Clumped	With small brown particles	Brown	Specific to flour, no foreign smell	Moderately salty, slightly pronounced chickpea
3	Soft, sticky	Well - preserved shape	Orange	Specific to flour, weak pronounced tomato	Moderately salty, with a slight taste of tomato
4	Soft, sticky	Well - preserved shape, with small pieces of spinach	Weak - greenish	Flour - specific, slightly pronounced spinach	Moderately salty, with a slight chickpea taste
5	Soft, sticky	Well - preserved shape	Uneven light pink	Specific to flour, faintly pronounced beet	Moderately salty, with slightly pronounced beet taste

**Source:** elaborated by the authors

A scoring scale of 0-5 points was used to evaluate the organoleptic indices. Sensory analysis of the resulting samples was evaluated by 5 people who analyzed the appearance, consistency, color, odor, and taste of the chickpea flour noodles. The data obtained are presented in Table 3.

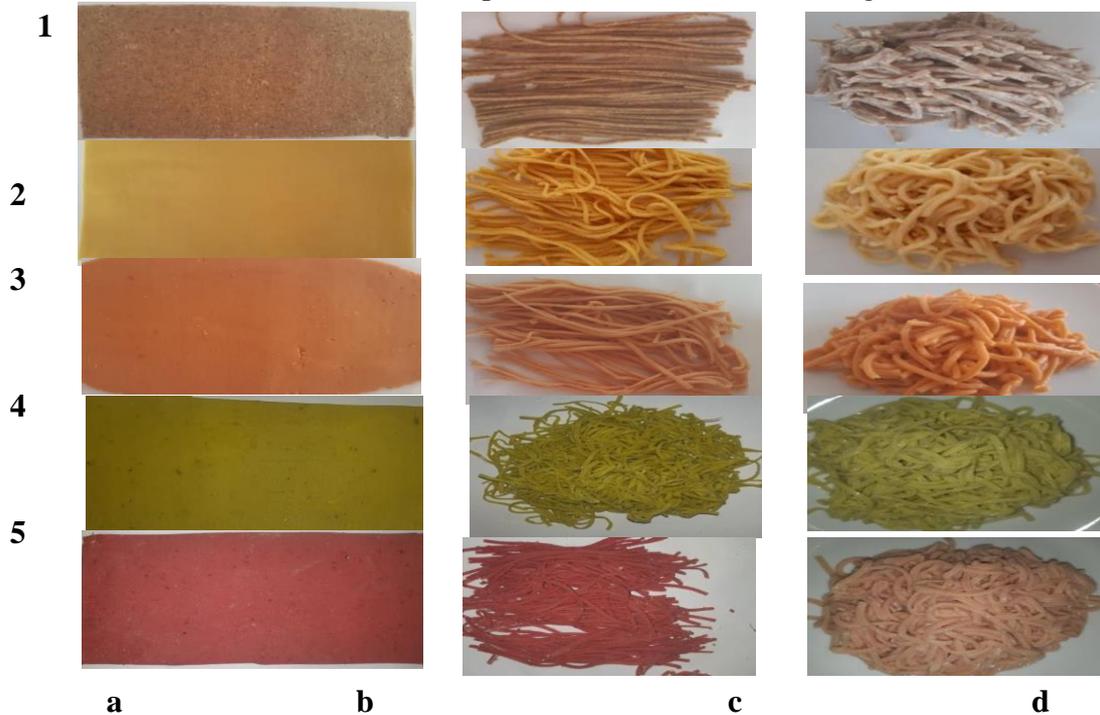
**Table 3 Sensory analysis with scoring scale of chickpea flour samples**

No. Sample	Average number of points awarded					Total score
	Appearance and shape	Consistency	Color	Smell	Taste	
1	5	5	5	5	5	5
2	2	1	1	2	2	1.6
3	3.4	3	4	4	3.4	3.56
4	4	4	3.4	4	4	3.88
5	3.4	3	1	3	3.4	2.76

**Source:** elaborated by the authors

According to the sensory analysis, samples 2, 3, 4 and 5 were evaluated negatively because they had an inappropriate appearance and color after cooking and all these products were not suitable for consumption. Sample 1 (noodles made from chickpea flour without additives) obtained the maximum score and can be accepted for consumption.

Pictures of noodles made from chickpea flour can be seen in the figure 2, below.

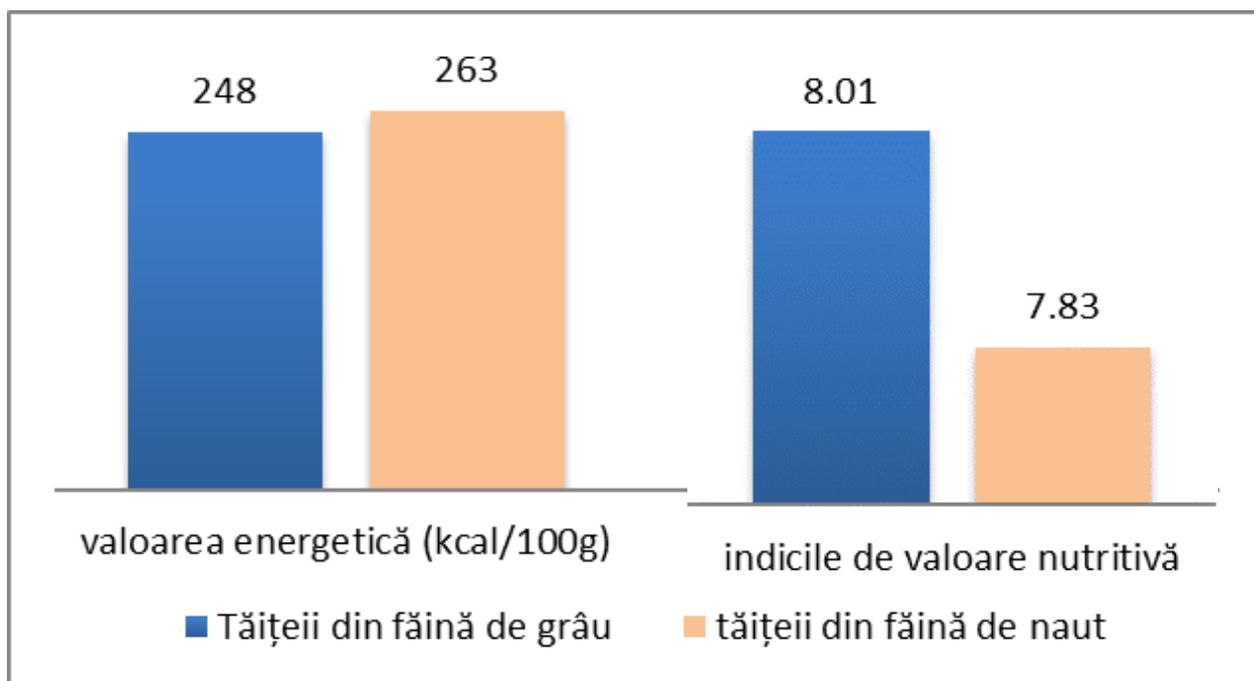


**Figure 2. Images of chickpea flour noodles before and after boiling**

**a**-sample number; **b**- stretched dough; **c**- noodles before boiling; **d**-the noodles after boiling.

**Source:** elaborated by the authors

The noodles with the addition of spinach showed a weak color and a tendency to agglomerate when chewed, and the noodles with the addition of beets lost their color after cooking and showed white spots on the surface. The noodles with the addition of tomato paste exhibited a sticky texture and an inappropriate taste after cooking. The energy and nutritional value of the chickpea flour noodles is shown in Figure 3.



**Figure 3. Energy and nutritional value of chickpea and wheat noodles**

Source: elaborated by the authors

### Conclusions

1. The market of gluten-free products on the territory of Moldova is mainly characterized by imported products (from Ukraine, Poland, Italy and Romania) with an assortment of gluten-free pasta (from hemp, rice, chickpeas, peas, beans, rye, corn, buckwheat, lentils, pumpkin seeds) and with an assortment of about 20 types of gluten-free flours.

2. The technological process for the production of gluten-free noodles is not described in any regulated recipe book. For this reason, the technological process for the production of noodles from gluten-free flours was developed on the basis of the classic noodles recipe, or the determination of quality indices was carried out on the basis of the methods provided for noodles from wheat flour.

3. Sample 1 *without additive* (noodles made from chickpea flour) is recommended for consumption and preparation, which has the following characteristics compared to noodles made from wheat flour:

- a 13% shorter cooking time (7 minutes);
- a 15% smaller volume after cooking;
- a 6% higher energy value (263 kcal/100 g);
- and the nutritional index is 2% lower (VN10=7.83).

The additions of spinach, flaxseed meal, tomato paste and beet are not suitable for this type of flour, as they do not meet the psycho-sensory quality characteristics after cooking, such as uneven color, unpleasant taste, sticky consistency and have a tendency to agglomerate when chewed.

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**CZU:** [330.341.424:004]:334.72(478)

## **IMPORTANCE OF SOCIAL ASPECTS OF INDUSTRIALIZATION 4.0 FOR SMEs OF THE REPUBLIC OF MOLDOVA**

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***Abstract:** Talk about the Fourth Industrial Revolution is mainly related to the processes of digitalization and the penetration of artificial intelligence into our lives. Business, of course, is also undergoing significant changes under the influence of such cardinal processes. In this context, the social aspects of change are very important, so the management of organizational change should be focused on such extremely important elements as: ethics, social responsibility, values and principles of companies of the future.*

*Without such an important understanding of the transformational processes in society, social inequality can form, the concentration of power and monopolization by only a few large companies, aggravation of problems associated with the failure to implement the goals of the Sustainable Development Concept. The ideologists of the concept of the 4th industrial revolution pay great attention to "soft factors, which, along with technical aspects, lead to a completely different model of the functioning of society.*

*The object of study in the work are the SMEs of the Republic of Moldova, which are the most vulnerable in these challenges. Having insufficient resources and staff qualifications, it is more difficult for them to adapt to such changes, therefore, the purpose of the study is to develop guidelines for the development of enterprises of this type in a complex, uncertain environment of existence.*

**Keywords:** SME, Industrialization 4.0, Change Management, Business-Model, Model of Change, digitalization

**JEL Classification:** M14, M19

### **1 INTRODUCTION**

The essence of the concept of Industrialization 4.0 is difficult to present unambiguously, given the variety of concepts and the views of the authors on this process. First of all, it implies the development and implementation of advanced technologies that are the basis of transformations. Secondly, it means changing the entire economy and the processes of relationships between the main actors, building ecosystems with completely different models. Thirdly, by no means the last, and perhaps the paramount importance is the social changes that are the result of such transformations.

As with any transformation process, there are positive and negative consequences. Depending on the chosen approach, they will be reflected to a greater or lesser extent on human life in general and in particular, in the activities of enterprises, new requirements for employees, the emergence of new professions, etc. Thus, one of the significant research problems is social inequality, which arises from the emerging new conditions of existence, due to the possibility or lack of use of the latest technologies, knowledge and communication systems, which are both advantages and limitations depending on the conditions.

This problem is more typical for certain categories of countries, and also, given the in-country specifics, for some categories of enterprises. In particular, small and medium-sized enterprises are more susceptible to it, given their functioning features: limited financial resources, personnel, in-house knowledge, increased competition from large companies, etc.

Therefore, the *object of research* in this context is SMEs, as enterprises, in a sense, wounded, with specific problems, as well as specific possible solutions. At the same time, let us clarify that this work is part of a larger study funded from the state budget of the Republic of Moldova and dedicated to the creation of an organizational change management model for SMEs from the Republic of Moldova. Thus, an integral part of this model is the part associated with social transformations and the social consequences of these changes, both for the enterprises under study, and for society and the Republic of Moldova as a whole.

## **2 THEORETICAL AND PRACTICAL ASPECTS OF SOCIAL TRANSFORMATIONS IN THE MODERN WORLD**

### **2.1 Review of theoretical research in the field of the Fourth Industrial Revolution and possible consequences for society**

Considering the complexity of all the ongoing and upcoming changes, almost all researchers characterizing the provocations of the Fourth Industrial Revolution, or Industrialization 4.0, focus on ways to possibly overcome the crisis associated with social changes.

According to the author of the concept of Industrialization 4.0, Klaus Schwab, "this is a collective term that refers to a whole set of ongoing and upcoming transformations in the familiar systems around us" (Schwab, 2019)

Schwab also clarifies the main tasks facing humanity in the near future.

- This is, firstly, a fair distribution of the benefits of the Fourth Industrial Revolution. He talks about the uneven distribution of advantages in previous industrial revolutions. Therefore, realizing possible problems, it is necessary to think about them today.
- The second task is related to the need to control the negative consequences and risks associated with transformational changes. Including, the protection of vulnerable groups of the population, the environment and the conscious use of new opportunities.
- The third direction should be connected with respect for universal human values. So, all processes should unfold under the control of a person and in the interests of a person. In any change, financial motives must be secondary and give way to humanity.

Considering the subject of this study, it is of interest to consider the problem of social change through the prism of managerial thinking. In this direction, Schwab makes the following recommendations:

- it is fundamentally important to focus on systems that ensure the well-being of people, and not the productivity of technologies;
- new technologies should provide people with more opportunities, choices, and prospects. Don't turn technology against human capabilities;
- applying systemic and humanistic thinking, it is necessary to focus on new configurations that control the world;

- values need to be built into all stages of the innovation process. Then, when values are thought about only after innovations become destructive, it is already too late to change something.

Another specialist in the field of transformational change, T. Siebel, emphasizes the importance of developing flexible training programs for staff. The scientist predicts that in five years about 35% of professional skills will change. To do this, already today, in educational institutions it is necessary to develop a balanced approach between soft skills and hard skills, contrary to the established approach, focus on hard skills. (Siebel, 2019)

Another management guru, Tom Peters, goes to great lengths to explain the phrase “People matter most” as he explains that combining human potential with artificial intelligence should bring additional competitive advantage to a company, not deprive a person of a job. (Peters, 2020)

Andrew McAfee and Eric Brynjolfsson also highlight the importance of sharing the human mind with machine algorithms. Speaking about the significant advantages of the computing power of machines, the authors still believe that the advantages of a person are associated with many factors, in particular: systems thinking, which considers all factors at once in the decision-making process, unforeseen circumstances that are not initially programmed by a computer program, common sense, which the person has. (McAfee & Brynjolfsson, 2019)

The idea of rational use of the advantages of new platforms and information technologies is supported by Tim O’Reilly, who argues that the policy that determined 40 years ago the division of society into rich and poor should not continue into the future. And so, technology must reorient the world to a new stage of development. (O’Reilly, 2017)

With these statements, it is possible to argue the importance of the human and social component in the process of change, as well as later, in the functioning of the transformed enterprises.

## **2.2 Cross-country development patterns: exacerbating the divide between rich and poor**

So, one of the social problems, according to many researchers (Schwab, Siebel, O’Reilly etc.) is the digital divide. Inequality tends to accelerate as the transformational processes accelerate. Given that a certain level of technical skills and the availability of high-speed networks are a prerequisite for Industrialization 4.0, the advantage remains on the side of those countries and populations whose level of education and income will ensure rapid adaptation to new conditions.

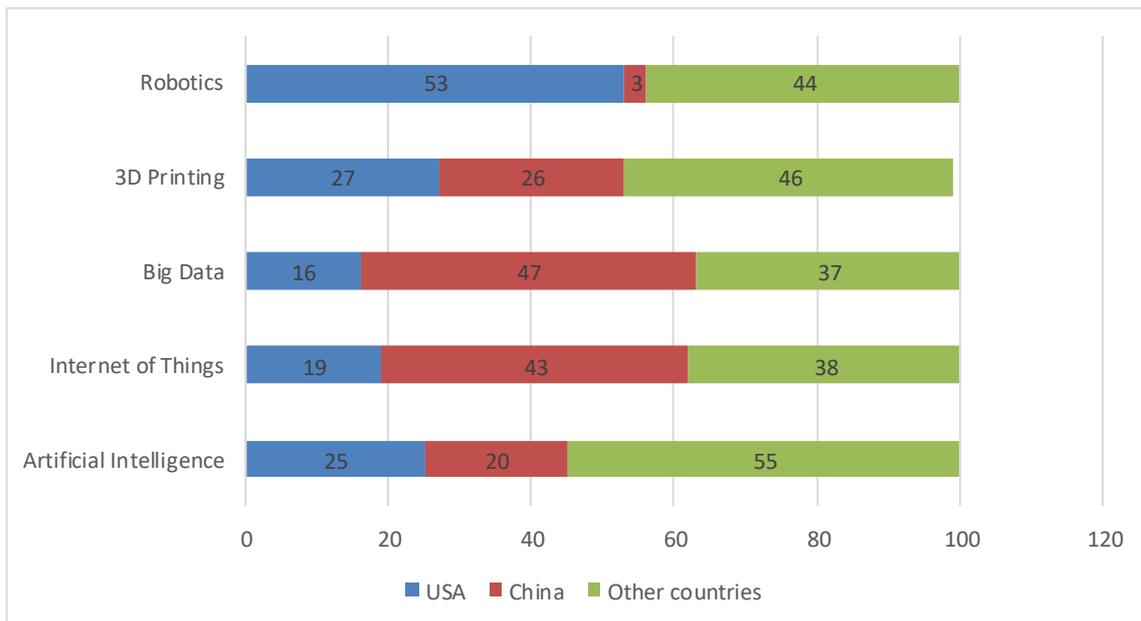
Realizing the danger of the current situation, in May 2021, the UN Commission on Science and Technology - initiated the theme of the session "Industry 4.0 for inclusive development". Along with the prospects and benefits that future technologies bring, the issues of uneven distribution of transformation processes and the need to develop new policies in developing countries in order to take advantage of Industry 4.0 while minimizing possible negative consequences were raised. At the same time, noting that the international community has an important role to play in creating the necessary conditions. Issues such as: the direction of government programs related to the opportunities of Industrialization 4.0 and enhanced opportunities for each member of society, the relationship between countries and the possibility of cooperation in the direction of combating inequality, and others were explored.

Already today there is a large difference in the standard of living of countries, with the average per capita income gap between developed and developing countries being more than \$40,000 (UNCTAD, 2021a).

Comparing global indicators regarding the development of processes associated with the Fourth Industrial Revolution, we note that in this context, the leadership belongs to a relatively small number of countries. The first positions in many indicators belong to the United States and China.

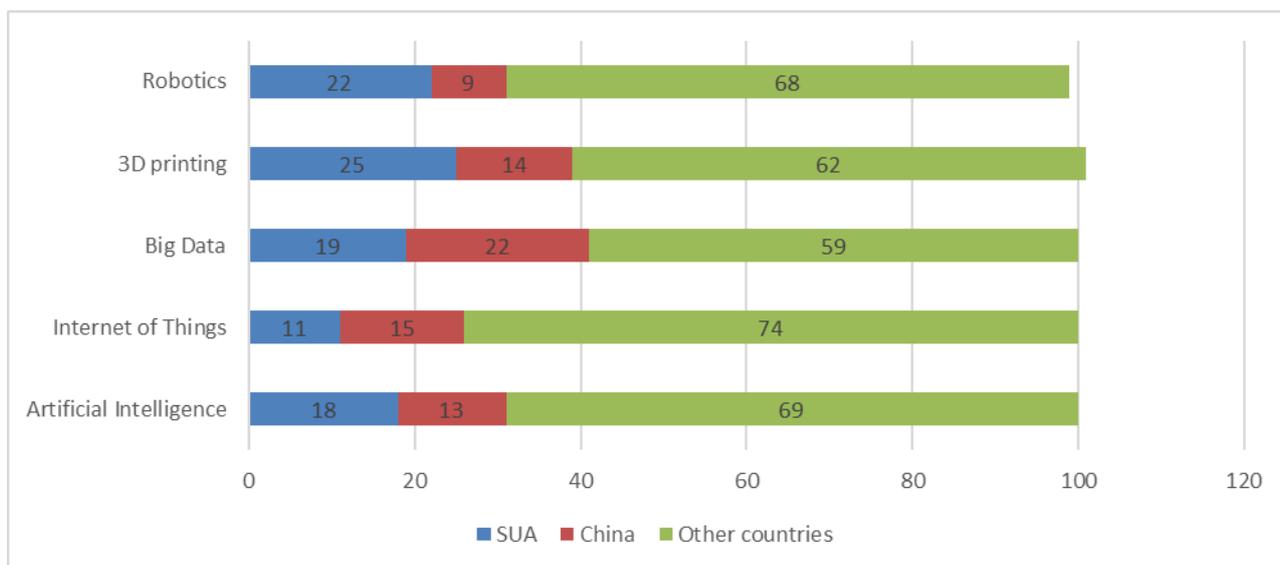
The Economic and Social Council of the United Nations cites the following figures that testify to the leadership of these countries (figures 1 and 2 clearly demonstrate these indicators):

- *dominance by the number of publications and patents:*
  - ✓ about 26-41% of the global number of publications;
  - ✓ 45-63% of the global number of patents;
- *leadership in investment and potential in the field of Industry 4.0 technologies:*
  - ✓ countries of origin of the largest digital platforms;
  - ✓ 90% market capitalization,
  - ✓ half of the world's hyperscale data centers,
  - ✓ the highest rates of implementation of fifth generation networks (more than 45%),
  - ✓ 94% of all AI startup funding over the past five years, employing 70% of the world's top AI scientists.



**Figure 1 Distribution of the number of patents by the main technologies of Industrialization 4.0 among the leading countries for 2021 (in % in the global context)**

Source: UNCTAD, 2021 (<https://unctad.org>)



**Figure 2 Distribution of the number of publications in the field of Industrialization 4.0 technologies by leading countries for 2021 (in % of the world number)**

Source: UNCTAD, 2021 (<https://unctad.org>)

At the same time, as analysts specify, it is not fully determined whether China and the United States will extend their advantages in the field of digital platforms to Industry 4.0 technologies in manufacturing. The most important technology in this regard is the Internet of Things. Western European companies have invested heavily in this technology and, along with China and the US, account for about three-quarters of all IoT spending. That is, leadership here also belongs to a small category of countries.

One of the indicators characterizing the potential for introducing the latest technologies is the level of Internet coverage in the country and the number of users. So, as of January 2022, China ranked first among the countries with the largest number of Internet users in the world. The world's most populous country had 1.02 billion internet users, three times as many as the third-largest United States with about 307 million internet users.

According to a recent report provided by Statista as of April 2022, there were five billion Internet users worldwide. However, there are sharp differences in the distribution of users across regions: East Asia has 1.16 billion Internet users, while Africa and the Middle East have fewer users.

China ranks first on this list of countries with the most internet users. Thanks to constant and rapid economic development, as well as a cultural bent for technology, more than a billion of China's roughly 1.4 billion people are online. Some of the other notable emerging markets are India, which is projected to have 1.134 billion internet users by 2025.

Since 2014, the European Commission has developed the Digital Economy and Society Index (DESI), which summarizes the digital performance indicators of Europe and tracks the progress of the EU countries. In this way, the European Commission monitors the digital progress of the Member States through the Index reports. Each year, DESI reflects digital country profiles that assist Member States in identifying areas requiring priority action. The index is calculated as a weighted average of the five main DESI parameters with weights selected by the user:

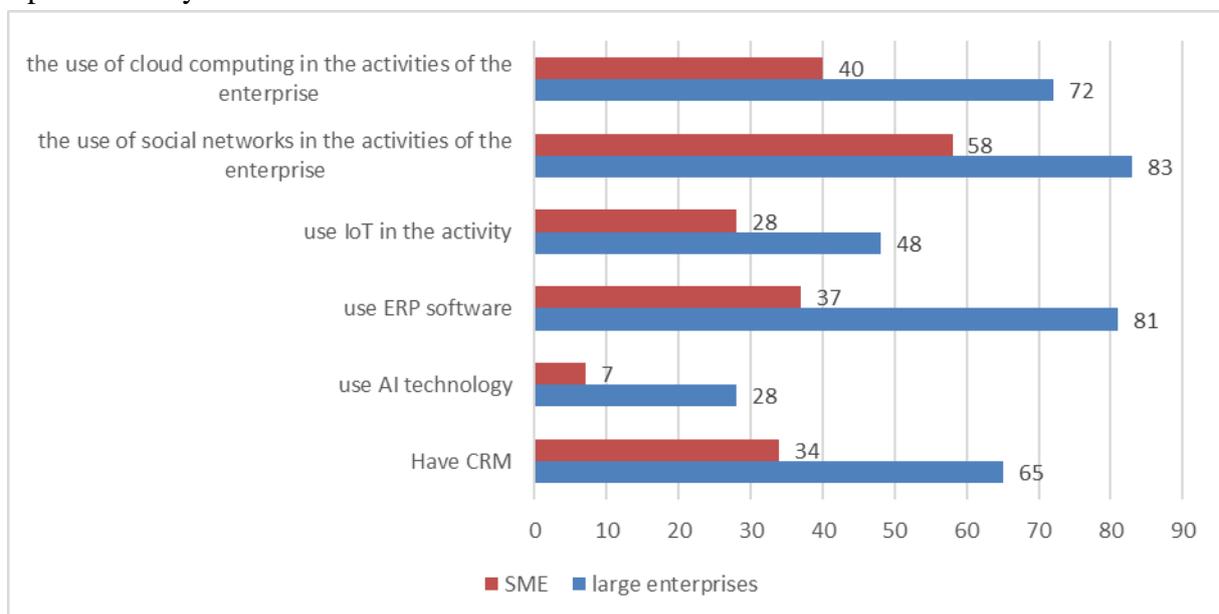
- ✓ Connectivity,

- ✓ Human capital,
- ✓ Integration of digital technology,
- ✓ Digital public services.

As of 2021, EU member states are reducing part of the funds for digitalization processes (about 127 billion euros). At the same time, within the EU, the leading countries in the introduction of advanced technologies and those that occupy the last positions stand out. Thus, the seven countries that directed more than 30% of their funds to digitalization processes are Austria, Germany, Luxembourg, Ireland and Lithuania. Among the countries occupying the lower positions of the ranking are Bulgaria, Greece and Romania.

In the context of the study of intra-country inequality, it should be noted that, according to studies by the European Commission, in 2021 only 55% of SMEs reached the minimum level of digital development in the EU as a whole. At the same time, the most developed EU countries - Sweden and Finland - have the most technically developed SMEs (their number is 86 and 82%, respectively, among the total number of SMEs). However, Romania and Bulgaria represent the lowest rates of SME digitalization. According to the European Program developed for this decade (until 2030), the percentage of SMEs with a basic level of digital intensity should be 90%.

The gap in the adoption of new technologies by large and SMEs is also visible from the data provided by the European Commission. Some parameters of this study are presented in Figure 3 of the present study.



**Figure 3 Differences in the implementation of Industrialization 4.0 technologies in EU countries between large enterprises and SMEs (% of enterprises)**

Source: Eurostat, European Union survey on ICT usage and e-commerce in enterprises

### 3 SPECIFIC ACTIVITIES OF SMEs IN THE REPUBLIC OF MOLDOVA

Considering that SMEs play a huge role in the Moldovan economy, it is extremely important to take into account the specifics of this sector in a period of transformational changes. The key role of SMEs in the Republic of Moldova is evidenced, first of all, by their share in the total number of enterprises, so according to the National Bureau of Statistics, at the end of 2021, the

number of small and medium-sized enterprises amounted to 59.4 thousand enterprises and is about 98.4% of total number of enterprises.

According to the latest surveys presented on the website of the Enterprise Development Organization (ODA – Organizația pentru dezvoltarea antreprenoriatului, formerly ODIMM), 80.7% of households have provided access to the Internet and less than 17% of SMEs have successfully integrated digital technologies into their activities, which represents an untapped potential for SMEs in the Republic of Moldova, and makes it necessary to urgently take the necessary measures for digitization.

Taking this into account, in March 2022, the Decree of the Government of the Republic of Moldova No. 129 of 03/02/2022 On Approving the Digital Transformation Program for Small and Medium Enterprises was issued, published on 03/11/2022 in Monitorul oficial No. 68-71 art. 176, which specifies the Digital Transformation Program and Implementation Plan for SMEs and the responsibility lies with ODIMM (now ODA).

The main guidelines of the program are:

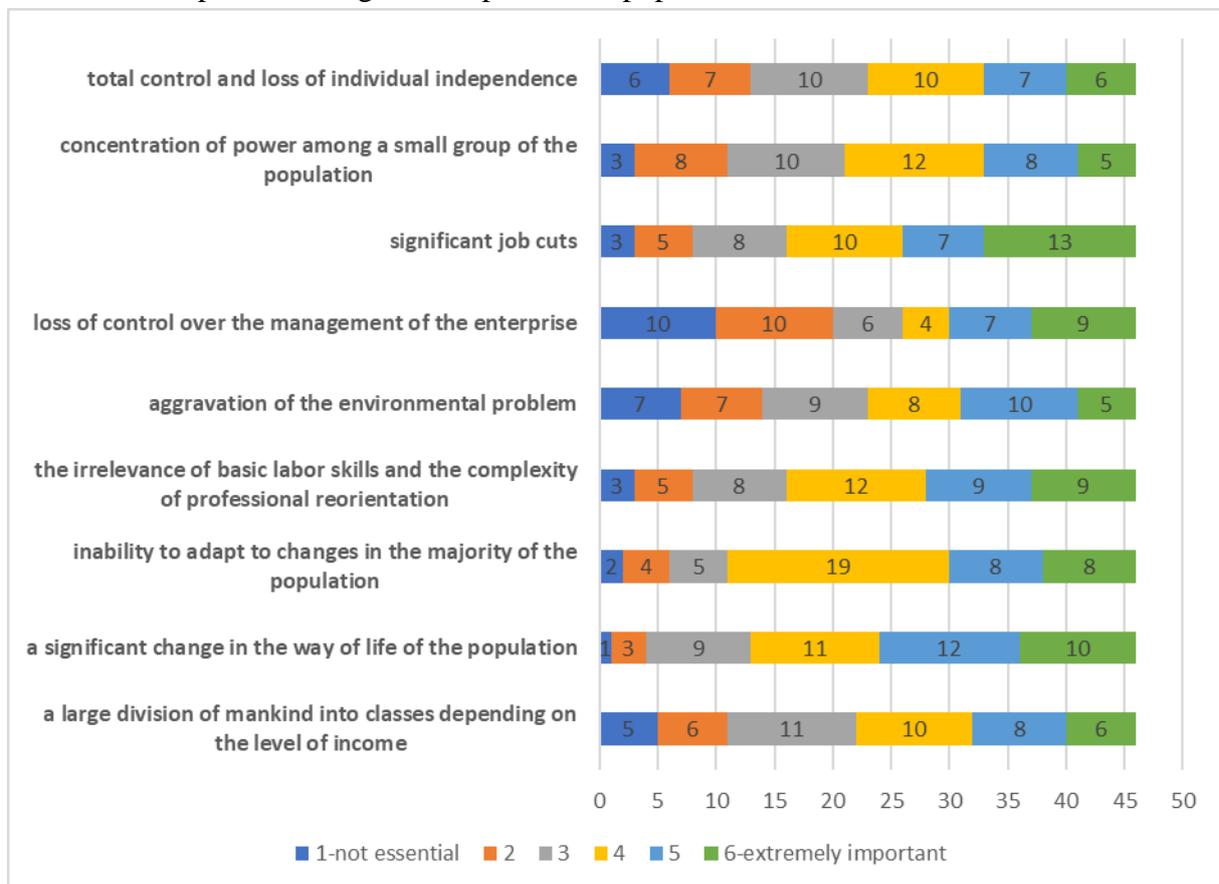
- Developing the skills of entrepreneurs to plan and implement business practices that contribute to digital transformation (at least 40% of beneficiaries);
- Providing financial support for the implementation of digital transformation plans (for at least 150 SMEs);
- Increasing the competitive advantage and client portfolio of SMEs (by at least 20%);
- Development of e-commerce, reduction of physical currency turnover, development of courier services (for at least 20% of beneficiary companies).

In addition, at the end of 2022, a new Digital Transformation Strategy of the Republic of Moldova for 2023-2030 will be adopted. Experts identify the following main problems, identified through consultations with stakeholders, that stand in the way of the planned transformations:

- slow growth of innovative companies,
- lack of venture capital, low level of cooperation between enterprises and universities,
- insufficient technological preparation (number and sophistication of 5G routes, auction plans for 5G spectrum, etc.),
- insufficient adaptation of the regulatory framework to digital business models,
- mismatch of skills;
- shortage of qualified labor force in industry, central government bodies and especially local public administration bodies,
- low level of digital skills and awareness of the population,
- resistance to changes of civil servants,
- lack of financial resources,
- low investment in ICT in agricultural SMEs,
- low involvement of local companies in government-funded projects,
- insufficient motivation of civil servants in the final results;
- insufficient presence of scientific research in the development and monitoring of policies aimed at the development of the information society.

As can be seen from the listed problems associated with the transformation of national enterprises, social issues can be traced in almost every point. The results of the study carried out in the framework of writing this paper also testify to the priority of social issues in the implementation of the processes of change in Moldovan SMEs.

The study was conducted in January-February 2022, in which employees of enterprises participated (46 enterprises in total). So, among the main social problems, respondents identify: a significant reduction in jobs, the inability to adapt to changes in the majority of the population, the discrepancy between basic work skills and current professions, the loss of individual independence as a result of total control associated with the use of the latest technologies, the concentration of power among a small part of the population and other.



**Figure 4 The main social problems of SMEs in the process of changes associated with Industrialization 4.0, identified by respondents in the course of the study**

Source: own work/ based on the results of the study

Thus, Figure 4 clearly shows how employees of companies assess social problems, provocations and risks associated with transformational changes. Estimated values are put down in accordance with the importance of the factor, in ascending order: from 1 - the influence is not significant, to 6 - extremely significant). As can be seen, the understandings of the respondents correspond to the ideas of the classics presented in the theoretical part of the work.

#### 4 CONCLUSION

Taking into account all the above factors and those directions of state and international strategies, as well as the extreme importance of the participation of the SME sector in Moldova in all transformation processes, we can confidently say that the most important part of the strategy, both at the macro and micro levels, is the social orientation.

The significance of the presented theoretical studies, strategic guidelines and problems identified by the respondents show unambiguity in understanding the sounded problem. It should be noted that along with the challenges and dangers, Industrialization 4.0 can bring many benefits to humanity, given the correct path chosen.

Playing a priority role in the economy of the Republic of Moldova, SMEs need to take the path of renewal. The situation, worsened by external factors in recent times, further undermines the competitiveness of this sector. But, at the same time, it should be noted the opportunities associated with greater adaptability, speed in making and disseminating decisions and the development of creativity in such companies.

At the same time, the opportunities associated with government-led programs should enhance the ability of SMEs to overcome obstacles and embark on the path of transformation associated with new technologies. Here, it is necessary to remember that in any enterprise the first priority is the management component (that is, rethinking activities, planning, organizing changes), and then the use of technology.

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## THE FORMATION OF A STARTUP ECOSYSTEM AS A BASIS FOR INCREASING ENTREPRENEURIAL ACTIVITY: THE EXPERIENCE OF UKRAINE

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**Abstract.** *The development of entrepreneurship is the key to the economic growth of a democratic country with a market economy. The role of state and local authorities is to promote and increase entrepreneurial activity. An essential role in the development of entrepreneurship is played by startups as a special form of management, which is mainly aimed at innovative solutions to problems and satisfaction of needs. That is why the question arises in forming a complete and complex ecosystem for the development of entrepreneurship, where a startup ecosystem can be singled out separately.*

*The purpose of this study is to develop a structural and logical model of a startup ecosystem based on the example of Ukraine.*

*As a result of using a set of scientific research methods, a number of results were obtained.*

*Based on the methods of structural and logical generalization, analysis, and synthesis, a theoretical interpretation of the basic categories of startup and startup ecosystem was provided.*

*The study of literary sources on the essence of the startup ecosystem made it possible to establish its hierarchy and equality, which affects its content. Hierarchical demarcation (structuring) of the startup ecosystem of Ukraine was carried out, where 4 levels were distinguished: international (global), national, regional, and local. Features of each level are described.*

*Based on the analysis of the constituent ecosystems, a structural and logical model of the startup ecosystem of Ukraine was developed and a description of its structural elements was carried out.*

*Based on the structuring and comparative analysis of the components of the national startup ecosystem and foreign ones, directions for the further development of the startup ecosystem of Ukraine have been determined.*

*Special attention is paid to the analysis and features of the formation of startup ecosystems at the local level, which includes the university level. The Ukrainian university start-up ecosystem and the stages of its implementation are presented in the example of the start-up ecosystem of the O.M. Beketov Kharkiv National University of Urban Economy, which is based on the theory of SMART specializations. The peculiarities of the activity and development of the start-up ecosystem of Ukraine in the conditions of the war with Russia have been determined.*

**Keywords:** startup, ecosystem, startup ecosystem, SMART specialization, entrepreneurship

**JEL Classification:** J 23, M 13

## **1 Introduction**

The development of entrepreneurship is the key to the economic growth of a democratic country with a market economy. The role of state authorities and local governments is to promote and develop an entrepreneurial activity. This is manifested through the development and use of a complex set of various tools and programs that lead to the formation of a favorable business environment. Startups play an essential role in the development of entrepreneurship as a special form of activity aimed at innovative solutions to problems and meeting needs. Therefore, the question arises of forming a completely integrated ecosystem of entrepreneurship development, where the ecosystem of startups can be singled out separately. The formation of such a complete ecosystem should be created on the basis of end-to-end interaction of subjects at all levels. It is the aforementioned that determines the need to study the issue of modeling the startup ecosystem as a prerequisite for increasing entrepreneurial activity in Ukraine.

## **2 Literature Survey**

Among the prominent issues that were solved in the paper by the authors is the categories recognition of the concepts of "startup" and "startup ecosystem". For this purpose, a set of definitions of both foreign and domestic scientists and startup entrepreneurs' opinions were analyzed in the paper.

Thus, Stacey Caprio [1] believes that «A startup is a company with less than 100 employees that is not yet publicly traded». Steve Blank and Bob Dorf [1] consider startups to be looking for a certain business model that is profitable and can be scaled in the future, while the company itself uses the existing model. Ye. Chazov [3] claims that a startup is a new, recently created company that builds its business on the basis of innovations or innovative technologies, has a limited amount of resources and plans to enter the market. The innovative technologies introduced can be global (that is, this innovation will be the one for the entire world) or local (that is, this technology and idea are borrowed, but will be an innovation in a specific region or country). Han, J.H. and Park, H.Y. [4] understand startups as individual businesses or corporations that have been operating for less than seven years since their inception. Fedorov R. K. [5] believes that a startup is a new type of entrepreneurial activity based on innovative technologies and based on the minimization of capital investments during its initiation.

It is worth noting that the authors did not reach a consensus on the definition of the concept essence. However, it is possible to substantiate the characteristic distinguishing features [6] of a startup, namely:

- innovativeness, new idea is the basis of startup, a way to solve a problem or satisfy a need, a new product, a new business model, something that will distinguish it from all other;
- high risk - since innovation is the basis, risks in all areas are increasing;
- rapid growth – startups are more growth-oriented than traditional businesses;
- scalability – the new business model can be extended to other regions, countries or areas;
- a small number of employees, a team approach to formation.

So, in the paper, the authors understand the startup as the initial stage of entrepreneurship, which is based on solving the problem with innovative methods and tools, the implementation of which involves the formation of economic and social value in conditions of high risk and the creation of a scalable business model.

However, the importance of a startup phenomenon for the economy has been empirically proven regardless of interpretation. On the one hand, they create jobs, and their active growth can significantly increase their number [7]. This ensures employment, including that for the younger generation. On the other hand, not all startups are able to pass the stage of formation and active growth and form a sustainable business on its basis. This, in turn, endangers those potentially created jobs. Yet, the economic effect of a successful startup is significant and manifests itself in various areas: economic development and stability, social relations, prestige and political weight of the region and the whole state. This is evidenced by the formed ecosystem, which includes a fairly large number of startups, starting with micro-enterprises that have grown to international companies.

Thus, let's take a closer look on the startup ecosystem, which Daniel Eisenberg considered as a set of interdependent objects within a certain region [8]. Jackson D. [9] believed that innovation ecosystems unite two important and largely separated economies - the knowledge economy, which develops on the basis of fundamental research, and the commercial economy, that is driven by the market. An innovative ecosystem is formed by a dynamic set of economic agents and institutions engaged in innovative activities, as well as by multidimensional internal connections – Bramwell A., Hepburn N., Wolfe D. A. Fedulova L. I., Marchenko O. S [11] consider a startup ecosystem to be a set of organizational, structural and functional components (institutions) and their relationships involved in the process of creating and applying scientific knowledge and technologies that determine the legal, economic, organizational and social conditions of the innovation process and ensure development of innovative activities both at the level of the enterprise and at the level of the region and the country as a whole according to the principles of self-organization.

The startup ecosystem is formed by people, startups at different stages of the life cycle, and various local organizations (physical or virtual), which interact with each other as a system for creating and scaling new startup companies. These organizations can be categorized as universities, investment companies, support organizations, research organizations, service companies (especially legal) and large corporations [12].

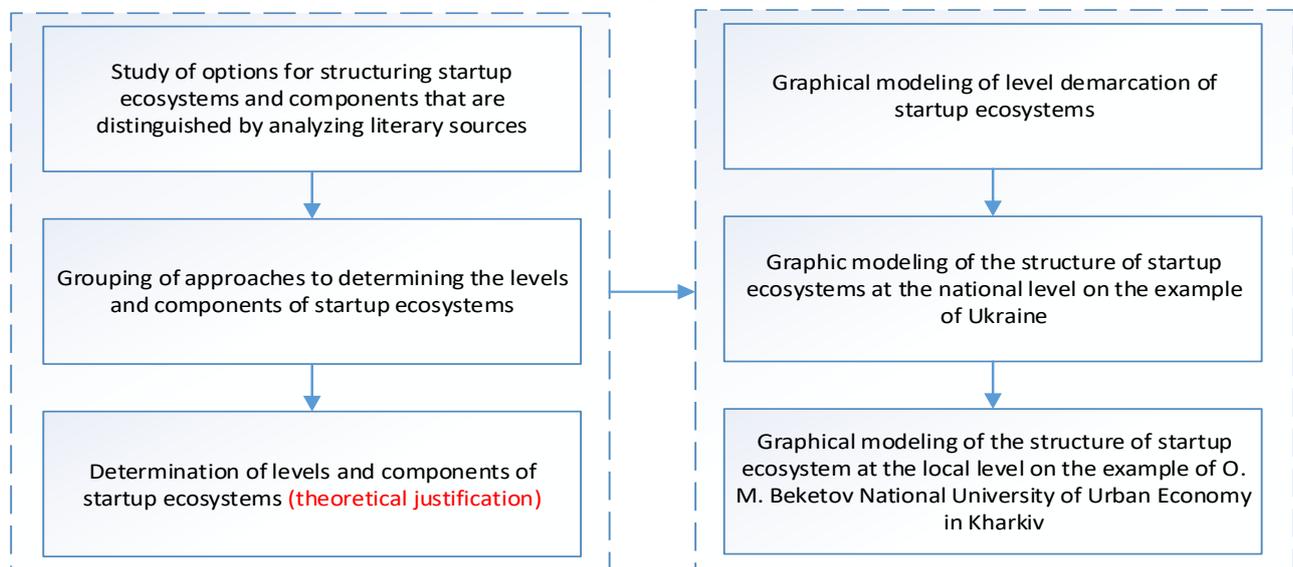
So, in the investigation, we consider the startup ecosystem to be a network that unites various subjects of the innovation process (universities, venture capital companies, marketers,

entrepreneurs, auditing and consulting agencies, etc.), which interact with each other based on certain rules.

Currently, the startup ecosystem is in an active phase of implementation, as stimulating the development of startups can lead to the development of entrepreneurship in the country in general. Experts also predict that a boom in startups is expected in Ukraine in the post-war period [13]. Despite the war, Ukrainian startups demonstrated resilience and continue to conduct their business [14], as evidenced by the results of a survey conducted by employees of the Ministry of Digital Affairs together with partners [15].

### 3 Methods

The research methodology involves structuring in several successive stages and a combination of methods. The frame of the investigation is presented in figure 1.



**Figure 1 Methodological frame of research on the formation of a startup ecosystem**

The research methodology involves the implementation of two blocks. The first block contains the definition and justification of the set of elements and levels of the startup ecosystem. For this purpose, a complex of analytical methods, grouping and structuring is used.

Based on the methods of structural and logical generalization, analysis and synthesis, a vision is formed regarding possible options for structuring the startup ecosystem.

Based on the grouping, the components of the startup ecosystem are substantiated and the number of its levels is determined.

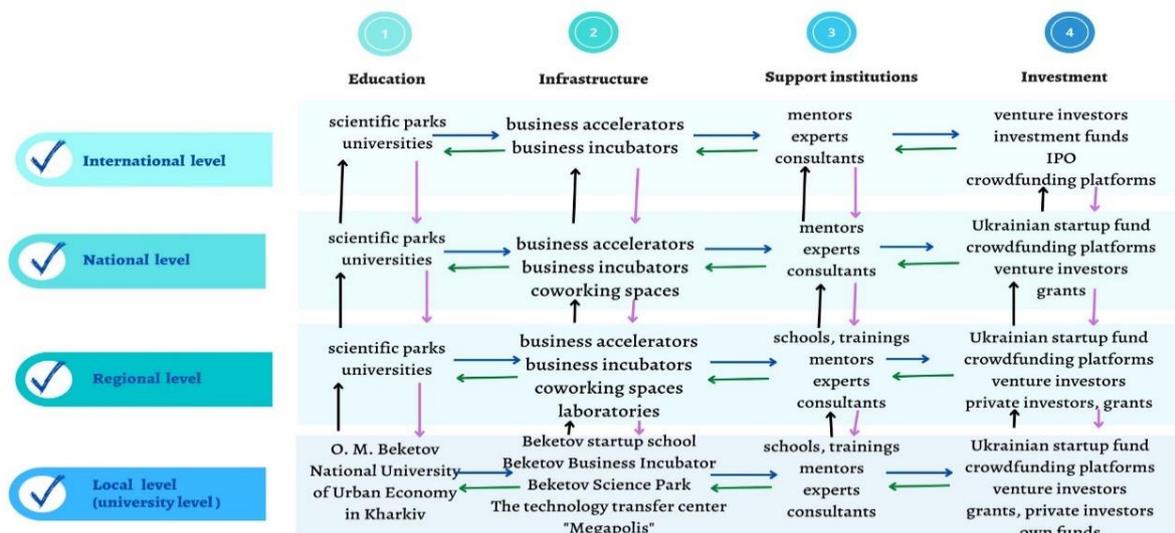
The second block is based on the results achieved within the first block and involves the use of modeling methods to build graphical models. Geometric, functional, information and structural models are distinguished depending on the properties of objects. A structural model represents the modeling object in terms of its structure and relationships both internally and externally. The information model is a system of data about the object and a description of data flows in the process of its functioning [16]. Since the startup ecosystem is a complex system that contains a set

of various elements that constantly interact with each other and with other systems of the external environment, as well as transfer data in the process of its operation, it is advisable to use a combination of two types of models.

This will make it possible to build a graphic information-structural model of the hierarchical (level) demarcation of the startup ecosystem; graphical information-structural model of the startup ecosystem of the national level on the example of Ukraine; graphical information-structural model of the start-up ecosystem at the local level on the example of O. M. Beketov National University of Urban Economy in Kharkiv.

### 4 Results

A hierarchical demarcation (structuring) of the startup ecosystem of Ukraine was carried out, where 4 levels were distinguished: international (global), national, regional and local. Features of each level are described. (figure 2).



**Figure 2 Structural and logical model of the startup ecosystem of Ukraine**

The international level of the startup ecosystem provides opportunities for the promotion and development of startups that have already shown their viability at all previous levels. At the international level, these startups can receive both mentoring support in international accelerators and business incubators, as well as financing opportunities from international venture funds, crowdfunding platforms and investment funds, as well as attracting money to the startup by entering the stock exchange through an IPO.

At the national level, among the elements of the startup ecosystem, there are elements that contribute to the development of startups at the state level. Among such elements should be noted the Ukrainian startup fund, which is a state fund created to develop and stimulate innovation in Ukraine. During the Russian aggression, the Ukrainian Startup Fund has developed a platform that will bring together those who can provide assistance to startups during the war and those who need this support now. From November 2022, it will launch a program of grant support for dual-

purpose projects to increase the country's defense capabilities and post-war reconstruction and will provide an opportunity to receive up to \$35,000 per project.

The regional level of the startup ecosystem is represented by elements that support startups in a certain region.

The local level of the startup ecosystem is presented on the example of the university level and described in detail below. All elements of the startup ecosystem are transmitting information between their levels and interacting.

The university startup ecosystem of the Ukrainian university and the stages of its implementation are presented on the example of the startup ecosystem of the O. M. Beketov National University of Urban Economy in Kharkiv, which is based on the theory of SMART specializations (figure 3).



**Figure 3 Startup ecosystem O. M. Beketov National University of Urban Economy in Kharkiv**

The structural elements of Startup ecosystem O. M. Beketov National University of Urban Economy in Kharkiv are:

- the BEKETOV STARTUP SCHOOL junior development school, which is intended for schoolchildren of the Kharkiv region and provides training and development of their own startup project, as well as its presentation at an all-Ukrainian (regional) competition;

- the startup school BEKETOV STARTUP SCHOOL is intended, first of all, for applicants, young scientists, teachers, as well as everyone who has their own idea or development for startup projects and provides training according to a developed training program, mentoring and expert support, pitching of startup projects and business plans and participation in the All-Ukrainian festival of startups. The university lecturers of the "Entrepreneurship and Business Administration" department participate in the international project "Entrepreneurial University", which is being implemented with the support of the Ministry of Education and Science of Ukraine and the public organization YEP in 2020-2022;

- the purpose of the Beketov Business Incubator is to provide infrastructure and consulting for youth entrepreneurship. Currently, the business incubator is focused specifically on the successful implementation of startups and business ideas and is a logical part of supporting promising startups that have graduated from the BEKETOV STARTUP SCHOOL. The creation and operation of the business incubator was carried out within the framework of the project "Business incubator for students, teachers and businesses" with the support of the Ministry of Foreign Affairs of Poland and thanks to the partnership with the international organization "Polish-Ukrainian Cooperation Fund PAUSI";

- Beketov Science Park, its activities are aimed at the development and commercialization of scientific, technical and innovative activities of the university;

- the technology transfer center "Megapolis" provides university-wide, national and international coordination support for technology transfer for all representatives of the local startup ecosystem O. M. Beketov National University of Urban Economy in Kharkiv.

The ecosystem of the university is based on the concept of SMART-specializations, coordinated with the Development Strategy of the Kharkiv region until 2025 and focused on the direction of SMART-city. It is shown in fig. 4.

Already now, the university is developing, together with leading scientists and practitioners of Ukraine and the EU, the program "Innovative cities: best practices of post-war reconstruction", aimed at the development of skills and qualifications that would allow the practical development of post-war reconstruction projects in Ukraine to begin in a short period of time.



**Figure 4 Smart directions O. M. Beketov National University of Urban Economy in Kharkiv**

Thus, O. M. Beketov National University of Urban Economy in Kharkiv has a complete startup ecosystem that contributes to the development of the entrepreneurial ecosystem of Ukraine and the Kharkiv region.

## 5 Conclusion

Based on the methods of structural and logical generalization, analysis, and synthesis, a theoretical interpretation of the basic categories of startup and startup ecosystems was provided.

The study of literary sources on the essence of the startup ecosystem made it possible to establish its hierarchy and equality, which affects its content. Hierarchical demarcation (structuring) of the startup ecosystem of Ukraine was carried out, where 4 levels were distinguished: international (global), national, regional, and local. Features of each level are described.

Based on the analysis of the constituent ecosystems, a structural and logical model of the startup ecosystem of Ukraine was developed and a description of its structural elements was carried out.

Based on the structuring and comparative analysis of the components of the national startup ecosystem and foreign ones, directions for the further development of the startup ecosystem of Ukraine have been determined.

Special attention is paid to the analysis and features of the formation of startup ecosystems at the local level, which includes the university level. The Ukrainian university start-up ecosystem and the stages of its implementation are presented in the example of the start-up ecosystem of the O.M. Beketov Kharkiv National University of Urban Economy, which is based on the theory of SMART specializations. The peculiarities of the activity and development of the start-up ecosystem of Ukraine in the conditions of the war with Russia have been determined.

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## THE ROLE OF THE RURAL TOURISM IN DEVELOPING THE ECONOMY OF RURAL REGIONS

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**Abstract.** *Tourism is an important driver of socio-economic development and poverty reduction. One of the most dynamic and resilient economic activities, tourism is a catalyst for job creation and can stimulate the development of infrastructure and public services. Thanks to its job-creating capacity, tourism plays a major role in developing the often-overlooked potential of rural areas. Its significant multiplier effect on all economic sectors such as agriculture, manufacturing, construction and transport, can greatly contribute to the economic diversification of rural regions and to local economic development.*

*This article analyzes the development of rural tourism as a factor for diversification of the rural economy. It reveals conditions and preconditions for the emergence of rural tourism, its promotion and development through multifunctionality concepts and diversification of agriculture. The article examines the history of emergence and development of rural tourism.*

*The article also provides a framework showing how tourism activities influences the travel experience, but also on local development seen in terms of the economy. Rural tourism plays an important role in the economy and thus it should not be overlooked. Rural tourism has suffered because of the recession with increasingly more people choosing this form of tourism to recreate, to move away from the crowded areas of the country.*

**Keywords:** Rural tourism, rural development, regional development

**JEL Classification:** O13, R11, Z32.

### **1. INTRODUCTION**

The tourism sector has experienced significant growth over the past decades and is now one of the most dynamic sectors in the world, with the fastest growth.

Tourism creates important links between economic sectors, including agriculture, construction and the tertiary sector. It can stimulate the development of various services, for example in energy and the environment, and tourism infrastructure – airports, roads and hospitals. It can generate economic benefits for rural communities, including the poor, by improving and diversifying their livelihoods, which also curbs migration to cities. (UNWTO, 2017)

The tourism sector is therefore emerging as a major driver of growth and socio-economic development. It can make a major contribution to the economic diversification of rural areas, essentially in two ways: first, by stimulating the creation of businesses and jobs for young people, women, ethnic minorities, indigenous peoples and tribal and marginalized groups; second, by promoting social integration and poverty reduction, while preserving culture and heritage. This is

particularly relevant for the rural economy of low-income countries, where poverty rates are high and decent work deficits widespread.

Agriculture remains the backbone of the rural economy of many low-income countries, but the trend in rural areas is towards increasing diversification of economic activities not directly linked to agriculture, including: tourism, processing and the marketing of agricultural products, handicrafts and related activities. (ILO, 2015)

Hotels and restaurants need food and beverages, and benefit from well-managed tourism growth that favors local agricultural products and stimulates demand for these products. Non-farm rural activities, such as agribusiness, rural transport and storage, also benefit.

Reinforcing the multiplier effect of tourism, these synergies and interrelationships can create jobs at the local level, stimulate external investment in the local and national economy, and complement the traditionally dominant sectors in rural areas, thus offering new sources of income and economic activity to local communities. The latter benefit from economic spin-offs when the tourism value chain integrates entrepreneurs in the region, such as local tourist guides. The quantity and quality of jobs created throughout the agricultural and tourism sector reinforce the direct positive impact of tourism on poor populations. (UNCTAD, 2013)

However, the benefits of tourism to rural economies are not automatic, and the potential effects on destination locations and the environment should be carefully weighed, as it can threaten the preservation of local resources. Remoteness, cultural heritage sites, nature and landscapes – characteristics common to rural areas – mean that a destination can be a unique and attractive point of attraction for tourism, which should however be preserved. It is essential to develop adequate policies to create sustainable tourism, which contributes to economic development, job creation and poverty reduction, without harming tourist destinations. These policies should be based on the principles of sustainable development, including social inclusion, preservation of the natural environment and culture, and the promotion of decent work. To take full advantage of the tourism sector, decent work deficits need to be addressed, including high levels of informality in the rural economy, low wages, long working hours, lack of protective institutions social and the absence of social dialogue.

Tourism can have several positive effects on local/rural economic development:

- stimulate the creation and growth of new businesses;
- by putting an export market within the immediate reach of many sectors (companies which begin to sell new products to tourists, and which meet with a certain success, can start exporting, thus contributing to the diversification of economy);
  - stimulate the development of new infrastructures and new transport services;
  - improving the skills of the labor force (tourism encourages local/rural populations to learn foreign languages and train themselves in customer service);
  - Create incentives, and enable fundraising, for more sustainable management of natural, cultural and historical resources. (ILO, 2013)

## **2. RURAL TOURISM AND ITS CONTRIBUTION TO RURAL DEVELOPMENT AND POVERTY REDUCTION IN RURAL AREAS**

Rural tourism, while remaining a minority in the tourism market, already makes a valuable contribution to rural economies. This can be expressed not only in financial terms, but also in terms of jobs, contribution to funding conservation, encouraging the adoption of new ways of working and injecting new vitality into sometimes weakened economies. (Mahmoodi, M.; Roman, M.; Prus, P., 2022)

Overall, tourism can bring many benefits to rural developments which are detailed below.

Job retention is extremely important in rural areas where job decline is often endemic. Cash inflows from tourism can help retain jobs in services such as retail, transport, accommodation and food services, and medical care. They can also bring additional income to farmers and sometimes to foresters and fishermen. Job retention is not as politically prestigious as job creation, but by contributing to the viability of small communities, it is critical to the survival of marginal areas.

There can also be job creation when rural tourism is successful. This creation generally occurs in the hotel and catering industry but can also take place in transport, retail, information and heritage interpretation.

The development of tourism in the countryside promotes job diversification. Most rural areas have a low diversity of employment outside of agriculture and basic services. Greater diversity enriches rural society and helps maintain population levels.

Pluriactivity can be another useful by-product of rural tourism. Pluriactivity is the term used when an individual or family performs more than one type of work to earn a living. Thus, a part-time farmer can also rent rooms, help the local administration with service tasks or serve as a ski instructor. Sea anglers can take groups of tourists fishing, on whale-watching expeditions off Canada and the United States or on bird-watching trips off Ireland or the United States. Pluriactivity makes it possible to survive when there is a recession in a given sector. It is particularly important in the rural context because of the cultural importance of the family as the basic unit of many traditional societies.

Maintaining services is crucial in rural areas: rural tourism can help in three ways. Tourist information services can be provided through existing means such as shops, increasing their revenue if serving as an information desk is remunerated. Services can also benefit from the additional customers represented by tourists. Thus, the quality of public transport in the Austrian and Swiss countryside is partly due to the presence of holidaymakers. This additional customer base is not automatic, however: to make the most of existing potential, services often need to offer new products that will be available at different times and understand new markets. Finally, the importance of tourism to national economies can increase the political justification for subsidies to help maintain services.

Support for farmers is a major issue for all policy makers. Numerous studies have shown that farmers' incomes can be increased by rural tourism, by the provision of accommodation of all kinds, by the development of farm visits and other attractions, by the increase in the sale of farm produce and by increasing female labor force participation through additional non-agricultural employment. There are significant variations in levels of farmer participation in rural tourism across OECD countries, depending on region, size of farm, age of farmer and other factors. While surveys show that it is the economic benefits that primarily motivate farmers to engage in tourism activities, they also point out that many of them derive a social benefit, as visitors bring variety and companionship in a lifestyle that can be lonely and limited.

Logging is an important activity in many climatically marginal mountain regions. Forest regions have been victims of serious socio-economic problems in recent years, due in particular to the mechanization of tree felling and wood processing, as well as the fall in prices resulting from the reduction in demand of lumber. Rural tourism can help this sector of activity by diversifying the sources of income of forest communities when they become aware of the special qualities of the forest environment for recreation and when they develop them.

Landscape conservation has become an increasingly important form of heritage protection. Although it dates back to the establishment of Yellowstone National Park in the United States in 1872, the national park movement continues to progress and most countries now have a whole range of more precise designations for many types of landscapes. The landscape is of crucial importance for rural tourism - as indeed the arrival of tourists has become essential for the conservation of the landscape. It brings political benefits, can lead to economic gains and provide employment for the maintenance and restoration of traditional landscapes damaged by recreational activities.

Small rural settlement units have always been more at risk of losing their viability because they cannot sustain the many services that today require higher population thresholds for funding. Rural tourism can help these small units to survive, as they have a particular attraction for tourists, but this requires careful management.

Rural arts and crafts hold a special place in the cultural heritage of regions and nations. Many commentators have observed that tourism can help these activities both by recognizing their importance and by buying the handicrafts. The income flows from these activities have been well studied. The arts and tourism can support each other. Many communities now use arts and crafts festivals as a marketing mechanism to encourage visitors to come to their area.

Cultural services have always been restricted in rural areas. The absence of important facilities such as theatre, opera, music and art galleries was one of the many factors that encouraged the rural exodus. The festivals and other events described above have enabled certain rural areas to broaden their cultural contribution, bringing in artists and ensembles by financing them through the sale of tickets to visitors.

Conservation of nature, especially landscape, is a stated goal of most modern governments. However, it is an expensive operation. Rural tourism can add value to nature conservation in a monetary sense. Visitors are willing to pay to see nature: most reserves and many national parks that charge entry are successful. The extent to which the fee-based system can be extended is a hotly debated issue in conservation circles.

The historic built environment can benefit from rural tourism in two ways. Many historic properties now charge entry in order to maintain their buildings and the gardens and parks around them. In addition, important old buildings are decommissioned. Churches have lost their parishioners, castles have lost their wars, farm buildings have become too small for modern equipment, stations have lost their trains and canal warehouses no longer see barges passing by. The tourism industry usually allows these buildings to be used profitably and imaginatively: they can themselves become attractions.

Environmental improvements such as village paving, speed bumps or diversions, sewerage, garbage collection, can benefit from tourism revenue and political pressure from the authorities in

charge of this activity. These improvements help build local pride in their village, which is important for retaining existing people and businesses, and attracting new businesses and families.

Small fishing communities suffer greatly from the scarcity of fish, quotas and international bans on certain activities. They can sometimes successfully branch out into sport fishing, bird and seal watching, and boat trips, revenue from capturing whales for their meat.

The role of women in the rural community was once limited. Agriculture, forestry and mining were reserved for men. There were few jobs for women, who also rarely participated in local political life. The general emancipation of women, together with the opportunities offered by rural tourism, have done much in many regions to release the underutilized talents and energies of the female fraction of the population. Studies show that tourism businesses have increased the power of women both in the family and in the community. In Spain, Greece, France, Great Britain and Ireland, experience has shown how women's open-mindedness and adaptability to new ideas and working cooperatively have helped to shape and lead successful rural tourism projects. Developing the role of women could do much for the economic and social well-being of many rural areas.

New ideas and initiatives are essential if rural communities are to thrive well into the twenty-first century. Efforts to support agriculture, forestry and service provision through state subsidies have done much to instill a welfare mentality in the countryside. The new challenges and the fiercely competitive nature of the tourism market could on the contrary do much to encourage entrepreneurship and new methods. Experience also shows that rural tourism can serve as a catalyst for attracting new businesses of all kinds to rural communities. (Vanhove, N., 2015)

### **3. RURAL TOURISM AS A DRIVER OF LOCAL ECONOMIC DEVELOPMENT**

Rural tourism with its multiplier effect, even being a minority in the tourism market of developing countries, already makes a valuable contribution to the local economy. This can be expressed not only in financial terms, but also in terms of jobs, contribution to funding conservation, encouraging the adoption of new ways of working and injecting new vitality into sometimes weakened economies.

Tourism is a fixed economic activity that requires movement from one place to another. Hence the involvement of several other sectors of the economy (transport, accommodation, catering, etc.) for its installation and operation. The induced effects of tourism go far beyond the tertiary sector to extend to the fields of industry and agriculture. (Bellini, N.; Grillo, F.; Lazzeri, G.; Pasquinelli, C., 2017)

Any investment, and more broadly any investment or consumption, leads to income currents generated throughout the circuits which tend to decrease due to the leaks which occur in the circuit. Indeed, it is enough for an investor to embark on a development project with the purchase of capital goods for the factories that produce these goods to also increase their production to meet the needs of customers.

We are there in a chain of cause and effect. What François Vellas called the multiplier effect. The multiplier measures the relationship between new investment and increased output and income. (Vellas, Fr., Becherel L., 1999)

It should be noted that the weight of the multiplier depends not only on the size of the activity or investment but also on the area where the investment is made: the wider the range of economic activities, the greater the volume of trade between these activities, the higher the multiplier number. If, on the other hand, activity is low and the tendency to import strong, the value of the multiplier will be low, as is the case in many developing countries. Leaks in the circuit then reduce the economic benefits arising from the multiplier and therefore the impact of tourism on the economy.

Tourism can bring several advantages to rural development such as the creation, preservation and diversification of jobs. The promotion of rural arts and crafts, nature conservation, protection and improvement of the environment, to name but a few, are also sectors very much affected by tourism development.

With all these advantages, and through a good understanding of the sector, rural tourism can serve as a catalyst to attract new businesses of all kinds to rural communities and thereby contribute to local economic development.

The creation and preservation of jobs is an extremely important condition in rural areas where job decline is often endemic. Cash inflows in tourism can help retain jobs in services such as retail, transport, accommodation and food services.

Most rural areas have a low diversity of employment outside of agriculture and basic services. Greater diversity will enrich rural society and help maintain people's living standards.

We cannot talk about rural tourism without talking about handicrafts. Indeed, the latter occupy a special place in the cultural heritage of regions and nations. Many professionals have observed that tourism can help these activities both by recognizing their importance and by buying local handicrafts.

The arts and tourism can support each other. Many communities now serve arts or crafts festivals as a mechanism for marketing to encourage visitors to come to their area.

In short, we would say that rural tourism has a considerable impact on the economies, societies and cultures of the different countries or regions concerned. It promotes development and can facilitate understanding between peoples. Unfortunately it does not only present advantages and one is led more and more to wonder if the development of a tourist industry is profitable or not for the host societies.

However, we are not unaware that the development of tourism, whatever the type, cannot be done without there being difficulties. The positive effects in terms of jobs, production and revenue are opposed by strongly negative effects: inflation, destruction of the environment, questioning of the traditional ethics of peoples, cultural shock, etc.

Thus, evaluating the positive or negative effects of tourism development becomes a task that is not simple as the measurement is delicate and the effects contradictory. These consequences are very often treated in a contradictory way. In this regard, we notice a certain helplessness of the local populations in the face of this tourism. (Roman, M.; Grudzien, P., 2021)

It should be noted that certain parameters must be taken into account both among tourists who rarely constitute homogeneous populations, and among the local population who sometimes have a critical view of this phenomenon.

Very often, and in almost all tourist destinations, the contribution of tourism to the economy is measured not only on the basis of revenue but also on the jobs created and the contribution to training at the local level. As for smaller areas, the effects of tourism could also be measured on jobs, but above all on its consequences at the social level.

There is an awareness at the national level that economic growth does not necessarily mean reducing poverty and that political commitments to reduce poverty can only be achieved if there is a concerted and specific effort to better identify the well-being of the poor.

In tourism and development planning, it should also be noted that tourism development cannot magically eradicate poverty except to alleviate or reduce it.

The poor are characterized by their lack of purchasing power and they are sometimes excluded from society and have little access to the education, health and other forms of social protection enjoyed by others in their society. Greater attention to poverty reduction through tourism is important as it emphasizes the multi-faceted nature of poverty and the relevance of addressing this poverty to a wide range of impacts that the tourism can have on livelihoods.

There is no doubt that tourism is undeniably an engine for the development of developing countries on all fronts; considering that its role in international trade tends to increase despite recent natural disasters and war which have affected tourist flows in several regions of the world.

However, organized tourism programs or individual trips cover multiple tourist destinations in more than one country, thus helping to strengthen regional cooperation and ties between countries.

Developing countries must above all put in place a common development policy, through tourism. Because tourism is one of the fundamental aspects of any coherent economic, political and social development policy in developing countries. Nevertheless, it is necessary, for a better development of tourism, to involve the other sectors of the economy, namely, agriculture, fishing, crafts of other related sectors.

However, we cannot talk about the development of tourism without talking about infrastructure. Infrastructure is indeed the key to tourism development.

It can thus be seen that the countries of destination hardly benefit from international travel; the situation is unfair and foreign operators take most of the value of the trip. We can talk about tourist domination and therefore we might be tempted to ask ourselves the question of knowing, where is this tourism, the great savior of local populations? (Goeldner, Charles R., and JR Brent Ritchie, 2009)

Tourism still does not manage to contribute effectively to the local development of several regions; the reason, one does not have to go to seek it far; all the means of production, accommodation establishments are under foreign control and it is common for a country for a competitive reason to allocate a tax facility at the level of investments that the situation then spirals out of control.

Having said that, tourism represents, in terms of the transfer of money from rich countries to poor countries, a greater share than the amounts granted by governments in the form of aid and that for these poor countries it is the most important source of foreign exchange earnings.

It should also be noted that in most of the poorest countries in the world, tourism represents more than 5% of GDP and 10% of exports according to the UNWTO. (UNWTO, 2004; UNWTO, 2017)

To this end, it is therefore necessary to encourage local investment in the hotel sector, either through policies allowing the creation of local businesses, in the form of private companies, cooperatives or associations operating in the tourism sector, which could produce hitherto imported goods and services, or through joint ventures between local companies and international companies.

## **CONCLUSIONS**

No one can ignore today the capital role that tourism can play as a driving force for economic development. This sector contributes considerably to the contribution in foreign exchange, to the promotion of employment and to regional development. It can lead to profound social and cultural changes in the host countries.

The economic growth of underdeveloped countries is an important factor for the overall balance of society. Thus, the role that tourism must play to achieve this objective seems nowadays not to be negligible since the majority of countries have opted for the development of this sector which contributes to economic, social and cultural exchanges, directly with tourists and local populations. So, the development of tourism becomes an effective means of social development through its contribution in terms of jobs created and the improvement of family incomes. This is a start to any process of poverty reduction in poor areas.

In addition to this, the use of new technologies due to the evolution of the sector, often has positive impacts in other sectors such as communication, health

However, it should not be forgotten that the development of tourism can have negative social and cultural consequences. To this, we can cite the loss of values by a blinding imitation of visitors both in their clothing and in their eating habits.

Other social consequences, such as those resulting from drug addiction, child labor and prostitution, affect the population and can also tarnish the image of the place as a tourist destination. However, it is worth pointing out that many of the social misdeeds often attributed to tourism are perhaps due just as much to modernization, and in particular to the improvement and dissemination of the means of information and communication.

Very often, the consequences of the development of tourism are perceptible at the local level. Indeed, with the massive arrival of tourists, local populations are often trapped not only by overpopulation but also by the degradation of natural resources.

Especially since any development of tourism must be done reasonably without destroying the environment, it is not uncommon to notice that an anarchic development of tourist infrastructures irremediably leads to a degradation of the ecological environment. At the level of certain areas of developing countries, the remark made is that beaches and coastal areas are undergoing an enormous transformation, a transformation which will certainly have consequences in the future. We must also not neglect the behavior of some tourists who very often go after sites, either by photographing them (even if it is well marked no photo allowed), but also throw cigarette butts on the beach. This behavior, if it does not have immediate consequences, will have repercussions in the future of the ecosystem.

Understanding the complexity of the tourism phenomenon in rural areas requires a systemic approach. The characteristics of rural tourism are the result of interactions between elements

internal to a system (companies, tourists, intermediaries and rural space) but also the result of external interactions. In addition to the notion of system, other disciplinary fields are involved: economics to understand how exchanges are organized, sociology to understand social functioning, and geography to integrate the role of space.

We must remember that the consequences of tourism at the social level can vary not only from one type of tourism to another but from one place to another. Indeed, having become more demanding in terms of quality, tourists often force the hosts to comply with their request. Respecting the wishes of the tourist is all the more important as it affects the future of the image of the destination. The objective is therefore to satisfy the customer in order to build loyalty.

Everyone knows that in terms of economic development, tourists contribute fully to the level of the areas visited. Visitors indeed come with innovative ideas, they spend money locally, but also they come with their culture etc. Thus, the result is a mixture of cultures which very often results in mutual understanding, the destruction of prejudices and the possibility of living in synergy. Some visitors do not take precautions and do not pay attention to the damage they can cause both to the local space and to local traditions. Even if in majority, the desire of tourists nowadays is to better know the populations visited, some are still suspicious about a possible overlap with the populations visited. Contact with local populations is often non-existent or superficial, limited activity between the hotel and the beach, and very often beaches that are surrounded by tourist security.

Since we are talking about direct or indirect contact with visitors, attention must be drawn to the consequences of tourism on heritage; whether natural, architectural or cultural. In addition to the loss of traditional values, the consequences on unprotected historical monuments can be very serious. Indeed, it is very common to see traditional buildings replaced by modern buildings, a European architecture. And everyone knows that when local populations lose their traditional habitats, they lose with their way of life, customs and tradition.

However, it should not be forgotten that alongside all these misdeeds of tourism, there is a very important side which is that of helping local populations to better manage and enhance their cultural heritage. By visiting these places, some tourists contribute financially to the implementation of environmental and cultural protection projects. It now remains for the populations to become aware of the future of their heritage. Well-managed tourism with a well-protected heritage is the key to the success of the sector with a view to contributing to local development. Because, we are not unaware that tourism is one of the first sectors providing jobs and currency. If tourism develops, jobs are created and therefore unemployment decreases at the local level provided that the young people of the locality are recruited.

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## **THE EFFECTS AND CONSEQUENCES OF TAX PRESSURE ON THE BUSINESS ENVIRONMENT**

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**Abstract.** *After important steps were taken regarding the development of the market economy of the Republic of Moldova, a continuous policy of modernization of the national tax system followed, which from the point of view of tax pressure on the business environment was both upward and downward.*

*Currently, it is found that the majority of the country's population continues to have modest incomes to support an increase in the tax base, and small and medium-sized enterprises are insufficiently developed to allow the increase in tax revenues.*

*Considering such situation, which will mark the taxation of the Republic of Moldova in the future, as well as the effects of the COVID-19 pandemic crisis and the war in Ukraine, it is expected that in our country, the taxpayers' tax pressure will experience gradual increase until when a balance will be reached again, marked by a sustainable economic stabilization.*

*Considering the aspects mentioned above, the authors aimed in this article to analyze the effects that tax pressure has on the business environment.*

**Key words:** tax pressure, tax levy, taxation, business environment, enterprise, taxpayers.

**JEL Classification:** H21, H22, H26

### **The topicality of the research topic**

In a deeply competitive economic world, the imperative of competitiveness is one of the major economic concerns for taxpayers.

Even if not all the cost of taxation on the added value is borne directly by the enterprise, nevertheless the inclusion of some components of this "cost" in the delivery price does not have the ability to ensure sufficient competitiveness of the enterprise's products and services, if it does not find sufficient sources and reserves of increasing labor productivity and efficiency in general.

From this point of view, legal entities have every interest in being affected by the tax pressure in the least possible proportions.

But since the tax pressure is one of the levers through which the state acts on the economic environment and on the financial decisions of the enterprise, it can neither be ignored nor avoided.

Due to the social incidence of taxation both as a redistributive instrument of state revenues and as an element of tax pressure on taxpayers, we believe that this topic is quite current and important, which needs to be researched in more detail.

**The arguments** required to research the respective topic result from:

- identifying problems and proposing solutions regarding the effects and consequences of tax pressure on the business environment;
- identifying a balance between tax levy and tax pressure;
- elucidation of the way of interaction of the tax administration body with the business environment;
- expressing some reasoned opinions as a result of the research carried out;
- highlighting the observations by emphasising the observed variables, thereby establishing causal relationships, based on some research theories;
- highlighting some conclusions with reference to the management of tax pressure based on scientific arguments.

**The aim of the research** is to find a balance between the level of tax levies and tax pressure.

#### **Research methodology**

The scientific research methodology applied in this article served us as a basis for deepening the study and knowledge of the field of taxation, through the tax pressure on the business environment.

As research tools were used:

- **the scientific knowledge** achieved along the way, gradually, which allowed the study, perception and analysis of the tax pressure on the business environment;
- **the fundamental research** that allowed the elucidation of the current trends in tax levies, the basic subject being the level of tax pressure. The fundamental research included investigations in the form of theoretical studies, which consequently allowed the formulation of scientifically argued conclusions;
- **research for development** aimed at using those procedures and devices that can directly influence the practical research activity. Thanks to the use of the respective method, it was possible to demonstrate in practice that the level of tax pressure is inversely proportional to the level of tax collections.
- **applied research** had the task of providing necessary data for directing practical activity in order to increase methodical work. The result of the applied research will result in the formulation of some practical conclusions on how to balance the tax pressure. Also, applied research will allow finding solutions and the direction of studying the investigated phenomenon, through which various problems can be solved.
- **motivational research** includes itself a range of psycho-social methods and techniques, necessary to obtain primary information that facilitates a better understanding of the reasons by which taxpayers react to tax pressure in a certain way. This research seeks to determine and explain the motivational causes of tax evasion.

The research carried out has a practical-applicative nature and can serve as informational support for the state institutions responsible for tax levies, representatives of the business environment, as well as for the academic community.

No research method or research technique is exclusive, we can find advantages and disadvantages, and their choice and combination is a component of the professionalism of the researcher, who will try to use those that can provide relevant information in the given situation.

In the research process, a review of the specialized literature that interferes with the field of taxation was carried out, using the deductive method, which allowed the presentation of general notions. Consequently, the deductive method allowed the establishment and definition of research objectives according to the needs of the scope.

Given the existence of a diversified base of observations and practical data, combined with plausible tests to verify the viability of the research carried out, significant theoretical opinions were generated in order to improve the respective research.

**Research results.** As a result of the study carried out, the authors will draw certain scientific conclusions on the investigated subject, able to some extent to establish benefits both for the state institutions, responsible for tax levies, and for the business environment.

### **Introduction**

Tax pressure on taxpayers from the Republic of Moldova has appeared since independence in 1991, with the emergence of indications that the country's economy will become a market economy.

Tax pressure, although it also existed in the Soviet period, through the specific way of distribution of national income by the Soviet state, according to the ideological principles that were its basis, became felt for businessmen from 1991 onwards. Since then, the state renouncing the claim to take at its disposal the majority of the profit from state enterprises, as a result of the transition to their organization on commercial principles, its tax revenues began to be supported by the gross income of national taxpayers: individuals and legal entities, subjects of taxation.

Thus, the tax pressure that is borne by a national economy at that time is the result of the summation of the individual tax pressures. Consequently, all tax revenues are generated by individuals and legal entities, in their capacity as owners of the patrimony accumulated as a result of economic activity, specific to the market economy.

### **Description of the topic**

Businessmen are those who, according to their way of increasing their individual patrimony, create with the help of production factors new increments of material and immaterial assets, which they appropriate in different phases of distribution. It is therefore logical that they also bear the tax contribution to the formation of the National Public Budget (NPB). But the size of this contribution must be a fair one, both from the point of view of the taxpayer and from the point of view of the state, as the general administrator of tax revenues collected from taxpayers.

It is well known that, in any state, economic agents are concerned about the severity of tax pressure. In the situation where the tax pressure is relatively high, "any taxpayer will be able to choose to evade the obligations to the Budget, either in whole or in part, practicing tax evasion". [Dinga E., 2008].

Based on these considerations, the tax pressure (TP) generated by the state must not have the objective of discouraging business, but of business development, attracting investments and, last but not least, stimulating private initiative.

What is tax pressure anyway? Since taxes represent "a form of taking a part of the income or wealth of individuals or legal entities at the disposal of the state, in order to cover advanced

expenses", [Manole T., 2016], it is normal to admit the idea of quantifying this taking felt by taxpayers as a tax pressure.

By its mere existence, the tax is able to modify the economic and social behavior of the taxpayer through the influence exerted on the income it generates, as a result of the economic activity.

Thus, *the tax pressure* is given by the taxation rate which is calculated as the ratio between the tax receipts in a certain period, usually a year, and the value of the Gross Domestic Product (GDP), achieved in the same period, by a national economy.

National Tax Pressure (NPF) can be calculated according to the formula below:

$$\text{NPF} = \frac{\text{Taxes} + \text{SSSC (State Social Security Contributions)}}{\text{GDP}}$$

*Source: Adapted by the authors from [Solomon A., 2015]*

In an article, dedicated to the level of taxation, Professor Gheorghe Filip reveals: "the distortion of the image of taxation, which results from the prism of reporting only on the size of resource withdrawals in favor of the state, is amplified by the way of determining and perceiving its relatively known level and under the name of degree of taxation or tax pressure". [Filip Gh., 2016].

As authors, we believe that tax pressure must be analyzed not only from a mathematical point of view, as a ratio between payments taken from taxpayers and revenues obtained by the state. In our view, the tax pressure must reflect the state of affairs in the national economy. You cannot burden legal entities to make exorbitant payments to the budget, if the economic, political and social situation does not allow this. As an example, the effects of the COVID-19 pandemic and the war in Ukraine, which strongly affected the national economy of the Republic of Moldova, can serve.

Consequently, the taxes and duties collected by the state from taxpayers are formed, from their point of view, in elements of tax pressure, which is all the more pronounced the higher their share in the added value.

Tax pressure is also felt and amplified by indirect taxes (excise duty and VAT) which, although not borne by legal entities, affect the volume of sales and the competitiveness of products through prices.

The level of tax pressure to which an enterprise is subject can be calculated according to the following formula:

$$\text{TP} = \frac{\text{Income tax} + \text{SSSC} + \text{other taxes}}{\text{The added value achieved by the enterprise}}$$

*Source: Adapted by the authors from [Vintilă N., 2013]*

**Other taxes** - all direct and indirect taxes and fees borne by the enterprise, with the exception of income tax and State Social Security Contributions.

Since the SSSC is an obligation that the enterprise cannot avoid, this levy is included in the numerator of the fraction that determines the tax pressure.

The elements of withdrawals from the numerator of the fraction contribute in different proportions to the size of the value added by the enterprise, i.e. to the denominator of the fraction. It therefore follows that the size of the tax pressure depends on the weight of these levy elements in the formation of added value and on the level of the tax rate of each element.

At the cost of financing on the added value, the cost of financing must also be taken into account, which can be an actual cost if the company does not have the necessary liquidity to pay the tax obligations, or it can be an opportunity cost if it has the liquidity to make the payment, but the value of the taxes paid could be invested directly by the enterprise in the profit of its associates. This cost, which must be taken into account by the enterprise in carrying out its relationship with the State Tax Service, is generally equal to the cost of capital available on the market at the time when the tax obligations are paid.

A fundamental characteristic of the costs borne by the company related to tax obligations is that they are absolutely not necessary for the specific activity of the company to achieve the purpose for which it was established. Instead, these costs are costs imposed forcibly by the tax policy of the state, costs that, if ignored, would inevitably lead to the company's demise.

A certain, rather qualitative assessment of the tax pressure can be made based on the Laffer curve model.

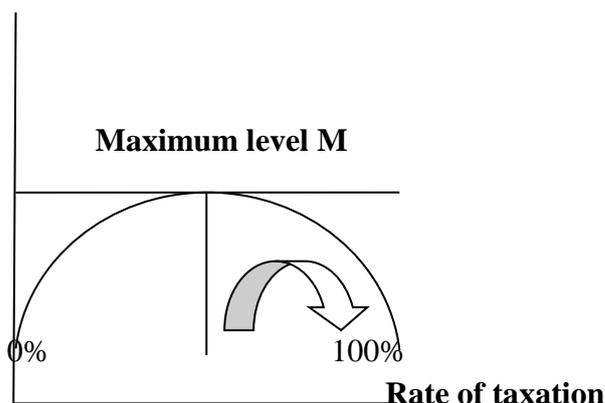
*Arthur Laffer is a prominent American economist, one of the founders of supply-side theory, who became famous during the administration of Ronald Reagan, who through his theories argues that the reduction of tax rates is completely compatible with constant tax revenues or even with higher revenues than the original ones . He became famous for the discovery of the effect – the legality of the influence of the tax rate on the tax receipts of the state budget – called in his honor "The Laffer Effect or the Laffer Curve". Laffer transposed in 1980 the graph known as the "Laffer Curve", an idea expressed in 1776 by Adam Smith, according to which rates of taxation that are too high destroy the basis on which taxation acts.*

The Laffer curve is a graph that depicts the relationship between tax rates and total tax revenue. The Laffer model captures the dynamics of tax revenues (TR) of the state budget, depending on the average tax pressure (ATP) in the economy of that state. It also shows that when tax rates rise a lot, an increase in the tax rate causes a decrease in tax revenues collected by the budget. Similarly, under certain circumstances, a decrease in the rate of taxes and fees may actually generate additional economic activity, leading to increased tax revenue.

Thus, it is marked that the dynamics of tax revenues follow, in the opposite direction, the dynamics of evasive behavior: the more tax revenues decrease, the more it is considered that the forms of tax evasion are expanding. [Neacșu C., 2019].

To be more explicit and render the evasive practice dependent on tax pressure, we present the simplified form of Laffer's curve.

### **The revenue collected at the National Public Budget**



*Source: Adapted by the author from [Hoanța N., 2010]*

According to the chart, if the tax rate will increase from 0 to 100%, the income from taxes and fees will increase from 0 to the maximum level M and will trend downward from there. Tax revenue falls beyond this point, because the increase in tax pressure generated by the increase in the tax rate will discourage economic activity and consequently reduce the tax base.

Consequently, the higher the tax pressure increases, the more the revenue to the consolidated budget decreases its share, since a high tax pressure automatically leads to various forms of tax evasion and, therefore, to the reduction of receipts to the National Public Budget.

It is important to mention that the increase in tax pressure does not only lead to evasion, but also to the closure of some businesses that cannot meet their tax obligations, resulting in the disappearance of a certain number of jobs. As a result, the exaggerated tax pressure can lead to the reduction of the tax base and the reduction of tax revenues to the National Public Budget.

So, the Laffer chart demonstrates that the reduction in revenues to the National Public Budget appears as a consequence of tax pressure, not just as a result of tax evasion.

Exaggerated tax pressure can cause legal entities to proceed to tax non-compliance, which can take different forms: tax abstinence, tax fraud and tax evasion.

### **Conclusion**

As we have seen, it is not possible to draw limits of the tax pressure scientifically based and applicable in practice to achieve a "tax oppression" agreed both from the point of view of the taxpayer and from the point of view of the state tax body. This is because the question of limits refers us to the psychological, emotional and social aspects of the taxpayer, all of which are difficult to quantify.

The respective limits are imposed by the reactions of the taxpayers who can put up a strong resistance to the increase in mandatory levies, when they estimate them to be excessive through: evasion, fraud, reduction of activity, etc.

On the other hand, a slight laxity by lowering the tax pressure can be made to appear less burdensome and therefore more bearable for economic agents, who will be willing to honor their tax obligations.

But this balance must be worked on consistently. Thus, we believe that alongside the techniques of transforming burdensome mandatory levies into bearable levy techniques, there must be the competence, availability and ability of the State Tax Service to make visible the consequences of a balanced taxation by carrying out pilot projects that have a wide adherence and be brought to the attention of taxpayers in due time.

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## THE SPECIFIC RISKS OF THE ENERGY MARKET OF THE REPUBLIC OF MOLDOVA IN TIMES OF CRISIS

### RISCURILE SPECIFICE PIETEI ENERGETICE ALE REPUBLICII MOLDOVA ÎN PERIOADE DE CRIZĂ

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**Abstract.** *The aftermath of the pandemic crisis and the war in Ukraine has accelerated the rise in the prices of energy resources worldwide.*

*With winter approaching, the sudden energy crisis hitting the world is threatening already strained supply chains, causing geopolitical tensions and raising questions about how ready the world is for a transition to greener forms of energy.*

*The Republic of Moldova, being a net importer of energy resources, obviously would be affected by this phenomenon, and this is due to the fact that the energy security of the Republic of Moldova was ignored for several years by the central public authorities, and the country became totally dependent on the energy resources supplied by the Russian Federation. Thus, at the moment, there are practically no alternatives regarding the supply of energy resources, and the risks of stopping them are very high.*

*Under these circumstances, the state institutions responsible for this sector, in addition to the regulatory aspects, must have the capacity to manage the risks specific to this field.*

*In the long term, however, a broad vision is needed for the field of energy security and diversification of sources, so that such crises are avoided in the future.*

*Based on the above, this article was developed to highlight the problems facing the country's energy sector, in order to overcome the existing crisis.*

**Keywords:** energy sector, energy crisis, risks, strategies, technologies, innovation.

**JEL Classification:** M1, L9, O13.

#### **Actuality of the research topic**

The Republic of Moldova faces unprecedented energy challenges resulting from the dependence on imports from a single source. The malfunctioning of the energy market, caused by the limitation of natural gas imports, undermines the energy security of the country at the national level and risks generating energy collapse, stagnation and economic regression, not to mention the social aspect of this problem.

In this context, we consider it appropriate to develop a governmental energy anti-crisis program, according to several possible scenarios, capable of responding to various situations that may arise in the energy sector.

We believe that the modeling and analysis of crisis situations are activities that the government will have to manage in a special way.

The arguments presented above emphasize the actuality of the respective theme and demonstrate the necessity of carrying out a scientific investigation on this subject.

**The aim of the research.** The authors aim to highlight the possible risks that may appear in the energy sector of the country during the crisis period.

### **Research methodology**

In order to achieve the objectives proposed in the research, the authors have used the following methods and tools:

- the documentary method, based on accessing and studying specialized bibliographic sources;
- the analytical method, through which the essence of the researched processes was reached;
- the dialectical method, as a general scientific method of knowledge;
- the synthesis method, applied to establish the connections between the researched phenomena.

Taking into account the complexity of the research topic, an extensive arsenal of the scientific method of study, based on the principles of dialectical determinism, was applied to its realization. In this regard, resorting to scientific abstraction, it was taken into account that the driving force of development is constituted by the internal contradictions of phenomena and processes. It was considered that both induction and deduction are not independent forms of research, isolated from each other, but are interrelated and represent necessary aspects of the general way of studying economic reality.

**The results of the research** will result in the formulation of scientifically argued conclusions and proposals and recommendations, capable of reducing the effects of the energy crisis on the social sphere and the real sector of the economy. The carried-out research has an applied character, as it refers to an important field, namely the energy sector of the Republic of Moldova.

### **Introduction**

The energy sector presents some particularities that set it apart from other infrastructure industries. These particularities essentially influence the management of the sector and the structure of the related services market in case of crisis situations.

The war in neighboring Ukraine shows how fragile a country's dependence on the supply of energy resources from a single source is, especially if the focus on commercial operating conditions is dictated by geopolitical pressures.

The vulnerability of the supply of energy resources under these conditions must be treated with the greatest responsibility by the decision-makers in this sector. That is why a resilience and security analysis must be carried out periodically in the country's energy system.

Although the alternative ways of delivering natural gas from European countries have been under negotiation for a long time, the issue seems not to be resolved definitively, as there are still sensitivities related to the technical conditions and the natural gas transport infrastructure in different areas of the EU.

If there are objective impediments in the given segment, then the difficulties of foreign traders who have the necessary capacities for delivery, with respect to entering the wholesale market of the Republic of Moldova, are less objective. They mostly relate to going through some stages of registration and obtaining the permissive documents. These impediments, as well as the relatively limited demand for natural gas in the country due to the low level of consumption for industrial purposes, create a less attractive picture for large traders in the region.

As a consequence, the measures to improve the regulations of the energy sector regarding the removal of barriers for the diversification of supply sources, will allow the guarantee of equal access of both, traders from the Republic of Moldova and those from abroad to the wholesale and retail natural gas market.

We find that the international energy markets are in a continuous complex change in terms of technology, geopolitics, economics and climate. The Republic of Moldova is to align with international trends in order to create regulated, transparent, but also accessible and attractive conditions for both, local energy companies, as well as foreign traders, in order to open access to the wholesale market of natural gas and electricity as dynamically as possible, through specialized transactional platforms.

### **Approach of the topic**

The energy sector must operate on the basis of free market mechanisms, with the main role of the state being policymaking, regulation and guaranteeing the stability of the energy system. The domestic electricity and natural gas markets are composed of regulated and competitive markets, a fact that substantially complicates the activity of their participants, considering the public service obligations ancillary to the regulated markets. In this context, the forecasting function of energy market participants can influence the future events and their probabilities. Emphasis must be placed on *"intensification and substantial renewal of the content of the forecasting function, whereby management will base its entire activity of the organization on the basis of systematic long-, medium- and short-term forecasts and will evaluate its activities and results by comparing them with the predictions"* [Aldea A.S., 2010].

Thus, the issue of risk analysis in crisis conditions will allow a better understanding of its context, because risk reveals threats that a country must face if it wants to ensure its energy security.

Risk, as a concept, is associated with *"the possibility of variations in results from initially estimated values or levels"* [Patriche D., 2007]. Uncertainty is used to describe situations or events that cannot be associated with the probability of their potential occurrence.

By contrast, the risk affecting the energy sector as a whole cannot be eliminated by diversification. Systematic risk variables cannot be controlled by energy market participants, but through current and forward-looking operations, they can reduce "sensitivity" to undesirable events or changes in this field.

The tendency to assume or avoid risk is influenced by the individual characteristics of each energy market participant, contextual factors and organizational structure. The energy sector is a specific one, having a particularly large impact both on the national economy and on each individual as a consumer. Carrying out economic activities on the energy markets involves not only the risks inherent to a business, but also the assumption and execution of public service obligations, imposed by the state through special regulations, which aim to ensure the continuity of the supply of natural gas and electricity to different categories of consumers and the defense of their rights. Under these circumstances, the decisions of the participants in the energy markets carry an increased degree of risk due to the uncertainty of the occurrence of the effects after their implementation, and the final results may not be only the estimated ones.

The perception of a decision-making situation in conditions of an energy crisis, the assessment of risk and alternatives, the made choice, are influenced by the attitude towards the risk of the decision-maker. Natural risk propensity reflects the decision maker's general risk-taking tendency.

The methods and elements of risk assessment by the decision-maker are indicative and aim at their possible management. Any risk analysis must be done periodically, in order to have a real value for the sector. Among the most frequent risks, identified by the authors of this study, are the risks presented in *Table 1*.

***Table 1. The risks related to the energy sector***

<b>No.</b>	<b>Typology of risks</b>	<b>Characteristics of the risks</b>
1.	Political risks	These risks are associated with the geopolitical situation which is very unpredictable. An example can be the war in Ukraine which generated a worldwide energy crisis of proportions.
2.	Pandemic risks	That risk was caused by the Covid-19 pandemic, which led to a considerable reduction in energy resource needs.
3.	Operational risks	The risks due to the costs of maintaining the operational reserve resulting from the energy crisis are determined. These risks have so far not been explicitly identified in the energy market, but they are currently manifesting as a consequence of the war in Ukraine. In the future they will have to be taken into account when introducing a coherent risk management.
4.	Financial risks	There are risks regarding liquidity availability. Those risks are associated with the need to take loans, or receive subsidies from the state, for the purchase of natural gas on the wholesale market based on bilateral contracts.
5.	Technological risks	In the energy market, the risks associated with technological operation are significant and have an important impact in determining their management policy.
6.	Environmental risks	With the increase in the price of energy resources, consumers will have to use coal, which is quite polluting. In addition to this fact, the consumption of woody masses will increase, which will lead to the massive deforestation of the forest fund.

7.	Risks of responsibility of decisions	The various risks exposed above require the implementation of responsible and assumed decisions by the decision makers. We must emphasize the fact that the decisions made by the decision-makers can be adapted under conditions of political, social and, last but not least, psychological pressure.
8.	The risk of availability of natural resources	Insufficiency of natural gas on the European market and high prices in connection with the partial shutdown of the flow of natural gas from the Russian Federation as a consequence of the war.

*Source: Adapted by the authors according to [Lega A., 2008]*

We are aware that energy markets are the result of the interaction of producers, suppliers, transportation system operators and market distributors in search of maximum profits, as the theoretical concepts reveal. At the current stage, however, energy markets are clearly regulated and have very precise rules of the game. Each participant of the natural gas or electricity market has its well-established role, according to the rules of the respective markets.

Besides, the stereotype of separating the state from the energy market is an artificial one, an illusion far from reality. Governments are obliged to intervene, in crisis situations in various fields of economic activity, creating and eliminating markets, but also limiting or favoring the rules of the game in various sectors of activity, including in the energy sector. Therefore, the energy sector market is often the result of political choices and decisions, being geopolitically and dimensionally delimited by the dynamics of demand and supply, regarding the need for these resources.

Currently, science and technology seem to be the factor with the greatest impact on the energy resource market and society as a whole. It is increasingly obvious that the pace of economic development depends on the energy resources that are made available to mankind. As any evolution in the sphere of science and technology involves some long-term consequences, which cannot be neglected nor always foreseen, attention is required to accelerate the pace of development of alternative energy resources and enhance regulations in this field.

The anticipation of technical developments, at the level of the energy sector, but also at the scale of the entire society, represents the key particularity in reducing the degree of risk exposure of this sector. Decision makers need to focus their attention on the following aspects:

- the pace of developments recorded in this sector;
- the current situation created in the energy field;
- possible limits or barriers, their nature and the means by which they can be eliminated or diminished;
- identifying the methods of ensuring the security of the supply of energy resources.

Such an approach allows a realistic anticipation of developments in the sphere of the energy sector, providing decision makers with clues about possible strategies to be implemented in this sector, which is a vital one for the national economy.

Most research on strategy evolution has shown that strategies generally develop in an incremental manner, progressively modifying the already implemented strategies [Vagu P., 2008].

Referring to the energy strategy of the Republic of Moldova, until 2030, that document provides concrete benchmarks for the development of the energy sector in the Republic of Moldova, with the aim of ensuring the necessary basis for economic growth and social well-being

[Platon N., 2022]. Through this sectoral policy document, the Government of the Republic of Moldova presents its vision and identifies the country's strategic opportunities in the energy context [<https://www.legis.md>].

Although the policy document provides for concrete actions that the country must take in the next period, we are of the opinion that the country's energy security must be ensured by solving the following tasks:

- diversification of import sources;
- adaptation of an energy efficiency program of the country;
- the gradual transition to green energy with a non-invasive impact on the environment;
- ensuring energy storage capacities and backup systems;
- optimization of consumption by final consumers.

Solving these tasks requires a fundamental change in the way our society behaves, so that we use fewer energy resources, while maintaining the quality of life. In this regard, an important role belongs to the importers of energy resources, who must use the best available technologies and develop the most energy efficient technologies and products in order to reduce the existing risks in the current crisis conditions. Technological research, innovation and stimulation of the assimilation of innovative technologies can be the important factors in achieving the proposed tasks.

At the same time, we must be aware of the fact that the implementation of advanced technologies, which largely include electronic command and control systems, computer systems for surveillance, optimization, data acquisition, etc., requires the attraction of private investments and the continuous training of specialists in the field.

To sum up what has been presented, we consider it appropriate for the Republic of Moldova to develop its energy security strategy on *nine priority directions*:

1. diversification of import sources of electricity and natural gas;
2. establishing a list of priorities regarding the construction of new infrastructure elements necessary to ensure safety in the supply of electricity and natural gas;
3. creation of sufficient stocks of natural gas in order to ensure the supply of these resources;
4. initiation of a feasibility study regarding the construction of natural gas storage facilities on the territory of the Republic of Moldova;
5. development of a strategic technological plan at the national level to ensure the optimal utilization of national research resources and innovation potential;
6. development of a policy document that ensures the achievement of basic objectives, such as: long-term energy security, a functional energy market, sustainable economic development;
7. achieving energy savings in the residual sector by increasing energy efficiency through National programs that will encourage investments in thermal insulation;
8. increasing the share of renewable energy sources in total energy consumption;
9. reduction of greenhouse gas emissions according to some scenarios of measures and strategic documents issued by the competent institutions.

## **Conclusion**

The future of the energy sector is marked by a series of problems, the most important of which are:

- the increase in the consumption of energy resources and the increasing dependence of mankind on the various forms of commercially available energy;
- the galloping increase in tariffs for energy resources;
- tension in the Russia-EU energy dialogue in the context of the war in Ukraine;
- the impact of this sector on the environment, including through a substantial contribution to global warming and climate change;
- the exhaustion of fossil fuel sources over time, with the first effect in increasing their prices on world markets;
- the technological and economic difficulties in using renewable energy sources, as well as the limited usable potential of these resources.

## **Proposals and recommendations**

It is obvious that the primary and secondary legislative framework in the energy field of the Republic of Moldova must strictly transpose European directives, but at the same time, must be adapted to regional realities. The improvement of the legislative framework is still extremely necessary to ensure the energy security of the country, competitiveness, environmental protection and safety in operation, to attract and support investments and last but not least, to be able to respond to emergency situations in the energy sector and to the needs of the most vulnerable energy users.

In order to increase energy security and reduce the pressure on vulnerable groups of consumers in the energy crisis situation, it is necessary to consolidate the capacities of energy market participants and the Government's support mechanisms, so that conditions are created for transparent and non-discriminatory procurement, financial mechanisms, the mechanism for creating and maintaining mandatory stocks of natural gas at the lowest possible costs.

At the same time, it is necessary to make investments both, in the infrastructure of natural gas, as well as in electricity, for the interconnection in optimal conditions with the neighboring states, the basic goal being the diversification of the import sources of energy resources.

Therefore, in order for the energy market of the Republic of Moldova to function normally, without being subject to major risks for the future, it is necessary to carry out the following actions:

1. Establishing effective ways of cooperation with the regulatory authorities in Romania, as a member state of the European Union, and Ukraine, as a strategic partner.
2. Ensuring a flexible electrical energy system, able to adapt at reasonable costs to any change, in order to reduce the effect of uncertainty on the basic premises.
3. Effective use of primary resources in the country.
4. Ensuring the level of transparency and competition by the regulatory body.
5. Ensuring the operation of the wholesale market of natural gas and electricity according to European regulations on the internal energy market, being based on legal requirements for the development of energy from renewable sources, integration of balancing markets, interconnection of regional energy systems.

6. Modernization of the energy governance system.
7. Increasing the quality of education in the energy field and continuous training of human resources.

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## CIRCULAR BUSINESS MODELS FOR INCREASING PRODUCT USAGE

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***Abstract.** Economic development and globalization have brought our planet into a dramatic situation both from the perspective of the impact on the environment and from the perspective of the rapid depletion of limited natural resources. The excessive private consumption of the population of most countries in the world, who live in an abundance of material things, is far from sustainable and calls into question the existence of future generations. Population behavior and consumption and production choices have a negative impact on the environment and other people, for this reason the global challenges we face require the development of new lifestyles and business models that would be more sustainable and responsible towards the environment.*

*The need to move in a prompt manner from a linear economy to circular economy practices is rapidly intensifying every year, and this is currently seen as the only solution to slow down the negative developments. The circular economy means extracting value throughout the product life cycle by repairing, reusing, upgrading and recycling products in a profitable and sustainable way, with the aim of reducing the amount of exhaustible resources consumed, the volume of waste generated and the harmful impact on climate. The transition to a circular economy requires a fundamental change in the way we think and use goods. A real change refers to the adoption of business models and behaviors that would also aim to optimize and increase the rate of use of products. In this work, we aimed to describe the main circular business models that can be implemented, highlighting among them those that directly aim to increase the rate of use of products, this being one of the essential ways of transitioning to a circular economy. This paper is written within the state project 20.80009.0807.22. Developing the mechanism for the circular economy creation in the RM*

**Keywords:** circular economy, circular business models, increasing product usage, sustainable development, product-life extension

**JEL Classification:** Q01, Q32, Q57

### **Introduction**

Evidence shows that global climate change is primarily caused by human activities, which calls for a rethinking of the interaction between humans and the world around them by reducing the footprint of human and economic activities on the environment. Climate changes and their effects have highlighted the vulnerability of traditional consumption and production systems and the necessity to identify new strategies that would allow the moderation of climate changes.

As people's awareness of environmental impact has increased, a trend towards sustainable innovation has been identified (Suchek, 2021; Jakhar, 2018). One of the most supported alternative ideas to a linear economy is the circular economy, the aim of which is to preserve the value of products, raw materials and materials for as long as possible, while reducing waste (European Commission, 2018).

Circular economy aims to extract value throughout the product life cycle by repairing, reusing, upgrading and recycling goods in a profitable and sustainable way. This requires a certain type of business model combined with the right technical solutions. According to Bonnedahl (2018), companies have a significant role to take responsibility for the environmental problems

that exist in society today, because consumption and trade are one of the factors that contribute to environmental problems. Interesting being the possibilities from a business point of view to create more sustainable products, so as to decrease the amount of natural resources used and the pressure exerted on the environment.

One way to explore these possibilities would be to study the concept of a business model, which combines the view of how a business operates with how it interacts with the world around it. According to Zott, Amit and Massa (2011), business models provide a systemic perspective on business, which is crucial when trying to find out how to achieve systemic change towards product sustainability in business. For this purpose, it is important to analyze existing business models and the real possibilities they have for extending the life of products, contributing to the reduction of environmental damage and still remaining profitable. For this we will study what types of business models that extend the life of a product are and highlight those essential features of these business models compared to other business models.

### **Some empirical and theoretical evidence of circular business models**

Increasing awareness of the need to reduce resource use and change consumption patterns provides strong incentives for companies to revise their linear business model in favor of a circular business model, which is gaining more and more attention.

According to Nußholz (2017) a circular business model is about how a company creates, captures and delivers value with the value creation logic aimed at improving resource efficiency by helping to extend the useful life of products and parts (e.g., through long-term design, repair and remanufacturing).

There are different types of circular business models that a company can implement to become more circular. They can work on extending the product life cycle, using waste, creating sharing platforms, creating more efficient use of resources, using renewable energy or offering a product as a service. (Bocken et al., 2016; Ellen MacArthur Foundation, 2015; Tukker, 2015).

There are many benefits to implementing a circular business model. These include, but are not limited to: cost savings in production, improved customer relationships and understanding, higher margins, reduced environmental impact and a stronger brand (Linder and Willander, 2017). Despite the benefits, many are skeptical that companies will adapt their business model beyond shareholder interests, but research still shows great potential for the future (Lahiti et al. 2018). Smol et al (2017) state that the basic idea of a circular business model is to preserve the value of the product as much as possible to avoid unnecessary waste. Bocken et al. (2016) develop the idea of a circular business model and define it as a regenerative process in which resource use, waste, emissions and energy waste are reduced by slowing, closing and reducing the raw material and energy cycle. This is possible by creating long-lasting design, as well as working with maintenance, repair, reuse, recreation and recycling.

Linder & Willander (2017) also describe that resource value can cycle through different actors. Stahel (2010) believes that the circular business model consists of a cycle with two closed loops, one about the reuse of goods and the other about the recycling of materials. With the reuse of goods, he refers to an extended lifetime and period of use of a product and believes this is achieved by creating long-lasting design, but also by repairing, refurbishing and updating the

technology in the products. By recycling materials, the idea is to create a closed loop between waste after use and production. Smol et al. (2017), Bocken et al. (2016), Linder and Willander (2017) and Stahel (2010) thus describe the central aspect of a circular business model as extending the life of products and keeping them longer in their cycle.

In the specialized literature, five circular business models are proposed for the implementation of the strategy of switching to ecological business models: circular supply, resource recovery and recycling, product life extension, collaborative economy and product as a service. All these models try to reduce the pressure exerted on limited natural resources, thus reducing the need to extract exhaustible resources, and eliminate the generation of waste. The boundaries between these circular models in reality are not so sharp, some companies adopt a combination of business models.

Business models that integrate circular economy principles operate at different stages of the value chain. Each of those business models intervenes at different stages of the value chain. By closing the resource loop and slowing down and limiting resource circuits, business models that integrate circular economy principles can reduce the environmental footprint of production and consumption. For example, extending the life of a product mainly targets the design and use phase of the product. And collaborative consumption aiming to increase the utilization rate of resources is essentially related to the stage of use and maintenance.

To optimize the use of resources and limit waste, companies can implement the circular business model based on extending the life of a product and preventing it from becoming waste. This circular business model mainly targets the design and use phase of the product.

No negative social effects of product life extension have been found. The only negative effect on the environment comes from the delay in the use of more resource-efficient products during the use phase, (rapidly changing the boiler on fossil fuels with another one that uses renewable energies).

At the same time, for many businesses the limited number of negative effects, compared to the positive effects, is not a decisive factor for the implementation of strategies to extend the time life of products. The negative effects being directly related to manufacturers' reluctance to change their business model by emphasizing sustainability, offering transparent terms of sale, extended warranty periods, providing means to repair or refurbish products, etc., so implement those business strategies aimed at extending the life of products.

### **Business strategies for extending product lifecycle**

To implement the business model that aims to products lifetime, companies can adopt one or a complex of sustainable strategies, the main ones being: renovation, upcycling, remanufacturing, repair or the second-hand market.

Based on our research, the sectors that can implement these strategies with relatively affordable costs would be: repairs and maintenance of machines and equipment - specialized repairs of professional goods produced in the production sector with the aim of restoring machines, equipment and other products to working condition; waste collection, treatment and disposal activities - local waste transport and operation of material recovery facilities; scientific research and development - three types of R&D&I: basic research, applied research and experimental development; rental and leasing activities - rental of motor vehicles, leisure and

sports, personal and household equipment, equipment; leasing of professional machinery and equipment, other transport equipment; leasing of intellectual property products and similar products; computer repairs and personal and household goods - repair of communication equipment, consumer electronics, home and garden equipment, footwear and leather goods, furniture and home furnishings, clothing and clothing accessories, sporting goods, musical instruments, hobby items etc.

We notice the absence from this list of many manufacturing sectors: textiles, wood products, paper, fossil fuels, chemicals, pharmaceuticals, rubber and plastics, construction materials, metals and metal products, electronics, electrical equipment, machinery, equipment cars, other transport equipment, furniture, other manufacturing and construction products. These production sectors, of course, have both benefits and losses following the extension of the life of the products, being very reluctant to change. At the same time, by implementing new, innovative technologies and using various circular strategies, these sectors can obtain the most considerable economic, social and environmental benefits.

Extending products lifetime can be achieved both at the level of producers and at the level of consumers, through several actions. Increasing their total lifetime through "sustainability". That is, to increase the quality of the products, their repairability (the ability to repair them), their compatibility with other systems (such as the standardization of phones) and their ability to evolve. This aspect mainly concerns manufacturers. More responsible consumption, consistent with real needs, by maintaining products and decreasing sensitivity to the effects of fashion that encourage premature renewals. This aspect mainly concerns consumers. And optimizing use and promoting reuse, giving products a new life. By sharing occasionally used equipment (gardening equipment, etc.), it is possible to increase the use of a product and encourage the purchase of a more robust design. This action is addressed to all interested parties.

## **Conclusion**

Increasing product usage is closely related to Product Lifetime Extension, which is a viable business model that can be implemented in companies of different industries and of different size and structure, from small individual enterprises to large and very large. This business model that follows the increased use of the product can be implemented in any country, regardless of the existence of a developed legislative framework in the field, based only on the voluntary desire of producers and consumers.

Implementing this model involves a radical transformation of product design processes to extend their durability over time and at the end of their life cycle to reduce their environmental footprint. Without a radical change in consumer behaviors and lifestyles, most circular business models will not be viable. The gradual implementation of sustainable business models, as well as the transition from a linear to a circular model, will not occur without supporting policies and regulations. Encouraging examples can be identified (such as the strong push given by the EU circular economy strategy or specific regulations such as the Swedish tax system favoring models based on maintenance and repair).

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## **MANAGING THE TAX EVASION AND FRAUD RISKS AS RESULT OF THE VOLUNTARY TAXPAYER COMPLIANCE PROGRAM**

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**Abstract.** *Currently, taxpayers are developing solutions to reduce the tax burden using both legal limits of the tax legislation and less legal limits.*

*Resulting from this situation, the concern of the State Tax Service in terms of tax practices in the future will be mainly focused on the identification and management of fraud and tax evasion risks, which represent a major impediment for the [revenue to the national public budget](#).*

*In this context, risk management through the voluntary compliance of taxpayers would be a less expensive solution for tax administration, and the results obtained could reduce the tax gap between what was planned and what was collected.*

*The study carried out by the author was focused on addressing the issue of the risks of voluntary compliance of taxpayers, thereby contributing to the increase of efficiency in tax administration, carried out by the State Tax Service.*

*The scientific approach started from the idea of identifying the potential risks faced by the State Tax Service in the process of tax administration.*

**Keywords:** tax evasion, tax fraud, taxpayers, voluntary compliance, risks, risk management.

**JEL Classification:** H21, H22, H26.

### **The topicality of the research topic**

The multitude of obligations that tax legislation imposes on taxpayers has made them, at all times, invent various procedures to evade tax provisions.

Tax evasion and fraud is a matter of morality, and the businessman abandons morality in other situations than the one in which he is facing the payment of tax liabilities to the state.

Since the business environment involves an infrastructure that can be used by both legitimate business structures and dubious individuals who can mask their fictitious transactions through various schemes and financial combinations, this topic becomes quite topical to be researched and analyzed, to come up with solutions to counteract this scourge.

As the author, I proposed to research this topic, which is quite current and necessary as a study for the State Tax Service, the body responsible for tax administration in the Republic of Moldova.

**Arguments** required for the research of this theme:

- identifying the risks that generate fraud and tax evasion;
- analysis of specific risks of fraud and tax evasion;
- studying how to manage compliance risks;
- expressing some reasoned opinions as a result of the research carried out;
- deducing some scientifically argued conclusions with reference to the subject of the research.

### **Research methodology**

The methodology, within the conducted research, was used with reference to the efforts dedicated to documentation, comparative analysis, development of solutions and models by investigating the reality and forecasting some tax events. Scientific research was carried out through the lens of three basic components: fundamental scientific research, applied scientific research and experimental development.

- *The fundamental research method*, which allowed: obtaining progress in knowledge, reflecting the premises of the attested changes in the researched field, concretizing the opportunities for the future, investigations in the form of theoretical studies, which led to the formulation of scientifically argued practical conclusions.

- *The method of applied research*, which had the task of providing data for the direction of practical activity, in order to increase methodical work and transpose some ideas into operational form.

- *The method of experimental development*, which includes research works done systematically in order to enrich the body of knowledge, including the knowledge of man, culture and society, as well as the use of this knowledge for new applications.

The research methodology involved the analysis and characteristics of the tax field, the establishment and application of some principles and rules for the conduct of investigations, specifying the working tools for data collection, generation and interpretation, approach strategies and analytical treatment.

Also, a dialectical unity was achieved by summing up two essential components: theory and scientific method. The theory of scientific research consisted in the use of the fund of accumulated knowledge, translated into a rational form, of concepts, theories and practical applications. The method served as a way to use knowledge and operate with it in order to further develop the researched subject, being, at the same time, the unique way of establishing scientific truth, as an element that gives the work scientific value and perfection.

**Research results.** The author aimed to highlight the problems related to the management of the risks of tax evasion and fraud, faced by the State Tax Service, as a result of the implementation of the voluntary taxpayer compliance program.

### **Introduction**

No state wants to have tax evaders. But this scourge is very difficult to combat because the taxpayer's relationship with the tax system is first of all a problem of perception, in relation to the entire levy that he has to pay. This perception is obviously characterized by a system of coercion, even pressure, which explains the permanent opposition of the taxpayer to the payment of tax obligations.

In order to avoid this perception of permanent coercion, it is necessary to find that balance in communication, so that the taxpayer understands that by voluntarily complying he will have the opportunity to be active in business, without fear of being persecuted.

For these reasons, to the extent that the citizen-taxpayer's understanding of his role in supporting the state and how the latter uses tax resources will increase, the authority of the

taxpayer will also increase and the State Tax Service, will organize a fair and balanced administration, without resorting to repressive measures.

### **Description of the topic**

Tax evasion and tax fraud have always been active and ingenious, for the simple reason that the tax body, hitting people and their wealth, touches them at an extremely sensitive point - property. But the state cannot exist without tax levies. Taxes are considered to be "the very existence of the state, expressed in economic language". [Manole T., 2016].

Despite everything that is written about the causes, extent, methods, control and sanctions regarding tax evasion, there is no unanimously accepted definition of the notion or the concept of tax fraud. Economist of French origin Jean-Claude Martinez points out that "we cannot only discuss fraud, legitimate or evasion, we must nuance the points of view and discussing tax havens or the right to flee from the burdensome tax, freedom of choice towards the more a little burdensome or about tax underestimation". [Martinez J., 1996].

He concludes that tax evasion is the minimization of excess taxation by using real acceptable alternatives, while tax fraud is determined by the violation of existing tax legislation.

Ioana Maria Costea, tax expert believes that tax evasion must be defined as "the set of crimes committed by a taxpayer or another person, with intent, by fraudulently fulfilling or failing to fulfill the tax or procedural-tax obligations to which he is held, in order to reduce tax revenues to the general consolidated budget". [Costea M.I., 2011].

In the legislation of the Republic of Moldova, according to the Penal Code, article 244, it stipulates that tax evasion implies "the intentional inclusion in accounting, tax and/or financial documents, including electronic ones, of obviously distorted data on income or expenses that are not based on real operations or based on operations that did not exist, either through the intentional concealment of taxable objects, accounting, tax and/or financial documents, if the cumulative amount of the tax, provided by the Tax Code, the mandatory state social insurance contribution or the mandatory medical assistance insurance contributions related to a tax year exceeds 50 average monthly wages for the forecasted economy, established by the Government Decision in force at the time of the act". [Penal Code, 2009].

A short but relevant definition of the crime of tax evasion is the use of certain means done in bad faith, by deception, which result in evading the payment of budgetary obligations.

With reference to tax fraud, most tax experts consider it a deliberate action to evade the payment of taxes, duties and state social and health insurance contributions. This procedure will be distinguished from tax evasion because it will resort to the concealment of some information, the taxpayer thus avoiding the obligation to declare the income derived as a result of his economic activity.

Although the national legislation of the Republic of Moldova does not provide for this notion, it is present in the economic lexicon of the country and therefore it must be defined. Thus, in the opinion of the authors, expressed in the specialized magazine of the State Tax Service Monitorul Fiscal "Fisc.md", "tax fraud means any culpable action committed by taxpayers, involving a violation of tax legislation, with the deliberate aim of avoiding paying taxes, which are intended for the National Public Budget". [Fisc.md Fiscal Monitor, 2022].

Most of the contemporary authors see tax evasion and fraud as the totality of the manifestations of evasion in front of the tax burdens, which can take a form:

- illegal, having a fraudulent character, or
- licit, legal or tolerated.

As the globalization of the economy forces national and multinational companies to face increasingly fierce competition pressure and the need to constantly analyze the efficiency of their business structure, without constant improvement of the business structure and economic-financial indicators, they can quickly move to the side of stagnation, uncompetitiveness and even insolvency.

This is how the border between planning, i.e. tax optimization, and evasion is a very sensitive one and therefore, most of the specialized literature is focused on the need to delimit the area of tax evasion, implicitly reducing taxes and fees through tax planning and optimization.

The absence of very clear provisions and rules regarding tax evasion and fraud in the Tax Code of the Republic of Moldova, as well as the lack of a unified approach, mean that, in many cases, reducing the amount of taxes and fees, through tax planning and optimization, is framed as evasion, thus avoiding the very serious consequences, both fiscal and criminal, that could predict the consequences of tax fraud.

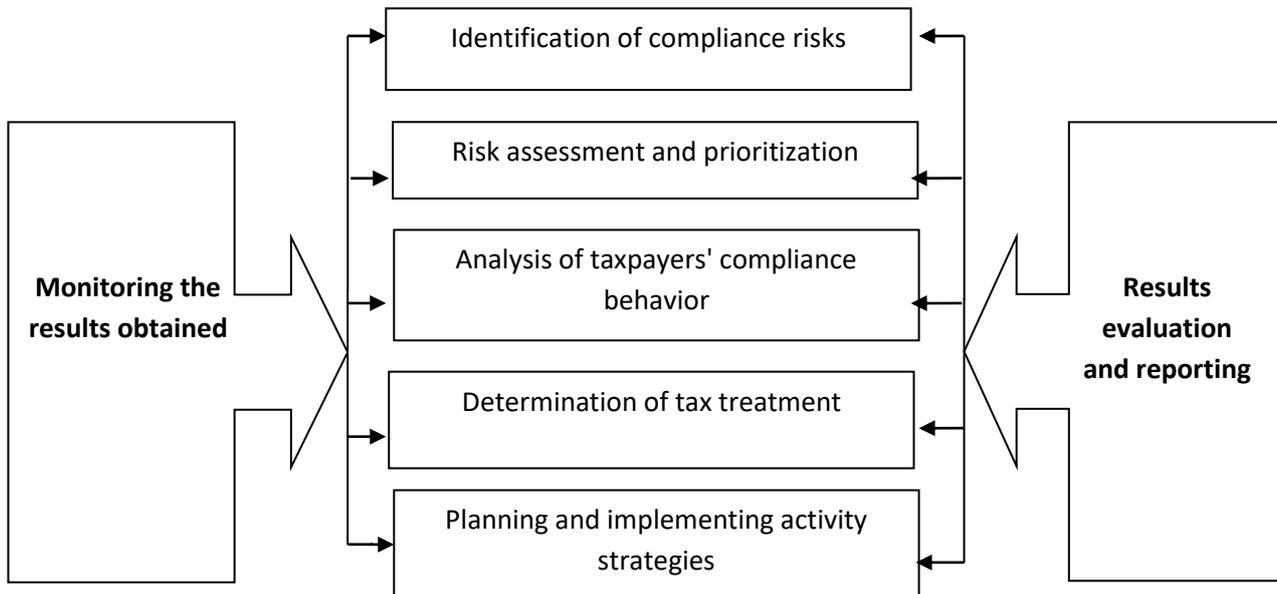
In general, the avoidance of the tax burden occurs through three methods:

- a) the tax regulatory norm itself ensures the avoidance of the tax burden through a favorable tax regime;
- b) the unwillingness of the legal entities to fulfill its tax obligations;
- c) use of loopholes or legislative loopholes.

In order to avoid the consequences of tax evasion and fraud and to reduce the costs of tax administration, the State Tax Service implemented the national program of voluntary taxpayer compliance.

In the opinion of the State tax Service, the management of compliance risks must be a continuous process, oriented towards the identification of risks from taxpayers' activity and the application of the simplest and most effective treatments to mitigate the risks of non-compliance and increase the level of voluntary tax compliance.

Thus, the management of compliance risks must involve the following steps:



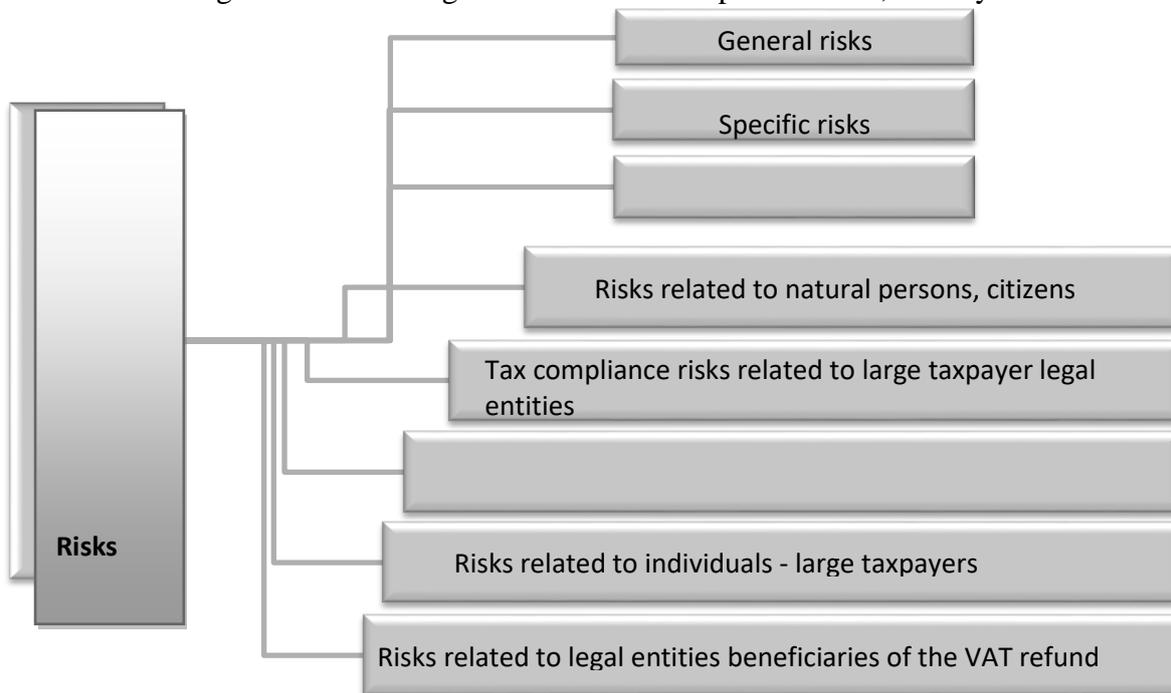
**Figure 1. Compliance risk management**

*Source: Adapted by the author from the Taxpayer Compliance Program developed by the State Tax Service*

The author of this study believes that risk management must be a systematic process, in which the State Tax Service makes deliberate choices on the compliance treatment. Compliance treatment must be based on knowledge of the behavior of each individual taxpayer, each branch of economic activity, be it a natural person or a legal entity, which could be used to effectively stimulate voluntary compliance and prevent evasion from payment and calculation taxes, duties and other mandatory payments, including through the trend of continuous reduction of the phenomenon of tax evasion.

We consider it appropriate that for honest taxpayers the treatment by voluntary compliance should be used, and for taxpayers who practice tax evasion and fraud, the treatment by forced compliance should be used.

Currently, the State Tax Service operates with eight categories of tax non-compliance risks, which have been registered in the Register of tax non-compliance risks, namely:



**Figure 2. Risk categories** [https://sfs.md, viewed 03.09.2022]

Source: <https://sfs.md>

The probability of occurrence of risks is expressed by the possibility of determining some tax obligations, which have been reduced intentionally or unintentionally by the taxpayer.

The risk categories include the risks identified in the activity of all categories of taxpayers who carry out the activity of an entrepreneur in the part related to the general aspects of organizing the activity of an entrepreneur, the periodicity of the control activity of the State Tax Service vis-à-vis the taxpayer, the general aspects what characterizes the activity of a taxpayer.

After the identification of the risks, the evaluation stage follows, which has as its final goal - the establishment of the hierarchy of risks, their prioritization according to risk tolerance.

The objective of compliance risk assessment and prioritization is to assess the significance of risks identified in taxpayer activity and to prioritize the compliance outcome and available resources. The risk assessment is carried out in a way intended to facilitate the monitoring and identification of the order of priorities regarding the risks.

Thus, depending on the consequence of the occurrence of the risk on the level of collection at the National Public Budget of tax obligations, the risk can be:

- Low – the risk will have an insignificant effect, the amounts of tax obligations that can be reduced by the taxpayer do not significantly influence the level of budget execution.
- Medium – the risk can materialize in additional calculations to the budget, but which have an average influence on the level of budget execution.
- High – the risk means a high level of tax non-compliance, which can result in significant reduced/concealed tax obligations.

It's no secret that a good part of the difficult nature of tax levies lies in the complexity and changing nature of tax legislation. This complexity is obviously due in large part to the multidimensional image of contemporary societies. This complexity, which the tax body tries to manage, is aggravated by the very instability of the tax system, due to the fast economic and social developments to which, permanently, the tax legislation must adapt. However, taxpayers are mostly attached to a certain voluntary compliance, especially when it comes to tax levies.

### **Conclusion**

Any tax levy in the taxpayer's opinion reduces his income or well-being. But without these levies the state cannot exist. The state must honor his social, economic and other obligations to his citizens. Under these conditions, complying with tax legislation is one of the essential civic duties of taxpayers, and the development of tax citizenship requires a responsible relationship between the taxpayer and the tax authority.

In order for the taxpayer to voluntarily comply with tax requirements, he must feel that he is being treated fairly, impartially and equidistantly.

The basic pillars that must stand at the foundation of a correct relationship between the tax body and taxpayers must be manifested through:

- tax administration must simplify the lives of taxpayers (facilitating the declaration and payment of tax obligations, modern channels of communication, clear and easy-to-understand language, support for setting up a business, a more rational sanctions regime);
- tax administration must be fair (apply tax legislation neutrally, impartially and realistically, taking into account the difficulties of taxpayers, seeking a balance in relations with them);
- the tax body must respect taxpayers and their rights (presumption of good faith, right to legal security, right to appeal, protection of fiscal secrecy);
- the tax service must be at the service of the taxpayer (the right to find solutions and the right to be listened to with consideration).

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## **SESSION II**

### **FUNDAMENTAL and APPLIED ECONOMY**

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**CZU: 005.32:005.95**

## **SOME FACTORS OF ORGANIZATIONAL BEHAVIOR IN THE FORMATION OF BIDIRECTIONAL RELATIONS**

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***Abstract.** People need to understand, anticipate, and influence the behavior of others in the workplace. Employees want to understand why certain events occur, what to expect in the future, in order to activate as efficiently as possible and benefit from the best results. The field of organizational behavior provides a scientific basis, which helps to improve anticipation of events in organizations under certain conditions. Identifying and explaining these events is more complex, because employee decisions and actions are driven by a multitude of factors and therefore require a specific response. Or, to the extent that a behavior can be explained and anticipated, it can also be influenced.*

*If we enumerate and analyze the factors of organizational behavior, we will start from the idea that in the work process takes place the interaction between people, between organizational and technological structures, the elements being influenced by the external environment, and they, in turn, influence this. medium. Therefore, human nature, the nature of the organization, technology, the external environment are the factors that determine organizational behavior.*

*We note, therefore, that organizational behavior means the study of human behavior, attitudes, and performance in the organizational environment. The study is based on the theory, methods and principles of disciplines such as psychology, sociology, cultural anthropology, etc. with which information is accumulated about individual perceptions, values, learning abilities and actions while working in groups and throughout the organization. Organizational behavior analyzes the effects of the external environment on the organization and its human resources, missions, objectives and strategies.*

**Keywords:** factor, behavior, organization, relationships, technology, environment

**JEL CLASSIFICATION: M10**

People need to understand, anticipate, and influence the behavior of others in the workplace. Employees want to understand why certain events occur, what to expect in the future, in order to activate as efficiently as possible and benefit from the best results. The field of organizational behavior provides a scientific basis, which helps to improve anticipation of events in organizations under certain conditions. Identifying and explaining these events is more complex, because employee decisions and actions are driven by a multitude of factors and therefore require a specific response. Or, to the extent that a behavior can be explained and anticipated, it can also be influenced.

The concepts of organizational behavior explain not only the behavior of managers in organizations, but are important for all their members.

According to the studies of psychologists, the individual cannot be changed, but it is possible to change his behavior in order to obtain performance. That is why the issue of organizational behavior was formulated and discussed.

If we enumerate and analyze the factors of organizational behavior, we will start from the idea that in the work process takes place the interaction between people, between organizational and technological structures, the elements being influenced by the external environment, and they,

in turn, influence this. medium. Therefore, *human nature, the nature of the organization, technology, the external environment* are the factors that determine organizational behavior. Let's approach them as follows:

**1. Human nature is** identified by: *personality integrity, motivated behavior, orientation towards participation, personality value.*

With regard to *the integrity of the personality*, it should be mentioned that it is through experience and knowledge that professional qualities are formed. Or, personal life is related to organizational life, ie the work process. Employees need to feel comfortable both morally and physically. In this regard, the management of the organization needs not only qualified employees, but also personalities, because the employees are members not only of the organization in which they operate, but also of the community. For this reason, the development of the personality affects not only the work, but also the activity of the employee outside the organization.

Regarding *motivated behavior*, a postulate of psychology states that human behavioral actions are formed under the influence of certain factors related to the needs of the individual. So, the manager, by certain methods, proves to the employee that certain actions of his will lead to the satisfaction of the needs of the individual. Another way of motivating would be the risk of lowering the level of satisfaction of needs in case the subordinate performs actions considered by the manager to be incorrect. In other words, employee motivation is a mandatory attribute of all organizations.

*The orientation towards participation* presupposes, in fact, the involvement of employers in organizational activities. Many employees want to contribute to the success of the organization by applying its ideas and capabilities. In this regard, organizations must create conditions for the achievement of these employees.

*The value of personality.* Every employee wants a careful attitude from the management of the organization, wants to appreciate the skills and professional qualification of each individual.

**2. The nature of the organization,** in turn, develops through: *social systems, common interests, ethical principles.*

*Social systems.* The organization is a social system, therefore, human behavior is formed both under the influence of individual desires and the desires of the group, of which he is a member.

In terms of *common interests*, any organization formulates certain social goals. In this regard, managers need employees to achieve these goals, and employees, in turn, need organization to achieve their personal goals.

According to the *ethical principles*, the organization must carry out its activity based on the observance of certain ethical principles, because more and more organizations are aware of this need, they develop various programs called to ensure high ethical standards for both managers and non-managerial staff ethics, stimulating employees for ethical behavior, establishing procedures for verifying compliance with ethical principles). In this way, the ethical principles are based on any action, and the ethical aspect of the goals and actions of the organization serves as a premise for the system of triple stimulation: the achievement of individual, organizational and social goals. In turn, group work leads to an increase in the level of satisfaction of individuals, because they have the opportunity to develop professionally, to grow, to appreciate their contribution to

achieving common goals. At the same time, the efficiency of the organization increases (the quality of the production increases, the expenses decrease).

**3. The technical and technological** factor influences the relations in the work process. For example, work at the conveyor is different from that of a research laboratory, and the responsibilities of a university lecturer differ from those of a nurse.

**4. The internal/external** environment of the organization influences the managerial activities.

Thus, it is expected to achieve several organizational goals:

\* *Anticipating organizational behavior.* For any manager, regardless of the hierarchical level, it is important *to predict* the behavior of individuals, namely: how employees will receive the introduction of a change (s); are or are not employees able to go through a period of austerity without major consequences; are or are not able, members of an organization, to make ethical decisions, etc.

Or, a correct conduct of anticipation of the organizational behavior allows the improvement of the anticipation of the events in the organizational space.

\**Explaining the causes of organizational behavior.* The ability to anticipate organizational behavior does not guarantee the development of an appropriate strategy to control it. In this sense, it is necessary to explain the causes of the manifestation of a certain organizational behavior.

\* *Implement techniques that facilitate control over human actions.* Although modern society is based on the concept of individual freedom, behavioral control is viewed by managers as a valuable tool provided by organizational behavior in achieving efficiency.

\* *Determination of the methodological tools.* The right tools help to identify the manifestation of different attitudes and behaviors, the causes of: motivating and demotivating employees; triggering conflicts; confronting the organization with an exaggerated staff turnover etc.

Achieving the predetermined organizational goals involves developing the *system of organizational behavior*, the main task of which is *to identify the main factors (philosophy, mission, goals)* that influence the achievement of goals and create the conditions for their effective management. The final results are appreciated according to three criteria: *indicators of the organization's activity; the level of employee satisfaction; individual development and growth (accumulation of new knowledge and qualification).*

Thus, the elements of organizational behavior system are:

a) *philosophy of organizational behavior* (includes a number of general beliefs of managers regarding the activity and tasks of the organization);

b) *the mission of organizational behavior* (determines the type of activity, the market and market segments, including a small list of competitive advantages);

c) *the goals of organizational behavior* (indicates how the activity of organization is carried out).

When an effective organizational behavioral system ensures the achievement of a high level of staff motivation, which, in combination with the qualification and capabilities of employees,

leads to the achievement of organizational goals, two-way relationships are formed: managers and employees influence each other to achieve the desired benefit.

We note, therefore, that *organizational behavior means the study of human behavior, attitudes, and performance in the organizational environment. The study is based on the theory, methods and principles of disciplines such as psychology, sociology, cultural anthropology, etc. with which information is accumulated about individual perceptions, values, learning abilities and actions while working in groups and throughout the organization. Organizational behavior analyzes the effects of the external environment on the organization and its human resources, missions, objectives and strategies.*

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## **THE ROLE OF BUDGETARY-FISCAL POLICY IN REDUCING REVENUE INEQUALITY IN THE REPUBLIC OF MOLDOVA**

### **ROLUL POLITICII BUGETAR-FISCALE ÎN ATENUAREA INEGALITĂȚII VENITURILOR ÎN REPUBLICA MOLDOVA**

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**Abstract:** *Income inequality is a current socio-economic problem both in the Republic of Moldova and in several countries. The implementation of tools to mitigate inequalities is a condition for ensuring the national security of the Republic of Moldova and sustainable development throughout the world. Fiscal policy plays an important role in redistributing income in the economy and thereby mitigating the rise in income inequality. The relatively low redistributive effect of direct taxes and social transfers implies changes in the budget-fiscal policy in the Republic of Moldova. Therefore, some budgetary-fiscal policy measures are proposed in order to mitigate income inequality in the Republic of Moldova.*

**Keywords:** *budgetary-fiscal policy, income inequality, Gini coefficient, poverty, taxes, social transfers.*

**JEL Classification:** E62, I3.

#### **1. Introduction**

Social inequality is a reality inherent in any society, even if there are different degrees of its manifestation. The reduction of inequalities is found among the 17 Sustainable Development Goals included in the 2030 Agenda for sustainable development of the 193 UN member states, including the Republic of Moldova. In order to integrate the Sustainable Development Goals at the national level, the Republic of Moldova developed the National Development Strategy "Moldova 2030" [1]. Thus, until the year 2030, our country, along with other countries, will mobilize its efforts to combat inequalities, to eliminate all forms of poverty and achieve the other objectives set in the Agenda.

Social inequality is a fundamental premise of social stratification, in which individuals, groups or social strata are at different levels of the vertical social hierarchy and who have unequal opportunities to satisfy their material, social or spiritual needs. Inequality has a multidimensional character, manifesting inequalities in consumption, in education, in health, in access to resources and digital technologies, etc. The main factor that determines these manifestations of inequality is income inequality, and most inequalities in the Republic of Moldova derive from income inequalities.

## 2. Material and method

In the research, the method of analyzing the literature in the researched field, the comparative method, the scientific abstraction, etc., were used. Also, the inductive method was used, with the help of which concrete facts were generalized, analyzed, synthesized and conclusions were formulated on the researched problem.

The informational support of the research is represented by both national scientific publications and international studies, statistical data presented by the National Bureau of Statistics (NBS) of the Republic of Moldova, data published by Eurostat, the Organization for Economic Cooperation and Development (OECD) and other resources informational.

## 3. Results and discussions

Income inequality is inextricably linked to poverty. Poverty is characterized by the lack of resources to satisfy the minimum physiological needs of the population. The high level of poverty is correlated with the high level of inequality. Reducing inequality and poverty are interrelated objectives, because to reduce inequality it is necessary to increase the incomes of the poorest households, that is, to reduce the level of poverty.

In the Republic of Moldova, in recent years, poverty and income inequality have tended to increase, and the Covid-19 pandemic has only amplified their rate of growth. The problem of inequality is also exacerbated due to the increase in the level of poverty. According to the NBS, in 2020, the population with incomes below the subsistence level (extreme poverty rate) constituted 10.8% of the total population, increasing by 0.1 percentage points compared to 2019 (Table 1). At the same time, the absolute poverty rate was 26.8%, increasing by 1.6 percentage points compared to 2019, this being significantly higher in rural areas compared to urban areas. In 2020, in rural areas, absolute poverty was 35.3%, compared to 14% - in urban areas. In 2019, these indicators were lower, 34.5% - in rural areas and 11.2% - in urban areas.

**Table 1 Dynamics of the Gini Coefficient and the poverty rate in the Republic of Moldova, in the period 2015-2020**

	2015	2016	2017	2018	2019	2020
Gini coefficient by disposable income	0,3164	0,3222	0,3084	0,2931	0,3148	0,3226
Absolute poverty rate (%)	25,4	26,4	27,7	23,0	25,2	26,8
Extreme poverty rate (%)	10,5	10,4	11,0	8,7	10,7	10,8

**Source:** Developed by the author based on sources [2], [3]

The increase in the poverty rate was accompanied by the increase in the level of income inequality. Although between 2015-2018 the Gini coefficient for total disposable incomes decreased by 7.4%, from 0.3164 to 0.2931, starting from 2019 there is an increase in this coefficient, in 2020 the value of the Gini coefficient after incomes available increased by 2.7% compared to 2019 and was 0.3226. According to World Bank studies, inequality becomes excessive starting from the value of 0.3-0.4 of the Gini coefficient. In addition, the share of income accumulated by quintile V (the richest 20%) in the last 10 years was more than 5 times

higher than the share of income accumulated by quintile 1 (the poorest 20%). At the same time, calculating the share of the income accumulated by the V quintile in relation to the I quintile, we find that 40% of the population's disposable income is owned by the upper quintile and only 8% of the income by the poorest quintile, which indicates that the level of inequality of incomes continues to remain quite high in the country.

Significant gaps are registered both in the amount of household disposable income and in the amount of consumption expenses. Thus, the least insured households (quintile 1) spend 4 times less than the best insured (quintile 5). At the same time, the consumption structure of extreme groups of quintiles differs significantly. The structure of consumption expenditure of the poorest population group is dominated by food products, utilities, clothing and footwear, which in total represent more than 80% of consumption expenditure, and the consumption of representatives of the higher income group is dominated by transport and fuel costs, which proves that consumption inequality in the Republic of Moldova is quite high. In the current context of socio-economic instability, rising inflation, an increase in poverty and income inequality is forecast in the Republic of Moldova.

Fiscal policy plays an important role in redistributing income in the economy and thereby mitigating the rise in income inequality. World experience in the implementation of economic policies demonstrates that reducing income inequality is possible, on the one hand, through progressive taxation of income and property, and, on the other hand, through increasing social transfers to the population with low incomes [4, p.39]. In addition, the government can alleviate income inequality by regulating the prices of certain consumer goods, on which poor households spend a significant portion of their income.

In the OECD countries, the instruments of budgetary and fiscal policy are used in the complex. Studies show that direct taxes and social benefits are largely successful in reducing inequality. Inequality in Slovakia decreased after the return to the progressive scale, and in the Czech Republic the increase in government transfers led to the increase in inequality, in Romania the proportional tax leads to the increase in inequality [10,11]. In the Republic of Moldova, the instruments of the budget-fiscal policy to mitigate inequality are implemented relatively poorly.

Currently, the tax system in the Republic of Moldova is based on the single income tax rate of 12% for individuals, replacing, from October 1, 2019, the progressive income tax scale of 7% and 18%. Until 2008 there were three tax rates. At the same time, each taxpayer (resident natural person) has the right to an annual personal exemption in the amount established according to art. 33 of the Fiscal Code. Also, people with gross incomes lower than the subsistence minimum (2082.7 lei per month in the first semester of 2020) are exempt from paying income tax. The reduction of the personal income tax rate reduced the redistributive effect of this tax and increased income inequality.

At the same time, we should not expect that the reintroduction of progressive taxation will reduce income inequality. To significantly reduce inequality, a complex progression is needed, with high shares for the wealthiest households. At the same time, it should be noted that excessive progressivity can increase income inequality, encourage entrepreneurs to avoid taxes, thus reducing the amount of redistributive resources, especially in countries with a large share of the shadow economy and low law enforcement.

Indirect taxation, resulting from the different structure of the population's consumption, can also be aimed at reducing inequality through the use of differentiated quotas: reduced quotas for goods of

current use and first necessity (Giffen goods, which have a significant weight in the consumption basket of the low-income population) and high rates - for luxury goods (Veblen goods).

Currently, reduced VAT rates of 8% are applied only to certain categories of food products and medicines. For most goods and services, the standard VAT rate of 20% is applied. In order to use indirect taxation to reduce inequality, it is necessary to increase the differentiation of VAT and excise rates, resulting from the structure of the population's consumption: lower rates for the goods that form the basis of the consumption basket of poor households and higher rates for luxury goods.

Wealth taxes also allow governments to influence the level of inequality by taxing luxury items more (real estate, expensive vehicles) and by applying higher rates to the taxation of goods received as inheritance and donation, as well as capital taxation. These taxes, applied by developed countries, also contribute to reducing inequality.

Elements of influencing inequality through property taxation are also introduced into the national tax system. This is, first of all, the "luxury" tax, which refers to real estate and cars that exceed the value of 1.5 million lei. Although the luxury tax is adopted in the Republic of Moldova [4, Article 287<sup>3</sup> Fiscal Code of the Republic of Moldova], it practically does not work because of the various ways of evading the payment of the tax.

At the same time, properties obtained through inheritance are not taxed, thus, according to art. 20 (i) of the Fiscal Code, the patrimony received as a donation or inheritance represents a non-taxable source of income.

Social transfers also play a key role in reducing income inequality. Social transfers reduce inequality by providing targeted assistance to the poorest households. They include both cash transfers, in the form of pensions, unemployment benefits, disability benefits, allowances for people without income, for children etc., as well as social transfers in kind, i.e. individual goods and services provided to households by the state free of charge or at subsidized prices, such as public services in the field of education, health, etc. In 2020, transfers from the state had a share of 25.3% in the disposable incomes of households in quintile 1 (20% of the population with the lowest incomes), and in the disposable incomes of quintile V (20% of the population with the higher income level) - 12.2%.

Currently, the instruments of budgetary-fiscal policy are the most used by governments in mitigating income inequality. The international experience in the implementation of economic policies shows that the reduction of income inequality is possible, on the one hand, through the progressive taxation of the income and property of the population and, on the other hand, thanks to social payments from the state budget granted to the population with low incomes.

However, the use of fiscal-budgetary instruments for income regulation alone is often not sufficient to overcome excessive poverty and inequality. This may be due both to the imperfection of the budgetary-fiscal policy and to the impact on the population's income of some factors that are difficult to adjust through taxes and government spending. We refer in particular to the influence of the money market and inflation on the distribution of income. High inflation leads to income depreciation and affects the welfare of poor households the most. The policy of cheap money stimulates economic growth, reduces unemployment and increases the income of the

population. Thus, by promoting an adequate monetary-credit policy, the increase in poverty and income inequality can be prevented.

In the Republic of Moldova, the instruments of the budget-fiscal policy, as a whole, are insufficiently used to reduce income inequality. In this context, we consider it necessary to make some changes in the budgetary-fiscal policy, such as:

- the reintroduction of the progressive system of taxation of the incomes of natural persons;
- the differentiation of VAT and excise rates, resulting from the consumption structure of the least insured households (quintile 1) and the best insured (quintile 5): lower rates for the goods that form the basis of the consumption basket of quintile 1;
- the increase of the dividend tax rate (according to the Fiscal Code of the Republic of Moldova, art. 90<sup>1</sup> paragraph (31), the dividend tax is a fixed rate of 6%);
- increasing the minimum wage in certain sectors of the economy;
- ensuring the functionality of the luxury tax and the periodic adjustment of the list of luxury goods (objects of art, jewelry, luxury cars, yachts, etc.) with the legal determination of their value;
- the more efficient collection of taxes and social contributions, the regular and detailed evaluation of the incentives and tax advantages granted and the gradual elimination of the tax incentives granted in certain areas;
- the allocation of more resources for the social protection of the population. The share of social protection expenses in GDP, in the Republic of Moldova, is low compared to the European level, in 2020 they constituted 12.6% [8], in the EU-27 they amounted to 29.6% of GDP, the most high shares being recorded in France (36% of GDP), Austria (34%) and Italy (33%), while the lowest in Ireland (15%), as well as Latvia, Hungary and Lithuania (18%) [ 7].

In parallel, efforts must be continued to increase investment in education and professional development, quality education is the decisive factor in reducing inequalities, as well as creating a favorable environment for business, combating corruption and the informal economy.

#### **4. Conclusion**

In market conditions, the problem of income inequality becomes particularly acute, as inequality is closely correlated with people's quality of life and stability in society.

Income inequality is not only influenced by wage disparities, but also by income on capital and wealth, by the progressivity of the tax system or by social transfer spending.

Income inequality in the Republic of Moldova is caused both by the significant inequality of disposable incomes and by the low redistributive effect of the tax and social security system.

Fiscal policy plays an important role in redistributing income in the economy and thereby mitigating income inequality. The international experience in the implementation of economic policies proves that the reduction of income inequality is possible, on the one hand, through the progressive taxation of income and wealth of the population and, on the other hand, through the allocation of social transfers from the budget to the population with low incomes.

Fiscal-budgetary policy instruments can be used to ensure social equality and income redistribution. Depending on the instruments used, the budgetary-fiscal policy can influence the distribution of income both directly, by influencing the amount of net income of the population,

and indirectly, by providing public services, which, in turn, will influence the potential income of the population. This can be achieved by introducing the progressive taxation system, broadening the taxable base, taxing property obtained through inheritance and donation, increasing the efficiency of public spending. In addition, governments can alleviate income inequality by regulating the prices of consumer goods on which poor households spend a significant portion of their income.

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## **SESSION III**

# **EUROPEAN INTEGRATION, MULTICULTURALITY AND INTERNATIONAL ECONOMIC RELATIONS**

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## TRENDS IN THE DEVELOPMENT OF GLOBAL MARKET OF ADVERTISING SERVICES

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**Abstract.** Advertising is the driving force of any business. The internationalization of economic affairs contributes to the formation of the world market of advertising services that, in present time, has been developing as global and digitalized. The authors have set as a purpose of the article the revealing and exploring the trends in the contemporary global market of advertising services under the globalization and digitalization socio-economic megatrends. Methodology and Results: Based on the evolutionary approach to the global market of advertising services, and analysis of the relevant statistical data, the authors have systematized the main trends in the development of the global advertising market as well as have provided some explanation for them. The shifts in global advertising market produced by the COVID 19 global pandemic crisis have also been paid attention to. Besides, the authors have revealed and analyzed the particular directions in the development of global advertising services market within the general trends. Having applied the pragmatic approach to the study, the authors have elaborated some recommendations that, along with the outcomes of the article, may help business to develop its strategies in line of the revealed and systematized trends and particular directions in order to become more competitive at the contemporary global market of advertising services.

**Keywords:** Trend, Development, Global Market, Advertising Service

**JEL Classification:** F0, M3

### 1. INTRODUCTION

The success of any business much depends on its promotion, including through advertising channels. The processes of economic liberalization, which have now covered almost all the countries of the world, have contributed to the fact that these countries are rapidly integrating into the world economy and, therefore, into the world market of advertising services. This fact, in turn, contributes to the constitution of the world economy and its markets as global. Besides, the application of informational and telecommunication technologies contribute to the development of the world market of advertising services as the global one but in a virtual dimension, adding it to the traditional physical dimension. Thus, in order to become competitive, contemporary economic agents should follow the trends in the global market of advertising services.

*The purpose of the given article is to highlight and explore the trends on the world market of advertising services, the latter being in globalization and digitalization, to help increasing business competitiveness.*

The global advertising market is a sphere of international advertising activity associated with systematic sales and purchases of advertising services, organizationally based on global networks of advertising agencies. The global advertising market emerged and is currently developing in the process of deepening and expanding the process of economic integration, the activities of transnational and international companies, and the evolution of the world economy and international trade as the global ones. Today we can state that this market is huge - in 2021, the world's advertising expenditure was 705 billion US dollars, which is about 0.77% of the world GDP (Zenith, 2021, p.1).

*Methodology and results.* Our analysis of statistical data from world reports relevant to the present research, as well as the international investigations in the given field allowed the application of the evolutionary approach to the global advertising services market. As a result, we can sustain that there are many trends, which determine the contemporary development of the world advertising services market. Grouping them together, we can distinguish the following six basic current trends:

1. Continued globalization of the world advertising market, its further expansion and global consolidation.
2. Growth of volume of international advertising market (increasing investment in advertising).
3. The process of concentration of revenues and market share.
4. Changing channels and means of delivering advertising to consumers.
5. Shifts in the global advertising services market caused by the COVID-19 pandemic.

The process of exploring the highlighted trends allows us to identify the particular directions within each of these major trends.

## **1. CONTINUED GLOBALIZATION OF THE WORLD ADVERTISING MARKET, ITS FURTHER EXPANSION AND GLOBAL CONSOLIDATION.**

The modern advertising market is an integral part of the world economy, to the formation of which transnational companies make the most significant contribution. They work at the advertising market on a global scale, contributing to the accelerated development of the global mass media and the global exchange of information (Nikonova *et al*, p.59).

The increasing globalization of industries such as consumer goods and automobiles makes advertisers to change their creative and spending strategies to reach buyers in countries with growing disposable incomes. The transnational companies develop clear, simple and consistent marketing messages that are applicable to different cultures. The experts point out the global nature of the advertising market - all regions of the world economy contribute to the global advertising spending. The largest share is that of North America (42%), the Asia-Pacific region (29.6%), and Western Europe (17.4%) (Zenith, 2021, p.6).

At the same time, the globalization of advertising services requires multinational companies to study more deeply the cultural differences and peculiarities, including the linguistic ones, of

their target (local) markets. Thus, for example, as researchers from the Stern School noted, the advertising campaign under the name "Got Milk?" of the American Dairy Association, having been very successful in the US, did not work in Mexico because the phrase that was the basis of their promotional axis, when translated into Spanish, appeared as "Are You Lactating?" (Hirsh, 2022), acquiring an offensive connotation. Quite often, the humorous advertising campaigns might work in one country, while not fitting into a cultural environment in another country. In this context, it is worth mentioning that not only verbal messages, but also non-verbal ones should obviously be treated with a certain precautions, for example, the use of some symbols and colours. Thus, many tropical countries associate the colour green with danger, which is not the case in the US or European countries. The red colour is associated with wedding and happiness in China (Hirsh, 2022), India, and some Asian countries but may have a different perception in the European region.

The subsequent analysis leads us to highlight two opposite directions in the evolution of advertising services under the impact of globalization. *The first* refers to the need to develop clear, simple, uniform advertising messages with culturally neutral content that can be understood identically in any local market. *The second* direction forms itself under more in-depth localization of marketing strategies. The latter results in maximum adaptation of both products and advertising messages to the native culture of the targeted consumers. The transnational companies, which have developed successful global brands, can show us examples of the successful combination of both directions in their advertising messages, increasing their completeness on the global market. Thus, *McDonald's* corporation, on the one hand, has launched clear, simple and coherent messages on the global advertising market, which relate to different cultures in a uniform way. On the other hand, it has revised its product lines "to feature healthier items and others geared to local markets -- such as wine in France and sushi in Asian countries" (Hirsh, 2022). It also demonstrates through its advertising messages loyalty to the cultures of target markets by using ingredients specific to those cultures, for example, avoiding pork in the market of Arab countries and beef in the Indian market.

However, increased access to cable and satellite television, as well as broadband Internet, are also establishing global links between nations and common expectations of their consumers. This has worked particularly to the advantage of airlines, apparel manufacturers and other advertisers targeting a global audience. This allows us to continue the logic of the first direction within the globalization of the world advertising market mentioned above, by arguing that effective advertising through clear, simple, culturally neutral and standardized messages result in their effective perception, and can create new demand in new markets, influencing changes in habits and lifestyles of purchase at the local markets. In doing so, the overseas teenagers and young adults have turned American brands like *Levi's*, *Nike*, *McDonald's* and *Marlboro* into global brands (Hirsh, 2022).

Another trend, which has its echo in history, is to capitalize on events of global significance such as the Olympic Games to boost the companies' brands with an international audience. The bright examples here is the electronics manufacturer *LG* when the games were held in South Korea and wireless carrier *China Mobile* when the event was held in Beijing (Hirsh, 2022).

## **2. GROWTH OF VOLUME OF INTERNATIONAL ADVERTISING MARKET (INCREASING INVESTMENT IN ADVERTISING).**

According to global advertising agency *Zenith*, in 2010, global advertising spending was approximately 393 billion US dollars. In 2021, the figure increased to 688 billion US dollars (*Zenith, 2021, p.8*). Thus, the increase was 175%! Prognosis is that by the end of the 2020s, the figure will exceed 1 trillion US dollars (*Grous N., 2022*).

This trend can be explained by the fact, on the one hand, of the globalization of the international market of advertising services, on the other hand, by its digitalization. Thus, global digital expenditures showed explosive growth dynamics, starting with the year 2000, and demonstrate a constant increase, along with global traditional advertising expenditures, towards the year 2030 (*Grous N., 2022*).

## **3. THE PROCESS OF CONCENTRATION OF REVENUES AND MARKET SHARE.**

Currently, the global advertising market is dominated by a number of transnational corporations that have collected the most considerable part of the advertising business, which allows them to control a significant share of the global advertising market (*Nikonova et al, p.59*). Table 1 shows the ten largest advertising agencies, by revenue, which are particularly sizable in the global advertising services market.

**Table 1. The world's 10 largest advertising agencies by revenue in 2021**

Advertising agency	Headquarter	Revenue, billion US dollars
<i>WPP</i>	London	17.6
<i>Omnicom Group</i>	New York	14.3
<i>Publicis Groupe</i>	Paris	13.9
<i>Accenture's Accenture Interactive (acum - Accenture Song)</i>	New York	12.5
<i>The Interpublic Group of Companies</i>	New York	10.2
<i>Dentsu Group Inc</i>	Tokyo	9.9
<i>PwC's PwC Digital Services</i>	New York	8.9
<i>Deloitte's Deloitte Digital</i>	New York	8.7
<i>Hakuhodo DY Holdings</i>	Tokyo	7.5
<i>IBM Corp. 's IBM iX</i>	New York	6.4

Source: adapted by the authors based on [4]

The process of income concentration in hands of the small group of international companies could be explained, first, by the fact that these companies are able to capitalize on both directions within globalization, considered by us above. They develop global, transnational and local messages appropriate, on the one hand, to consumers of advertising services from the global market, on the other hand, to those from local markets. In the research (*Siscan Z., 2021*) global, local and transnational approaches to marketing communications are discussed in the light of neuromarketing, highly used by the leading advertising companies.. Secondly, the process of income concentration in the global advertising services market may also be explained by the fact

that the leading companies succeed to capitalize thanks to digitization of their international business. Thus, the analysis of the distribution of revenues and the market share from digital advertising during the years 2016-2023, so including forecasts, based on the data of the company eMarketer, shows us the concentration of global revenues from e-advertising at five leading companies, such as *Google* (31.5%), *Facebook* (14.3%), *Alibaba* (6.2%), *Tencent* (1.9%) and *Amazon* (0.8%), in 2016 (Cramer-Flood, 2021). Summing it up, we can notice that in the reference year the global market share of digital advertising services belonging to those five companies was 54.7%. Further study and calculations lead us to the conclusion that the total share of the revenues of the targeted companies is in increase, intensifying the trend of concentration of revenues and global market share. Thus, in 2020, the share of total revenues obtained by *Google* (27.5%), *Facebook* (22.3%), *Alibaba* (8.6%), *Tencent* (2.9%) and *Amazon* (5.2%) constituted already 66.5% of the total global digital advertising spend. Estimates for the year 2023 show us the market share of *Google* 27.5%, *Meta Platforms* (formerly Facebook) – 25.2%, *Alibaba* – 9.5%, *Tencent* – 3.1% and *Amazon* – 7.1% (Cramer-Flood, 2021). Thus, the simple calculation shows that the cumulative global digital advertising services market share of these five companies will increase to 72.4% by the year 2023.

#### **4. CHANGING CHANNELS AND MEANS OF DELIVERING ADVERTISING TO CONSUMERS.**

The analysis of the global market of advertising services through the lens of channels and means of delivery of advertising to consumers shows us that there is a redistribution of expenses in the direction of digital advertising. R. Logambal has argued in his research, dedicated to emerging trends in advertising, that a paradigm shift took place last decades. It conditioned the change of channels, means and modes of advertising. "There were days when producers and manufacturers depended only on radios, newspapers, and pamphlets to advertise their products it was only until the late nineties when digital media crawled in and in early 2000 seen it spread its wings"(Logambal, 2016, p. 22).

The analysis of statistical data, provided by the company *Raconteur Media* (Raconteur Media, 2021) through the optics of the evolution of expenses for advertising channels on the global market, allows us to highlight the following trends. Spending on newspaper advertising was increasing until 2007, spending on magazine advertising saw growth until 2008, and spending on TV advertising saw growth until 2014. Spending on search advertising began to rise suddenly in the early 2000s, and spending on social media and online cinema advertising began to increase from the year 2010.

The comparative analysis of the data for the years 2010 and 2021, provided by the advertising agency *Zenith* (Zenith, 2021), allows us to draw the following conclusions. In 2010, television was a priority channel for ad spending, accounting for 48.1 billion US dollars, which constituted, according to our calculations, 37.7% of total ad spending in the global market. Newspapers took the second position in the ranking, with a share of 20.9%, but online advertising services were only in the 3rd place, constituting 16.8% of total expenses (see table 2). However, the data from 2021 show us that the situation has changed radically. Spending on online advertising services has already reached 405.3 billion US dollars, which constituted 58.9% of the

total spending on advertising channels in the global market. The expenses for television knew the second position in the ranking, having the weight of only 24.8% in the total expenses. The placement of advertising in newspapers has already reached the 4th place (4.3%), letting the third position to the street advertising channel with a share of 5% of the respective total expenses.

According to estimates made by the leading company in global media investments *GroupM*, in its report edition of June 2022, digital advertising will reach 73% of the global industry's revenues (GroupM, 2022)

**Table 2. The evolution of advertising channels through the prism of expenses**

Advertising channels	2010			2021		
	Expenditure, billion US dollars	Share of total expense %	Ranking	Expenditure, billion US dollars	Share of total expense%	Ranking
<i>Newspapers</i>	82,2	20,9	2	29,7	4,3	4
<i>Magazines</i>	38,1	9,7	4	17,5	2,5	6
<i>Radio</i>	28,6	7,3	5	27,9	4	5
<i>Television</i>	148,1	37,7	1	171	24,8	2
<i>Cinema</i>	2,1	0,5	7	2,3	0,3	7
<i>Outdoor</i>	27,5	7	6	34,3	5	3
<i>Online</i>	66,2	16,8	3	405,3	58,9	1

Source: Adapted and calculated by the authors based on data from (Zenith, 2021)

As the particular directions within the considered trend of the changing investment priorities in advertising channels in favour to the online advertising, we can notice, first, that the share of social networks increased in the total spending for Internet advertising from 2.06 billion US dollars in 2010 to 148.8 billion US dollars in 2021 (Zenith, 2021, p. 8). Secondly, online advertising is absolutely dominated by mobile ad spend, not "desktop advertising", although 10 years ago it was the other way around. Thus, in 2010, desktop advertising constituted 65.746 billion US dollars, but mobile advertising registered only 501 million US dollars. Starting with 2017, in which spending on mobile advertising for the first time surpassed spending on desktop advertising, already constituting 127.4 billion compared to 89.7 billion US dollars and establishing itself as a trend. In 2021, spending on mobile advertising was 287.9 billion, but for desktop advertising - 117.4 billion US dollars in current prices (ibid.)

## **5. SHIFTS IN THE GLOBAL ADVERTISING SERVICES MARKET CAUSED BY THE COVID-19 PANDEMIC.**

The change in the global advertising services market that took place due to the COVID-19 pandemic could be expressed through a grouping of several particular trends here. *The first one* relates to the fact that the pandemic has completely disrupted consumer behavior. For many consumers, who preferred to buy goods in a physical reality, the need for online shopping appeared (Zenith, 2021, p.1). According to a study conducted by the international research

company *Kantar Millward Brown*, during self-isolation, people began to spend 63% more time behind the screens of personal computers and smartphones (Mikriukov *et al.*, 2021, p.147). As a result, companies have continued their increased investment in the digital transformation of its advertising. Several brands have started to adapt their advertising campaigns to the current situation and modify their promotional message. This constituted *the second particular trend*. For example, *KFC* released an ad in 2019 in which people licked their fingers after eating chicken. The company received 163 complaints from UK residents. People called it irresponsible and said it could spread COVID-19, so *KFC* representatives suspended such promotional messages. Confectionery brand *Hershey* ran an advertising centered on hugs and handshakes. Later, the company replaced its video with product image frames, accompanied by voice acting and text. This is how the brand representatives reacted to the corona virus outbreak and WHO recommendations to reduce contact with others. *Burger King* created two videos about the increased hygiene requirements at its units (Nasonova I., 2020, p.p.106-107).

Having analysed the situation through the lens of spending on advertising services, based on data from the *Zenith* agency, we can notice that these spending, in current prices, decreased in 2020 compared to 2019 by 3.8%, but registered an unprecedented increase in 2021 by 15.6 %, (Zenith, 2021, p.9), first of all, thanks to electronic advertising.

During the pandemic, the advertising budget planning strategy changed. According to a survey conducted by the agency *PRT Edelman Affiliate*, among marketing directors and media directors of large international companies, about 40% of respondents said that they had done budget planning ad hoc, and 30% switched to monthly planning. Almost 60% of respondents reported that they stopped outdoor advertising during the pandemic, 38.5% reduced spending on BTL, 34% on traditional TV, 25% on commercial marketing and 22% on radio advertising. Among the priority digital channels for promotion, advertisers identified social media marketing (66%), contextual advertising (53%), blogger activations (44%), advertising banners (37%), and digital PR (31%) (Chervonsky A., 2020).

International experts in the field of advertising services emphasize the growing role of social networks in the promotion of global products and services. According to the online survey, organized by the researchers Mikriucov V. and Axenova A., 56.5% of respondents reported that they began to spend more time on social networks and the Internet during the pandemic (Mikriukov *et al.*, p. 148). Business people, who actively capitalized on the different forms and new technologies in digital advertising, caught the trend. In doing so, the special attention they pay to gamification of the content of promotional messages, the development of AR technologies, CTV advertising, and active collaboration with opinion leaders (influencers).

Proceeding from the fact that maintaining consumer attention both in the sense of time and under high pressure of global competition is an actual issue for business people, creativity comes to the foreground. Alongside with the new technologies, advertisers have also used the corona virus theme for advertising purposes, updating it to the needs of the audience. Thus, the advertising and communications company *BBDO* developed in the early days of the pandemic a series of videos for its clients to educate the Internet audience about the corona virus, as well as showing what measures they should take to protect themselves against the virus. By doing so, the company supported the current trend and demonstrated care towards the consumer, which did not go unnoticed (Mikriukov *et al.*, p. 149).

## CONCLUSION

Advertising is the driving force of any business. The deep internationalization of economic affairs, on the one side, and the scientific-technologic progress with its ICTs, on the other side, contribute to the development of the world market of advertising services as global and digitalized. This fact, in its own turn, calls forth numbers of trends on the global advertising market that can be grouped in five trends as follows: continued globalization of the world advertising market; increasing investment in advertising; concentration of revenues and market share; changing channels and means of delivering advertising to consumers, and shifts in the global advertising services market caused by the COVID-19 pandemic. Each trend contains some particular directions.

The list is not completed, but proceeding from the preliminary research outcomes, there may be drawn some recommendations for increasing competitiveness of economic agents in the contemporary global environment. Globalization of the world market for advertising services makes it especially significant for the advertisers to find its niche, to maintain it under the high intensive global completion, to target as precise as possible its target audience, to assess correct the communication and promotion channels, to switch to the new channels based on the new technologies, and to learn new methods in digital advertising. Communicating messages to the target audience is as effective as the dissemination and communication channel is properly selected. Each category of consumer, depending on the criteria according to which it has been established, is receptive only to certain communication channels, i.e. their correct assessment means that the message reaches the consumer directly, thereby increasing the chances that the consumer will react favorably and achieve the act of purchase. Allocation of a budget reported in percentage correct and sufficient for promotion.

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## THE ASCENSION OF THE ACADEMY OF ECONOMIC STUDIES TOWARD A UNIVERSITY OF RESEARCH AND EDUCATION

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**Abstract:** *The university of research and education has as its main goal the implementation of the results of students' research carried out within each course taught at this institution. Students elaborate paperworks, get involved together with teachers in the process of scientific research, contribute to the development of didactic materials. As a result, scientific papers are published in which students have co-authorship responsibility. If all efforts are directed toward supporting the students' personal interest to obtain knowledge in the chosen professional field, the number of scientific products will also increase as a result of the involvement in the institutional activities of studious youth. This will strengthen the actions to transform the higher education institution into a University of research and education.*

**Keywords:** *university of research and education, research, education, education services*

**JEL Classification:** I23

### **Introduction**

On June 27, 2022, the Ministry of Education and Research of the Republic of Moldova announced the start of the process of modernizing the universities and the research system in the Republic of Moldova. On June 30, 2022, the draft of the Government decision *Regarding the reorganization through merger (absorption) of some institutions in the fields of education, research and innovation* was published [1]:

Within this process, the following actions were planned [2]:

- strengthening the university and research system by concentrating their resources, both human and financial;
- bringing scientific research closer to students by integrating research institutes into the structure of universities;
- the allocation of additional financial means to support the modernization process of higher education and the research sector.

The initiation of this process aims at:

- the creation of consolidated and competitive universities with developed and modern infrastructure;

- better positioning of universities in international rankings, becoming more attractive for young people as well;
- channeling more funds into the education and research processes;
- strengthening the research system and fortifying the interconnection between science and education;
- intensifying the cooperation of universities with the business environment, ensuring the implementation of the research outcome in the economy.

According to the draft decision, the Academy of Economic Studies of Moldova was reorganized by absorbing the National Institute of Economic Research.

Since its establishment in 1991 until now the Academy of Economic Studies of Moldova (AESM) has evolved considerably, becoming the main and the only university institution with an economic profile in the country. By creating this university, the wishes of many generations in the field of science and economic education have been fulfilled.

Currently, the Academy of Economic Studies of Moldova constitutes a university complex, within which there are 6 faculties with 15 chair-departments, a Studies Section, a Department in charge with curricula development and quality management, an Information Technology Department, 7 service centres, the Master School of Excellence in Economics and Business, the Doctoral School, the Doctoral School in Law, Political and Administrative Sciences in consortium with USPEE "Constantin Stere", the School for Continuing Education, and the National College of Commerce.

AESM has a modern material base equipped with high-performance technology, continuous training and consulting centers, 6 study blocks arranged and endowed with modern equipment, 7 hostels, each with a meditation room, a modern sports complex, 27 computer rooms, connected to the Internet, etc.[3]

The mission of the Academy of Economic Studies of Moldova is to train highly qualified specialists in various fields of economic sciences and in some adjacent fields, able to participate as an active labour force and as responsible citizens of the society.

The objectives of AESM, established in order to achieve the mission, are the following [3]:

- a) ensuring and developing the resources and the means necessary to carry out the instructive-educational and scientific research processes defined by the Bologna Declaration (1999) and by the legislation in force;
- b) organizing and carrying out the activities specific to university and postgraduate studies, ensuring and respecting the reference standards, characteristic of each field and study program;
- c) organizing master's programs and doctoral schools, promoting scientific and cultural values and national and universal spirituality;
- d) the realization of quality education, flexible and dynamic, related to the needs of development of the society based on knowledge;
- e) respecting and applying the principle of focusing the instructive-educational process on the student;
- f) creating partnerships with institutions, authorities, socio-economic units from the country and abroad in order to organize and adapt the study programs and scientific research to the

reference standards specific to the qualifications and the requirements of the national and European socio-economic environment;

- h) ensuring performance in the didactic and scientific research processes;
- i) achieving a high-performing and transparent institutional management based on the principles of university autonomy, quality assurance, efficiency and assumption of public responsibility;
- j) development of national and international mobility programs for students, teaching and scientific research staff, teaching and auxiliary scientific research staff and non-teaching staff;
- n) the integration of research centers into national and international networks of excellence and the realization of fundamental and applied research generating added value;
- p) formation of the logistical and professional base for continuing education;
- q) creating the conditions for promoting partnerships at national and international levels;
- u) promoting scientific, cultural and ethical values in the national and international communities;
- v) maintaining professional, scientific and social relations with AESM graduates.

### **1. Computerized testing – the first step to AESM success**

At the very beginning of the establishment of the institution, by the decision of the AESM Senate a new method was introduced at that time for examining students' knowledge - by using the computer, through which the following issues were algorithmized:

- (1) the computer arbitrarily chose from the knowledge base a number of subjects which had been announced, taught, exemplified, discussed by the students with the teacher during the teaching of the respective course and previously introduced into the computer's memory;
- (2) the computer presented these subjects to the student for evaluation;
- (3) afterwards the computer recorded the student's answers;
- (4) the objective computer calculates and announces the student's performance (grade, score) for the course.

The grade calculated by the computer is an objective grade. Computer testing is currently widely applied in the Moodle system, and from 2022-2023 academic year this testing method will be mandatory for all subjects.

### **2. Individual project – AESM's next successful step.**

In the previous education system, until the Bologna process, the 5-year university studies involved 2 course projects (in the 3rd and 4th years) and a diploma project in the 5th year. In practice, the student studied, analyzed and researched a subject during a period of 3 years. A well thought out, analyzed, researched and finished result was obtained.

Currently the situation is different. The students have less time available to do scientific research during the first cycle. Only if they continue their studies in the second master's cycle can they continue scientific research.

But often the master's degree keeps to a completely different direction - to obtain another specialty. Student research must be supported by introducing individual work in every course taught at the institution.

### **3. Personal research interest in the student's individual work.**

The student must be interested in working and studying constantly.

Only through personal interest can such a result be reached.

Most students usually come to study because of practical needs, assessment at work, research in national and individual projects.

Students work very conscientiously preparing reports on course chapters, modules, for tests and exams. The students do some works, which actually help in scientific and didactic research, they get involved together with the teachers in the development of didactic materials. As a result, the didactic materials are produced with the students' co-authorship.

All international projects and programs require the massive involvement of the youth: today's young people are smart, ingenious, enthusiastic and it would be blameful not to effectively use this major force of the society.

If we achieve in AESM the goal of supporting the student's personal interest in obtaining knowledge in the individual field of interest, thus increasing the interest in research and education within each course, this will lead to the achievement of the noble goal: AESM - University committed to the future - University of research and education type.

### **4. Joint teacher-student research**

Each teacher, the course master, has a set of problems, some theoretical, others practical within the course. It is very useful to involve students in research, especially when the student's interest coincides with the interest of the teacher.

Within the Department of the Information Technology and Information Management of AESM 10 books were published with student co-authorship. Research was carried out on projects such as: knowledge testing systems, computerized electronic dictionaries, adaptive programming systems, intergenerational research systems, and creation of the consciousness society.

Every student can and must study the subjects of the course with the conviction that the results are needed at present, but not only in perspective, after finishing the studies at AESM, as the majority of students come with the conviction that they will be able to apply the knowledge they have acquired in the future, after finishing their studies.

Here is the key to the interest: it is necessary to give the students the opportunity to see the purpose of their knowledge from the very first day of studies in higher school.

The individual work, the project of the year must be developed based on personal interest (to launch a business in the future or to be employed at a prestigious company) to ensure one's future, to achieve one's goal in life.

In the last 12 years, the professors of the Department of Information Technology and Information Management have organized international teleconferences of young researchers, the results of which have been published in international magazines: the European Magazine "Society Consciousness Computers", published by the "Vasile Alecsandri" University in Bacău, Romania and the international "ARA Journal of Sciences", "ARA Journal of Arts", ARA Publishing House, California University Davis, USA. They represent the demonstration of the implementation of joint teacher-student research with the perspective of achieving the same goal: AESM - University engaged in the future - University of Research – Education type.

## **5. Professional and personal interest beliefs.**

In the discussions with the students during the first lessons we try to clarify the students' interests, their visions of the future. The student immediately tries to analyze and draw conclusions that from this very day they can evaluate their proposed goal, their business idea, their interest.

This idea becomes also the theme of the research, the theme of the individual work, the project of the year, in the long run - the theme of the bachelor's thesis, further - the theme of the Master's thesis, further - the theme of the doctoral thesis. Therefore, the evaluation of the student's knowledge on the course with involvement in research needs to be as closely as possible related to the evolution of the student's individual work.

Obviously, the teacher must know, research, contact more disciplines, more businesses, additionally study other branches of science and technology, be more often in the process of retraining to be able to answer the many questions of the students, which quite often are not from their branch of interests. It is a difficult task for the teacher, but also a very noble one.

And last but not least, of the total number of 1470 hours provided annually, 50% are research hours for university professors and 44% for associate professors, and in the future the share of research will be more than 60% in the Research-Education University.

## **6. Research projects**

The research topics are developed together with the students in different fields of economic, social activity etc. The students' proposals are varied: the establishment of schools of modern trades, plastic arts, music, tourism, kindergartens with meditations, green parks with preschool activities etc. There are business themes with the construction of warehouses, which help to overcome the crisis in the markets of the Republic of Moldova, with the initiation of businesses in growing and marketing of organic vegetables and fruits, in the production, storage and marketing of products from individual households etc.

Many students are interested in the field of tourism: the creation of travel agencies, rural tourism with different accumulations of cultural, historical, religious knowledge etc. They also show interest in opening restaurants, hotels, IT centers, consulting centers.

From the research carried out by the students together with teachers in 2021-2022 academic year, 42 researches were selected to be presented at the 11th International Teleconference of Young Researchers on March 13-14, 2022. The results of the students' research were published at the "Vasile Alecsandri" University from Bacău, Romania in the European magazine "Society Consciousness Computers". The best results were selected and proposed to be published in the international journal "ARA Journal of Sciences", ARA Publishing House, California University Davis, USA.

This represents once again the demonstration of the implementation of joint teacher-student research with the perspective of achieving the goal: AESM - University engaged in the future - University of Research – Education type.

## **7. Research results already implemented during the university years**

The former AESM student, Anicuța Susarencu, participant in various student forums, is operating today her own ceramics company in Sipoteni, Călărași. The former student Ionel Baraboi has a perfume shop, Ion Guțu and Ion Mereacre have created farming businesses. Cornelia Vrabie's "On the Wave of the Old Dniester" LLC in tourism and Anastasia Popova's Fitness Club, "Life Insurance Group" Company and many others are just a few examples of the students' ideas.

All businesses went through the stage of individual projects within the courses of "European Information Integration", "Economic Informatics" and "Informatics Basics", they advanced further through the student seminars on "Informatization Systems and Development of the XXI Century Society" and they became highlighted at the international teleconferences "Creating the Society of Consciousness".

There are not too many students who reach such performances, but the 12-15% who reach such an end have behind them another 85-88% of students who have been active at various stages of developing individual projects.

## **8. We plead for the future AESM**

We hope that in the future we will be challenged by the third evolution - the transition from an education type institution to the type of research and education institution.

If we accumulate all the research topics of AESM's doctors and habilitatum doctors, then the whole spectrum of needs in education and research for the Republic of Moldova will be covered.

For the evolution of AESM towards the University of Research – Education type we propose:

- the implementation of projects, programs and curricula with an essential share of scientific research;
- the accumulation, correlation and synchronization of the institutional research themes of AESM's qualified personnel with their grouping in 7-8 university research directions within the AESM Research Center;
- the formation of 7-8 university research laboratories each with 2-3 of part-time salaried intergenerational collaborators for a period of 6-12 months for the evolution of ASEM into a University of Research – Education type;
- implementing the remuneration of the teachers' work in accordance with the scientific results obtained, including the division of all the hours of activity at the first stage of ASEM evaluation in a proportion of 50 (research activity) to 50 (teaching activity), in perspective: sharing 60 x 40 and finally: 70 x 30 sharing, as it has been achieved in 11 universities of Romania, which already have the status of University of Research – Education type.
- expanding the proportion of research in the activity of AESM teachers.

## **Conclusions**

A modern and innovative institution of higher education is defined by teaching based on research and research based on teaching.

From computerized testing and the increasingly intensive involvement of students in individual research work to a didactic activity of AESM teachers in the proportion of 70% (research activity) to 30% (didactic activity) is obviously an intention and a perspective of evolution to the University of Research – Education type.

Computerized testing was the first successful step at AESM, afterwards followed by the development of the individual project, various research projects, the implementation of the results already obtained during the university period - all of them were aimed at achieving the noble goal: AESM - University committed to the future, University of Research – Education type.

The successful participation of AESM collaborators in the evaluation of various European projects is another characteristic of the University committed to the future.

The participation of the authors in the Erasmus+ Program was auspicious for innovative proposals to achieve the noble goal for AESM – University of Research – Education type.

We are convinced that AESM will become a research-education institution.

Following the consolidation of the educational process with research, several benefits will be obtained for ASEM:

–AESM will be more competitive with an infrastructure developed in line with the global trends;

–AESM will be better positioned in international rankings, more attractive for young people from the country and abroad;

–AESM will have greater international visibility and new collaboration opportunities will open up through the Erasmus + program;

–AESM students will obtain a diploma from a performing higher education institution, known nationally and internationally;

–AESM teaching staff will be members of the academic community better rated internationally.

The future belongs to research-education universities.

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## **THE LEGAL ASPECT IN THE FIELD OF GENDER INEQUALITY, THROUGH THE PRISM OF THE EXPERIENCE OF DIFFERENT COUNTRIES**

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**Abstract.** *The article presents the gender inequality that has very deep historical roots and is among the most difficult to eliminate. In the legislation related to gender inequality, three phases are distinguished: one of maternity protection (even at the expense of equality), one of equality and one in which differentiated measures are introduced but aimed at restoring equality. These include actions and positive measures to rebalance electoral representation, adopted in various ways in various legal systems. The given aspect was examined from the point of view of their gender aspect in the activity of economic agents in the Republic of Moldova.*

**Key words:** *gender aspect in career, gender inequality, position with managerial responsibility, Global Gender Gap Index*

**JEL Classification: J 16, K**

### **Introduction**

The figure of women in labor law has a controversial position today. Such a relationship has been influenced to a certain extent by the evolution of the view of women in Western society. On the other hand, we also do not try to hide the existence of a persistent gap between men and women, which has its place in the field of work. This is a legacy of the mentality of the forefathers, who saw women's emancipation as the exception rather than the rule. Over the years this subject certainly, and fortunately, is no longer considered a serious problem today, as it was in the past, but which nevertheless deserves increased attention and careful reflection, so that one can find that balance of gender equality both in everyday life. life and professional career.

From the study of the distinguished and vast legal literature related to this topic, it can be deduced at first glance that the issue of gender inequality is many years old. If we start from the experiences of the pre-fascist and fascist periods, we understand that the discipline of women's work presented a field of great interest that needed protection. The aspect of protection was clearly predominant, as sometimes the model of the worker was embodied by the male gender, that is, men occupied the key positions of society, in accordance with the patriarchal conception prevailing before the family and then the society in general.

Consequently, it was the female gender that absolutely needed increased protection and attention, so that the roles of wife, mother, and then protector of the family hearth could be preserved first. The discipline of women's work thus presents considerable limitations and

constraints on the role of women as employees and full contenders to occupy positions with managerial responsibility. Gender differences were for these reasons obvious and were deliberately noted or amplified. We understand that, as a consequence of this vision, the occupation of the female labor force could not be full, given the fact that unpaid work, or rather domestic work, was often left on the shoulders and responsibility of women, while the basic roles were assigned to men, without giving women the opportunity to build a career.

The turning point occurred with the affirmation of the constitutional principles, especially through the common results that our country recorded after the adoption of art. 16 of the Constitution of the Republic of Moldova - which contains the principle of equality. However, from reading the information related to the principle of equality and despite its current validity in our legal system, it is found that the conception of the female figure is still outdated and perhaps it can be said, outdated if we consider the culture and social thinking prevalent nowadays. From this moment, the labor legislation experienced a new phase of development aimed primarily at the implementation of the constitutional program and progressively started on a path that looked favorably on equal treatment and equal opportunities in the field of work between the sexes and the constant improvement of women. employment.

### **Content**

The Republic of Moldova is a party to seven of the nine basic international human rights treaties, including the Convention on the Elimination of All Forms of Discrimination against Women and its Optional Protocol. In February 2017, the government signed the Council of Europe Convention on preventing and combating violence against women and domestic violence. In accordance with the Association Agreement between the European Union and the Republic of Moldova, signed in June 2014, the Republic of Moldova undertook to gradually harmonize its legislation with EU standards and international instruments, including in the field of gender equality and non-discrimination.

The main legislative framework that promotes gender equality consists of: Law no. 5 of February 2006, on ensuring equal opportunities between women and men, Law no. 45 of March 2008, regarding the prevention and combating of family violence and Law no. 121 of May 2012, on ensuring equality. Other laws contain specific articles and references on ensuring gender equality in various fields. For example, by Law no. 71 of April 2016, 15 legislative acts were amended and supplemented, introducing, among other things, the 40% gender quota for party lists and the government cabinet, and paid paternity leave, and by Law no. 196 of July 2016, 11 legislative acts in the field of preventing and combating violence against women were amended. Relevant government strategies include the Strategy for ensuring equality between women and men in the Republic of Moldova for the years 2017 – 2021 and the National Strategy for the prevention and combating of violence against women and family violence for the years 2018 – 2023.

Despite the many advances made, equality in everyday life is not yet a reality. This is especially true for women who face exclusion or

multiple discrimination, such as women with disabilities or Roma women. Women continue to be underrepresented in decision-making positions in political and public life, have a low unemployment rate and face vertical and horizontal segregation, do most of the work

unpaid home care and experience high levels of gender-based violence in everyday life. The implementation of the legislative and policy framework on gender equality is lagging and there is a gap between the formal and effective observance of women's rights. Policies that promote gender equality are not supported by adequate funding, and the understanding and commitment of the parties responsible for their implementation is at an insufficient level.

In Moldova, women represent approximately 21% of deputies, 21% of ministers, 21% of mayors, 30% of local councilors, 18% of district councilors. They participate less than men in the labor market, the employment rate for women being 39% compared to 43% for men, and for women with children under 6 the employment rate being 40% compared to 57% for men with the same age. situation.

Also, 66% of their total working time on unpaid activities (4.9 hours per day), while men spend almost twice as much time on it (2.8 hours per day);

Internationally, in the last decades, a multitude of normative acts have been approved in support and regulation of this subject.

A source of law in the context of gender equality legislation is Directive 2006/54/EC of the European Parliament and of the Council of 5 July 2006 on the implementation of the principle of equal opportunities and equal treatment between men and women in matters of employment workforce. and employment.

As well as Directive 2000/78 of 27.11.2000 creating a general framework in favor of equal treatment in terms of employment and employment.

The rules regarding gender equality and diversity are also contained in Directive 2013/36/EU, regarding access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms.

In the 60th recital of the aforementioned directive, the idea was presented that "in order to encourage independent opinions and critical challenge, the composition of the governing bodies of the institutions should be sufficiently diverse in terms of age, gender, origin geography, education and professionalism. experience, to bring together diverse opinions and types of experience". In addition, it notes that "the balance between men and women is particularly important to ensure an adequate representation of the organizational structure, noting that entities that do not reach a threshold of representation of the underrepresented gender should take appropriate measures as a priority".

It is also emphasized that "diversity should be one of the criteria for determining the composition of governing bodies" and that this criterion should be applied more generally and in the context of the institutions' recruitment policy.

According to art. 88, para. 2, lit. a), of Directive 2013/36/EU, the appointment committee must establish "an objective of representation of the underrepresented gender in the governing body", as well as the elaboration and development of a policy aimed at increasing the number of members belonging to the underrepresented gender. According to art. 91, para. 10, within the same directive, the member states and/or the competent authorities have the task of prescribing the obligation of the respective entities and nomination committees to take into account a wide range of qualities and skills in the selection of the members of the management body and to adopt in for this purpose measures to promote diversity within it.

From the normative provisions mentioned above, it appears that, in the sectors most affected by crises, the legislator's intervention focuses on strengthening governance rules and internal controls, regarding the independence and professional qualification of candidates destined to occupy positions with managerial responsibility. For this, it is necessary to adopt a policy to promote diversity in the processes of selection and appointment of candidates.

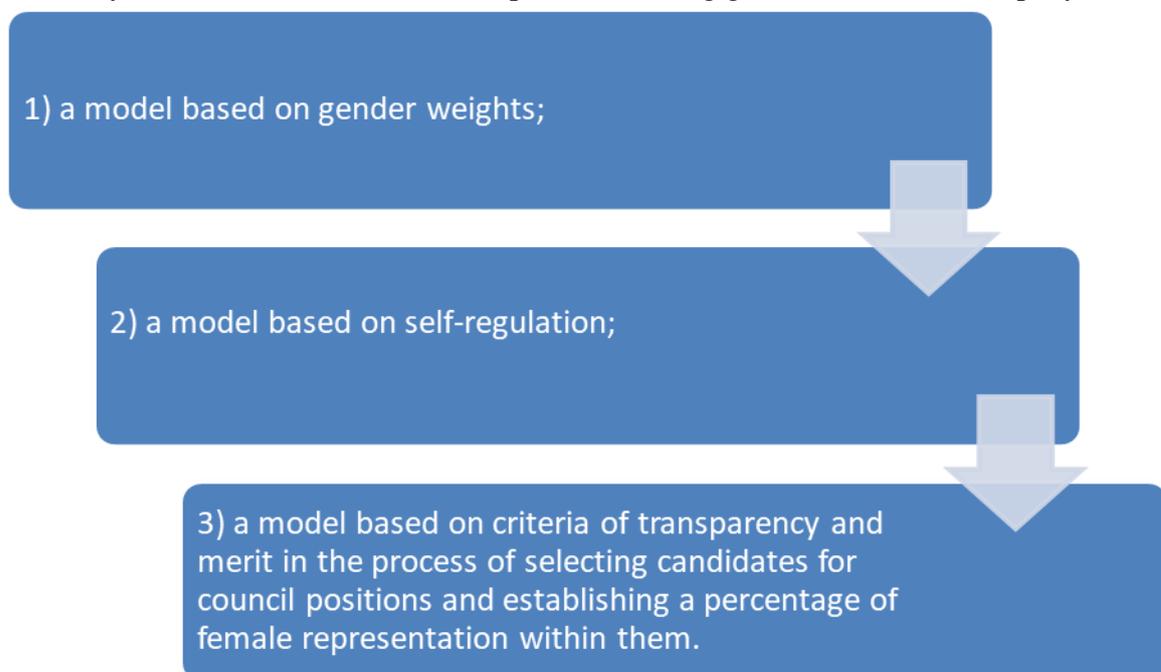
In the Republic of Moldova, only EC directive 2000/78 was transposed, both through Law no. 5 of 09.02.2006 on ensuring equal opportunities between women and men, as well as by Law no. 121 of 25.05.2012 on ensuring equality. We mention that society is constantly changing, so it is necessary for the Republic of Moldova to keep up with the provisions of the EU, especially since the Republic of Moldova obtained the status of a candidate country for the European Union.

Since the 2000s, state public authorities have begun a reflection on ways to increase the presence of women in corporate governance bodies. Two types of instruments have been identified: the introduction by law of optional or mandatory gender quotas and the adoption of self-regulatory initiatives based on moral mechanisms, which push companies to adopt gender-oriented behaviors in the context of the respective codes of conduct.

We note that, in addition to the regulatory provision of quotas, there is an alternative, which is different, namely an obligation assisted by a sanction.

As well as the possibility of adopting corporate governance codes, in which recommendations are inserted, intended to guide the action of companies towards the "Compliant or justified" principle, according to which companies that do not comply with the balance constraint are required in general. to explain the reasons.

Currently, three models coexist in Europe for achieving gender balance in company boards:



**Fig.1. Models for achieving gender balance in company management**

Source: elaborated by author

The aforementioned measures adopted in Norway in 2003 belong to the first type, as well as interventions implemented in Spain in 2007, in France in 2010 and in Italy in 2011. Followed by experiences from Sweden, the United Kingdom, Finland and Germany the third type is attributable to the proposal for a European directive on gender balance.

It should be noted that companies that do not comply with the conditions laid down by the Norwegian legislation on gender equality in company boards are sanctioned by the higher organizations by dissolution/dissolution.

The large listed companies in Spain, which have around fifty employees, have been motivated in this country with economic incentives to draw up plans to promote equal opportunities and to provide, by 2021, a minimum participation equal to the a little over forty percent, of each sex on the boards of directors.

In Italy, Law no. 103 of January 27, 2011, stipulates that women will be employed within six years, in a proportion of at least forty percent of the seats on the boards of directors of public and private companies. In case of non-compliance with this division criterion, the Italian legislator did not provide for a rigid sanction, such as the dissolution of the company, but opted for a more flexible solution, which is not likely to endanger the operation of the company. This entails, on the one hand, the nullity of the documents appointing the members of the board of directors of the administration, in which the quota reserved for the less represented sex is not respected, and on the other hand, the suspension of the directors' fees, if the composition of the board does not guarantee compliance with the constraint on gender balance.

The approval of this law was aimed at changing the political, social and cultural context, which is characterized by Italy's chronic backwardness in terms of the implementation of equal opportunities between men and women. The Global Gender Gap Index is a synthetic indicator developed annually by the World Economic Forum to measure the degree of gender equality in the various states of the world. Therefore, it highlights the delay registered by our country: for example, according to the 2021 report, Moldova ranks 28th out of 156 countries, while in 2022 it ranked 16th out of 146 countries.

Therefore, the introduction at the level of actions in favor of the underrepresented gender in corporate bodies, represents an important link for our country, which was recently named a candidate for the European Union, and which must comply with the appropriate standards and indicators in order to proceed to the next stage.

## **Conclusion**

In this sense, the disciplines that appeared in the following period and that are up to the present day, tried to reconcile in the most effective way, the difficulties between the legal systems and the conditions for working women. An important achievement, achieved through the evolution of the context just described, was certainly the unprecedented improvement of the principle of equality in the attempt to achieve balance.

The concept of gender equality involves a review of the tools available to restore gender balance and leads to structuring them only as temporary and incomplete help to change a de facto imbalanced situation. With this in mind, it is necessary to operate the transition from "quota", which was created as a suitable tool to protect a minority group from being discriminated against,

to "equality", because women should not be considered a minority group and discriminated against, since they make up fifty percent of humanity.

Therefore, the principle of parity democracy does not call for the reservation of jobs for women, understood as the subjects of a discriminated group, but for the guarantee of a female presence in the labor field, which tends towards equality. Which in fact is a regulated right both internationally and nationally. In particular, the model of parity democracy requires that this parity be implemented, for both genders, in both the public and private spheres.

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## CONSIDERATIONS REGARDING THE RESOURCE OF HUMAN CREATIVITY IN THE CONTEXT OF VARIOUS EDUCATIONAL SYSTEMS OF COUNTRIES

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***Abstract.** The article aims to analyse the considerations on the human creativity in the context of educational systems of the countries of the world. The complexity of the aspects and impact of creativity resource is very wide, and involves synthesizing knowledge, experience and wisdom, on the one hand, and on the other, the efficient strategic planning and implementation of educational policies' processes are directly dependent on how creative the stakeholders as main actors are to contribute and facilitate the interest and love for learning, research and development of pupils and students involvement. It is inconceivable that anyone would overlook the imperative connection between the quality of the education system and the quality of life in any society, be it in the west or in the east of the world. The authors of the research show that the more creative the persons are due to individual perspectives and development or to educational system contribution, the more creative economic activity can be generated, and the educational system can strategically facilitate and promote this concept and phenomena.*

**Keywords:** human creativity, education, creativity resource, economic activity.

**JEL Classification:** 015, I20

### 1. Introduction

The recent decades many countries of the world showed big interest in creative and innovative educational technologies corresponding to the new models of education that have been intensively developed. The dominant feature of the creatively organized educational process is the development of a creative personality.

The development of creativity resource is considered to be a continuous process, education being the most important stage of this process. Today's mass education is not able to provide conditions for the realization of personal creativity. The usual reproductive model of education continues to transmit knowledge, develop reproductive abilities, and monitor the mastery of these abilities. Often creative personalities are formed only as a result of lucky coincidences of events favorable to their creative abilities. Thus, within the traditional educational paradigm, the development of creativity is the exception rather than the rule.

Therefore, in many developed countries, in recent decades, the demand for corporate trainings has increased in order to develop the creative skills of the personnel of companies operating in various sectors of the economy. At such trainings, specialists with the help of creative techniques such as mind mapping, brainstorming, problem solving, try to reanimate

the initial creativity of the child, buried under the shelter of knowledge, skills and abilities acquired in educational institutions. Yet, to build a creative society, it is not enough to awaken the creativity of managers. A more productive solution seems to be to focus on the creative approach to education, which ideally should diagnose, support, develop and encourage the creative resource potential of each individual.

Practically all educational systems in the world face the challenge of developing the creativity of students and teachers. Some of the authors and experts in the field of education criticize the education systems, considering that they suppress creativity, pupils and students being in a situation to produce and reproduce results, rather than to think and develop their creativity. These types of research and arguments force the developed countries of the world to take serious steps to change educational strategies and policies.

For the purpose of elucidating our subject, apart from the introduction, research methodology framework, conclusions and references, we have organized the main findings of our research into 2 sections, examining the evolution of approaches to the development of the resource of creativity within the educational system, and comparatively analysing various national educational systems for the development of creativity resource. At the end of the article, conclusions were formulated.

## **2. Methodology**

The literature consulted in the research included sources providing the historical background of education systems in various countries, outlining the components of these systems as well as regulatory policies. We also focused on research that analyses the concept of creativity resource.

We have explored both theoretical sources and empirical evidence in our attempt to clarify the circumstances under which educational systems contribute to the development of the resource of creativity. In this sense, we capitalized on theoretical-structural approaches such as analysis-synthesis, and theoretical-logical approaches including the method of inference, the method of analogy, logical deduction.

Based on empirical evidence, we conceptualized the notion of the country's educational system. We conducted a quantitative and qualitative analysis to reveal the trends in the evolution of the educational systems of the countries of the world.

Furthermore, we have relied on the systemic approach, in our endeavour to expose the current and potential impact of the educational systems on the development of creativity resource.

## **3. Main findings**

### **3.1 Evolution of approaches to the development of the resource of creativity within the educational system**

In the context of technological and economic progress, the countries of the world have witnessed the growth of jobs considered "creative" and the increase of creative components in jobs previously considered "routine" or "mechanical". This trend has a considerable impact on social welfare, education systems and policies for the development and retention of human capital [2].

Research into the concept of creativity has expanded over time. In the 1980s, the American psychologist F. Barron identified creativity as including the willingness to take risks, entrepreneurship, creating new things [5]. In his view, the creative process was characterized by originality, consistency, validity and appropriateness to the task at hand. Frank Barron believed that “creative people are particularly observant and, much more than other people, are able to judge more accurately what they observe” [5].

The famous psychiatrist and artist Carl Jung held that we may “think of the creative process as a living thing implanted in the human psyche” [3]. He also showed that creativity is divided into two types: psychological and visionary. The first is responsible for the functioning of consciousness. The second expresses the primordial images of the unconscious. The existence of conscious and unconscious components in the creative process means the ability to express ideas coming from the unconscious. This is supposed to be the pathway of the human creative process [3].

A quality educational process keeps pupils and students interested in the subject. Modern education should not only support cognitive interest, but also stimulate creativity of pupils / students. Creativity develops in the course of creative activity, whilst a child/student experiences a whole range of positive emotions, both from the activity itself and from its outcome .

As we showed earlier [1], human creativity is a phenomenon felt more frequently as human resource transforms into human capital and later into creative human capital. In its turn “personalization could be considered a tenet of human resource conversion into human capital” [1]. Furthermore, as mentioned previously [1] “the process of human element turmoil ensures the dynamic necessary for the development of human personality, implicitly the dynamic of human capital, which apparently thus acquires the tendency to transform into creative human capital. Hence, not the mere accumulation of human capital, but the sustained dynamic of its substantiation, seems to us another central tenet explaining the formation of creative human capital” [1].

Sir Ken Robinson was an emblematic personality, promoter of creativity development in the educational system of Great Britain, but also in the systems of other countries. According to him, it is abnormal that every education system on earth has the same hierarchy of subjects. At the top are mathematics and languages, then the humanities, and at the bottom are the arts. Additionally, there is a hierarchy within the arts: art and music are normally given a higher status in schools than drama and dance. In the view of Ken Robinson “There isn't an education system on the planet that teaches dance every day to children the way we teach them mathematics. I think math is very important, but so is dance. Children dance all the time if they're allowed to” [7].

Simultaneously, Ken Robinson held that people think about the world in all the ways they experience it. “We think visually, we think in sound, we think kinesthetically. We think in abstract terms; we think in movement” [7]. Furthermore, according to him “intelligence is wonderfully interactive. The brain isn't divided into compartments. In fact, creativity, which could be defined as the process of having original ideas that have value – more often than not comes about through the interaction of different disciplinary ways of seeing things” [7].

On the other side, in Ken Robinson's view, educational systems often stifle creativity by criticizing and condemning student failures/mistakes. “They (children) are not frightened of being wrong. I don't mean to say that being wrong is the same thing as being creative. What we do know is, if you're not prepared to be wrong, you'll never come up with anything original. And by the time they get to be adults, most kids have lost that capacity. They have become frightened of being wrong” [7]. We believe that this is a big problem related to the historical legacy of the educational systems of the ex-Soviet countries, including the Republic of Moldova. Or, as Ken Robinson put it “We stigmatize mistakes. And we're now running national education systems where mistakes are the worst thing you can make. And the result is that we are educating people out of their creative capacities” [7].

### **3.2 Comparative approach of various national educational systems for the development of creativity resource**

As mentioned earlier [1], the process of globalization fosters creativity through greater openness and exposure, whereas creativity enhances global competitiveness at the level of individuals, companies, countries. However, in practice, “the confinements of the knowledge economy should be considered such as its low inclusiveness, marginalization of specific social groups and certain countries like Republic of Moldova, which face an increase in both the risks and opportunities related to their human capital” [1]. As concluded previously “the ability of these countries to preserve human capital at home is proportional to their investments in valorizing this capital, also through their educational systems, which besides, have to be adapted via fostering creativity within the teaching-learning process” [1].

Overall, the level of performance of the country's educational system, including its contribution to nurturing human creativity resource, depends on the level of economic development of the country.

Thus, the educational system of USA attracts the attention of many specialists. While it ranks high on the world stage, this country still shows great concern for education. In a revealing speech delivered at an annual meeting of the American National Academy of Sciences, President Barack Obama mentioned that science is needed more than ever, and that a country that is ahead today in educational sector will be ahead tomorrow in all the other areas. [10]

Unlike European education, where the entire course of study is strictly set by educational standards at the state level, American education is characterized by decentralization. On the one hand, each state in USA has the right to organize education independently, as long as it does not infringe on the constitutional rights of students, which ensures flexibility and adaptability of the education system at national level, but at the same time introduces inequalities in the final level of education of students, which differs from state to state [10].

In the USA, where economic modernization is a powerful engine of the country's development, the task of realizing the creative potential of society in order to maintain and strengthen its dominant position in the global space has become particularly relevant in the last decade, on the wave of scientific, technological and economic progress of the countries of Southeast Asia. In this context, A. Parker, former Assistant Secretary of Labor of the United States, noted that one of the main goals of the country's educational system is "to prepare

children for life in the XXI century, so that they can control the forces of globalization, the rapidly progressing development of new technologies, demographic and social shifts, which have become the reality of today"[10].

The US has its own vision and strategy for fostering creativity in education. The key thrust of this strategy is to expand the teaching of the arts and humanities at all educational levels. The concept of "humanities" is defined starting from the formulation given in the National Endowment for the Arts and Humanities Act of 1965: "The term 'humanities' includes but is not limited to the study of the following fields of knowledge: languages, both modern and classical; linguistics; literature; history; jurisprudence; philosophy; archaeology; comparative religion; ethics; history and art theory; those aspects of the social sciences which have humanistic content and operate with humanistic methods; and the study and application of humanistic knowledge in the context of social development, with particular emphasis on reflection on our diverse heritage and traditions" [10]. And if today the humanitarian content of educational programs does not seem something innovative, introducing in them the mastering the basics of visual and performing arts in them is certainly a significant step in the development of creativity in education [10].

Denmark is pioneering approaches to digital transformation and design-led solutions for a more equitable and sustainable economy and society. Creative Denmark is developing programmes across digitalization, innovation, quality of life and sustainability. It is invigorating cross-sector and public private partnerships to embed creative practice across the economy. A central pillar is design, which is viewed as a relative strength in Denmark, pivotal for sustainable development. [9]

Finland is catalyzing its digital and design sectors to drive value across the economy. Creative Finland is activating synergies between the creative industries and wider cultural sector – such as via the project “From Stories to Games”, which seeks to open-up museums’ cultural heritage content for use in the gaming industry. Creative Finland is also investing in activities which connect creative and cultural enterprises to partners in technology and health [9].

Creative Ireland is a five-year programme built around key themes: Creative Youth, Creative Communities, Creative Places, Creative Nation. It is an ‘all-of-government’ culture and wellbeing programme which aims to inspire and transform people, places and communities through creativity. Its portfolio includes a creative climate action toolkit, a focus on creativity for ageing populations, multiple interventions to enhance health and wellbeing through access to creative resources and activities, and a big push for creative technology as a driver of wellbeing. Creative Ireland also invests in place-based approaches, including a focus on micro enterprises and their role in the local economy [9].

In Iceland, the creative industries are supported by a consortium of agencies, including Business Iceland, providing investment and business support; Icelandic Music, which is facilitating music export opportunities for Icelandic talent; Creative In Iceland, which promotes Iceland as a place for cultural tourism and creative industries inward investment; Record In Iceland, and a network of cultural centers (with specialisms in literature, film and visual arts), and professional networks working together. The natural environment and environmental responsibility feature across all areas of creative economy development [9].

In Norway, Arts Council Norway and Innovation Norway are re-thinking their collaboration model to ensure the cultural and creative industries benefit from access to R&D investment, that micro-enterprises and freelancers have a more secure role in the wider creative economy, and that state-funded cultural institutions are able to diversify income streams and embrace digital technologies. Arts Council Norway favors a 'cultural and creative ecosystem' approach, recognizing the creative economy is driven by micro- enterprises and freelancers and that growth is likely to come through raised productivity across such firms. Inclusive talent development and growth provides people from all backgrounds and parts of the country have the opportunity to develop sustainable careers in the cultural and creative industries. [9]

There are large-scale diversified programs in Great Britain. Projects in various regions of the Great Britain are funded by the government and patronized by the National Advisory Committee on Creative Education, established in 1998. Among them are initiatives such as: "Creative Partnerships" in England, "Creative Youth Partnership" in Northern Ireland, "Creativity Matters, "Teaching and Learning for the Future" in Scotland [11]. Naturally, a large part of these projects is related to improving teacher education and engaging teachers in the implementation of a creative approach to pedagogical practice. Some of programs are implemented in universities: specially designed modules on creative education at the University of Leeds (The Fryer creative education programs); courses in creativity at the Open University, which were originally developed for educational MBA programs but can now also be included in teacher education curricula (MA in education, MA in open and distance education); a block related to the study of creativity and its development in the learning process is included in the postgraduate programs of Durham University. [11]

The British government has set for its education system "the ambitious but achievable task of turning the country into a world center of creativity"[6] On the basis of successfully tested educational technologies promoting the development of creative abilities of pupils and students, a creativity strategy in education is expected, focusing on the personal development of young people to prepare them for life in the new century.

Also, other European countries have accumulated rich experience of developing students' creativity, with the setting of a special educational environment that allows the individuality of each student to be revealed. The French Ecole de Roches, created almost two centuries ago, can serve as an example. [11]

In regard to Japan, two approaches to creative education coexist. One of them is oriented to the North American scientific school of creativity, being focused on stimulation of the ability to invent and discover. The other approach is based on the traditional Japanese philosophy of knowledge. According to the latter, national and cultural traditions are the most important factor in the formation of educational strategy. In this respect, a rich experience of developing the creativity of young people in the country has been accumulated, with the preservation of the traditional educational paradigm in the conditions of educational globalization and the offensive of Western values. At the same time, for many decades, Japan has held leading positions in the field of high technologies. [8].

Tatsuno, in his book symbolically titled "Created in Japan: from Imitators to World-Class Innovators" [8] notes that, unlike the spontaneous, idea-generating creativity of Americans, the Japanese focus on improvement, reworking, maximum efficient use of what they own. However, the Japanese can achieve the highest levels of creativity and invention while remaining rooted in their traditional culture.

The strategy of creativity in education is thus based on cultivating the style of learning that has developed in Japan over thousands of years and that is characterized by early inclusion in cognitive activities, contemplation, use of intuition, imaginative thinking, and empirical experience. Another feature of Japanese education, which contributes to the continuous creative development of the individual, is the cult of learning, which persists throughout life and is expressed in intensive in-house training programs, in learning at home, and in everyday life [8].

In the context of the strict regulation of the educational process inherent in the Japanese educational system, which includes ministerial control over the content of education as well as the forms and methods of teaching, few educational institutions in the country have curricula designed specifically for the development of students' creativity. As for schools, these are mostly educational institutions attached to universities that conduct research on creative development (Shitsuka University works with two elementary schools and three high schools). Creativity education programs are more widespread at the level of secondary and higher (including pedagogical) professional education. More than fifty technological schools constantly organize creative courses and competitions on inventions in the field of robotics, the use of solar energy, computer programming, etc. At Toyo, Musashi, and Shitsuka Universities, the educational programs for teacher training are expanded to include special courses on the theory of creativity and methods of its development [8].

The interest in the improved educational system is so high that the regional and EU structures offer strategic levers through targeted projects to increase the quality, so as the EU Cradle project developed a new creative teaching methodology for primary schools and employed a cross-curricular, activity-based, student-centred, exploratory teaching and learning approach, focusing on the simultaneous development of foreign language and entrepreneurial skills among young pupils aged 8-12. The implementation of the methodology increases the benefits of transporting the acquired skills into secondary school and, ultimately, beyond school boundaries into the pre-professional world, thus the pupils work and learn in a linear four-step process inspired by "Design Thinking" with problem-solving and designing solutions in mind. [11]

The high ambitious agenda based on the conviction that "all children and young people can be creative and should have opportunities for creative development regardless of race, gender or special educational needs, presupposes that the role is given to educational institutions, for which it is important to realize the importance and advantages of the creative approach, because the development of imagination, purposefulness, individuality of students will motivate them to educational activities. [11]

**Conclusions.** The authors considered some of the approaches related to development and importance of creativity resource in the context of the educational system of various countries, as

it is very wide, however one thing is certain and definite - the efforts made in different countries in the context of different educational systems are aimed at personalities, so to manifest creativity, interest, improvisation, trust, courage and autonomy that will generate creative entrepreneurship and thus sustainable economic development.

It becomes obvious the need to create within the educational systems the very concrete goals and main objectives for a creative education strategy and core measures and institutional mapping that ulterior will help to build a competitive economy and an open society by providing opportunities for the formation of an individual educational route, the disclosure of the creative potential of the individual in order to achieve the self realization, to achieve the highest quality of educational standards.

The need of modern schools and educational institutions for creative strategies implemented will facilitate increase number of creative people capable of thinking creatively, making non-standard decisions.

To facilitate the processes, the governments of each country, which sees their country in a better future, will involve the relevant resort ministries to complicate and develop programs to this end. The academic and entrepreneurial world can also get involved and contribute to the realization of this mission and vision.

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## **GOVERNANCE EFFICIENCY - ESSENTIAL CONDITION TO FOSTER ENTREPRENEURIAL COMPETITIVENESS. CASE OF THE REPUBLIC OF MOLDOVA**

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***Abstract:** The Republic of Moldova is the country with the lowest level of gross domestic product and living standards among the European countries, a situation which, although improved in dynamics, has not comparatively meliorated in the regional context. On the contrary, the development discrepancies that the country registers have become even more acute, the nation is still behind in terms of economic development even considering the regional context of the Eastern Europe. The main goal of the present study is to comprehensively assess and carry out a thorough analysis of the quality and competitiveness of the entrepreneurial and business environment of the Republic of Moldova, considering the regional context. Particular objectives of the study include: the analysis of the extent to which the entrepreneurial environment in the Republic of Moldova facilitates economic activity and individual initiative. Also, it is sought to perform a comparative analysis of the entrepreneurial competitiveness of the Republic of Moldova as compared to the rest of the Eastern European countries, including members and non-members of the European Union. At the same time, it is aimed to analyse the weakest positions of the entrepreneurial competitiveness of the Republic of Moldova that undermine the economic growth potential.*

**Keywords:** Institutions, governance, the Eastern Europe, economic competitiveness, the Republic of Moldova

**JEL Classification:** D73, L26, M21, O17

### **1 Introduction**

The Republic of Moldova is the country with the lowest level of gross domestic product and living standards among the European countries, a situation which, although improved in dynamics, has not comparatively meliorated in the regional context. On the contrary, the development discrepancies that the country registers have become even more acute, the nation is still behind in terms of economic development even considering the lesser context of the Eastern Europe. This situation, in the current conditions of massive population emigration and considerable demographic decline in most of the country's territory, is set to further degrade due to the erosion of the internal institutional efficiency and the diminution of the quality of governance identified through political stability, government effectiveness, regulation, rule of law, control and eradication of corruption. It should be mentioned that the Republic of Moldova also faces important external challenges such as the increase of global competition as a result of globalization, the increase of the commercial rivalry and of the density of the global supply chains. Under these circumstances, the Republic of Moldova has the urgent need to increase its economic competitiveness, mainly the attractiveness and efficiency of the business and

entrepreneurial environment in order to provide the economy with more dynamism, flexibility and growth potential. This is imperative as to ensure the country with a favourable economic environment able to develop in the competitive conditions of the modern world. It should be based on a consolidated private sector oriented towards fostering innovation and sophistication enabling the business sector to compete effectively for international and local markets.

Although there is an immense variety of the available literature on economic development, the study of economic competitiveness under the conditions of globalization and trade liberalization has become more prominent starting with the last decade of the 20th century. At the same time, it grows the importance of entrepreneurship as a determinative factor of economic development and competitiveness, Michael Porter, Daron Acemoglu, Philip Kotler, Joseph Stiglitz, and Paul Krugman being some of the most important economists researching this subject. It should be noted that many of these authors grounded their works on the studies of Joseph Schumpeter. These notable economists are just few of the most known since the subject is of major importance in the field. However, once we adjust the scale of our analysis, first of all in the context of the Eastern Europe, and then to the realities of the Republic of Moldova, the degree of the study of the subjects related to economic and entrepreneurial competitiveness is lower. In this regard, the present study comes to answer the question whether the modest entrepreneurial competitiveness of the Republic of Moldova is a factor that reduces the country's economic development potential. It also aims to analyse what are country's economic dynamics, considering the regional context of the Eastern Europe. Thus, the main goal of the present study is to comprehensively assess and carry out a thorough analysis of the quality and competitiveness of the entrepreneurial and business environment of the Republic of Moldova, considering the regional context. Particular objectives of the study include: the analysis of the extent to which the entrepreneurial environment in the Republic of Moldova facilitates economic activity and individual initiative. Also, it is sought to perform a comparative analysis of the entrepreneurial competitiveness of the Republic of Moldova as compared to the rest of the Eastern European countries, including members and non-members of the European Union. At the same time, it is aimed to analyse the weakest positions of the entrepreneurial competitiveness of the Republic of Moldova that undermine the economic growth potential.

The present study develops a new comprehensive approach through which it can be analysed the entrepreneurial competitiveness of states based on a relevant set of structured indicators. It will consider specific criteria that analyse the role of institutions to assure enhanced economic competitiveness. The indicators consist of a set of qualitative and quantitative quantifiers, the fact which will allow to test and identify logical and regressive relations between entrepreneurial competitiveness and economic development.

## **2 Competitiveness in economic theories**

The concept of “economic competitiveness” has gained weight and specific attention in the literature starting with Krugman (1990) and Porter (1990) becoming a priority for policy making in the various countries. Yet, long before these authors offered a comprehensive definition for competitiveness, different aspects of it were widely debated by representatives of various economic traditions (Reinert, 1995). For instance, Adam Smith was a pioneer who researched “economic competitiveness”, in the distant 1776, through the prism of causes of varying welfare

across nations, ideas reflected in his famous work “An Inquiry into the Nature and Causes of the Wealth of Nations”. He is the father of classical economic liberalism, who advocated for minimal intervention of government in the economy underlining the role of independent and free markets for countries’ development. Some of the core mechanisms in this regard are private property, individual contracts, and the “invisible hand” or self-interests which fostered accumulation of welfare by individuals, and served as a prerequisite for more prosperous societies. He concluded that countries should concentrate on the production of the goods in which they hold “absolute advantage”.

Another famous classical economist with liberal views, David Ricardo (1817) introduced the concept of “comparative advantage”, mentioning that “a nation can also benefit from foreign trade even if it does not hold any absolute advantage over its trade partners in terms of goods production. It only needs to have relative advantage in any of the good in order to sell it abroad”. Later, Heckscher & Ohlin (1991) widened the classical views on economic competitiveness developing the “natural resource abundance trade theory” in 1933 stating that “a capital-abundant country will export the capital-intensive good, while the labour-abundant country will export the labour-intensive good”. It should be mentioned that this theory is built on the trade theory of Ricardo adjusting it to local abundant production factors. Liberalistic ideas were also developed by Alfred Marshall (1920), one of the most famous representatives of neoclassical economics, who established a supply-and-demand curve which is still used to define the market in equilibrium. His studies put the basis for institutional and geographical economics as well as for clustering through describing the economic relations in the “industrial districts” of England. He underlined the importance of vertical and horizontal specialisation for states’ economic competitiveness.

Joseph A. Schumpeter, notable economist and representative of the Historical school of economics and Evolutionary economics, considerably contributed to enlarging the theoretical framework of “economic competitiveness”. In his work of 1934 “The theory of economic development”, Schumpeter underlined the necessity of firms to permanently adapt to the changing environment and market conditions through implementing innovation and recombining methods and resources. In 1950, he published “Capitalism, Socialism and Democracy” where it was strengthened the role of entrepreneurship and innovations for fostering economic competitiveness of countries. He stated that “the normal mode of economic affairs” is destroyed by entrepreneurs who introduce innovations which makes all the previous technologies obsolete forcing all market players to adapt, thus, the economy is set to develop. In this regard, an economy which has more propitious environment for businesses and entrepreneurs is set to quicker implement innovations and be more flexible.

Contemporary concepts and theories of competitiveness are based on the works of Paul Krugman (New Trade Theory and New Economic Geography) and Michael Porter (Theory of economic clustering). Paul Krugman in his theory explains the accumulation of economic power in certain regions through the formation of various clusters at different geographical levels. The complexity of the local cooperation networks which is determined by the available socio-economic resources is marked by the efficiency of integration of local factors within wider networks. Based on this assumption it could be mentioned that networks and their interferences at

local levels are direct determinants of regional development (Krugman 1990 & 1994). Moreover, Krugman (1996) emphasizes the role of local economic cells i.e. industrial organisations, cities or minor regions for the global welfare distribution, as these structures provide opportunities to increase returns due to the spatial concentration. In an earlier work Krugman (1979) mentions that previous theories focused too much on perfect competition and symmetry explaining trade and subsequent economic growth, instead, Krugman concentrated on the role of industrial organisations and their increasing returns which are rather aligned to imperfect market competition. Krugman in cooperation with Hatsopoulos (1987) and in his work of 1994 mentioned that trade, and economic competitiveness should not be linked only to availability of resources or any kind of advantages, it should also consider historical context and structure of cooperation networks. Moreover, he mentions that viewing economic competitiveness through the national perspective could be dangerous as it leads to misallocation of resources, protectionism and trade wars, and poor public policy. Krugman (2008) highlights that the concept of competitiveness is by far larger than simply ability to sell products and maintain favourable trade balance, it also reflects the rise in living standards and employment as well as its ability to follow straight policies on the international arena. He concludes that competitiveness of countries is conceptually different in relation with the competitiveness of companies, a country, unlike a bank or company, does not cease to exist in case it goes bankrupt (Krugman, 1994).

In his turn, Michael Porter (1990) identifies competitiveness of countries as the ability of states to attract businesses by offering favourable operating environment and relevant support easing their access to local and global markets. These can apply both to regional and national levels. Porter *et al* (2008) underlines the idea that governments' main priority is to enhance sustainable productivity growth through creating the necessary conditions. Porter & Rivkin (2012) mention that competitive economies provide sustainable opportunities to companies to benefit from employment and high living standards, the main factor of competitiveness being productivity. According to Porter (1998), nations can create opportunities by adjusting local procedures to business environment requirements. The key towards competitive advantage is assured by more propitious conditions or offering clients better and greater value, in our case, clients being enterprises. It is also important to underline that Porter (1990) identifies economic competitiveness of countries with the interaction of several factors which, besides the governments, include the role of demand conditions (i.e. economies of scale, transportation costs and the size of the home market), firm strategy, structure, rivalry (entrepreneurial culture of the nation), availability of production factors (particularly labour, knowledge and infrastructure), and interconnection to related and support networks. Domestic competitiveness and permanent search for competitive advantage motivates domestic business to develop.

Similar ideas to Porter's are expressed by Daron Acemoglu. Thus, the important role of institutions in assuring enhanced economic competitiveness and development has been extensively researched by this economist who is one of the most important representatives of the New institutional economics. In his work of 2002 which was made in cooperation with Johnson & Robinson, Acemoglu uncovers the influence of different institutional structures in creating more or less efficient mechanisms of generating and distributing economic welfare. In a later work, Acemoglu *et al* (2005) concluded that institutions are determinant factors motivating long run

economic development of countries, they establishing more or less favourable climate and environment for undertaking economic activities. Namely the institutions determine the quality of legal and administrative frameworks which establishes the rules of interaction among the market participants including individuals, firms, and governments, the situation resulting in the generation of wealth and its distribution. Acemoglu (2009) underlines that institutions can raise or lower the costs of entrepreneurs to operate and generate income either through imposing overregulation (causing corruption and red tape, lack of transparency and kleptocracy) or by freeing the environment stimulating individual initiative and business activity. As a result, it can be underlined that economic development is conditioned by the efficiency of institutions which regulate the all the processes within the society. Thus, it is a primary responsibility to ensure that institutions work properly. Particular danger in this regard, it the transformation of institutions in controlled entities which could model the socio-economic environment based on individual interests.

### **3 Entrepreneurial competitiveness of the Republic of Moldova in economic literature**

Growth, particularly in the socio-economic aspects, determines how the people live in terms of welfare, social conditions and income. It is the responsibility of governments to establish a favourable economic environment capable of insuring proper operational conditions to generate income and progress. Economic competitiveness is determined by institutional strength, availability of proper infrastructure, degree of technological and innovation development as well as governmental initiatives which altogether stimulate entrepreneurship and business activity, the main contributor to economic development. In this regard, Aculai *et al* (2017) determined that economic transition in the Republic of Moldova has been accompanied by the bankruptcy of the largest state owned enterprises which diminished the economic output of the country more than 70% during 90s. This situation made the state the poorest in Europe. Thousands of citizens became unemployed choosing emigration as an option or went in small business failing in short time due to highly unfavourable entrepreneurial environment and wide spread corruption. Political decisions and reforms lead to stagnation of competitive business sector, the country losing many skilled and initiative driven citizens. This fact undermines the possibility of the Republic of Moldova to gain competitive advantages in the future. Moreover, Belostecinic (2007) highlighted that during the soviet age the Republic of Moldova has not been endowed with a strong industrial base as compared for instance with Ukraine or Belarus. This situation determined the direction of transition and constant erosion of the remaining industrial sector the fact causing significant drop of income during the 1990. These circumstances worsened as the traditional economic relations were destroyed, the state failing in establishing new ones as it could not meet already existing competition requirements on the new markets, the Western Europe going far away in this area. These conditions tend to persist over the time, just slightly improving in dynamics. At the same time, Ianioglo & Polajeva (2017) underlined that despite of the recent evolutions, the business sector remains weak and underdeveloped as compared to the regional context. In these conditions, its abilities to increase innovative capacities remain limited since entrepreneurs lack resources and macroeconomic stability. Moreover, according to Crudu (2019) policies which have been promoted until present are controversial not eradicating the key institutional weaknesses as well as improving the regulatory clarity the fact reducing the competitiveness of the business. Economic

competitiveness of enterprises is insured by their abilities in developing more innovative product and processes capable of insuring competitive advantage over the rivals on the market. However, these assumptions are poorly fitting the realities of the Republic of Moldova, where other factors such as political and judiciary connectivity is decisive. Simultaneously, Belostecinic & Guțu (2008) concluded that the Republic of Moldova has very low economic competitiveness the fact which is explicitly reflected in trade balance, the state registering important deficit. The exports of the country are highly concentrated, the first 5 positions in terms of products having consistent dominance over the period the situation which underlines the weak state of affairs in the economy. Moreover, the direction mainly towards the EU and CIS states highlight that the economy is not prepared to compete for more distant markets, and the business sector is not prepared to deal with larger logistic challenges.

Kleinschnitger & Knodt (2018) underlined that the European Union through launching the Eastern Partnership initiative in 2009 supposed to consolidate the quality of democracy and economic basis of the included countries. The Republic of Moldova, Ukraine and Georgia managed in efficiently exploiting the opportunities offered by the community, thus, these nations being able to establish free trade areas with the EU which opened the single market for the business sectors of these countries. Nevertheless, due to strong institutional, political and economic challenges reaching full potential of enhanced cooperation is not valid in the present, deepening the relations is hampered by the poor dialogue and inconsistent policies between these states and the European Union. Furthermore, Muravska & Berlin (2016) said that the established free trade areas between the European Union and the Republic of Moldova, Ukraine and Georgia is set to strengthen these states' business performance through providing development opportunities. Entrepreneurial performance of these countries at the moment could be considered in its incipient stage especially considering regions. Entrepreneurs lack sufficient resources and qualitative institutions as well as experience. In the conditions of high competitive environment of the EU's single market, the businesses originating from the Eastern Partnership countries setting free trade areas with the community could succeed rather in the conditions of exceptions. Much policy improvements and investments have to be made in order to make these economies competitive. Also, Baltag & Bosse (2016) underlined that the business sector lacks more comprehensive support of the European Union. The community's policies in this state are weak and have little influence upon the democratic and market processes. Thus, during the last years, the Republic of Moldova's European integration route failed, the country sliding towards hybrid authoritative regime, the EU's authorities being restrained from all these process and not taking adequate measures. European Neighbourhood Policy in the Republic of Moldova has been too permissive the situation leading to consolidation of oligarchy and economic monopolies. No significant improvements should be expected in terms of economic competitiveness and income in the country since the environment is over regulated and corrupted. Moreover, Nilsson & Silander (2016) concluded that in the conditions of declining democratic quality, the business sector in the Eastern European nations member of the Eastern partnership initiative is supposed to decline since entrepreneurs will face more impediments. This negative effect will be stronger than the opportunities provided by the single market of the European Union, as businesses originating from these countries will face strong institutional pressure. In these conditions, the community should

change policy approach towards these countries to stimulate directly the business and protect entrepreneurs through available mechanisms. In this regard, the EU should apply more coercive measures motivating more efficient reforms implementation.

Delcour (2015) mentioned that the Russian Federation is the traditional power which has influenced and determined the decision making in most of the Eastern Europe for centuries. The collapse of the Soviet Union has opened this region for growing influence of the West including the European Union and USA. The competing interests between the West and Russia in the Eastern Europe undermines the possibility of the states to progress since neither of the parts are willing to concentrate investments in a region of instability, policies being conducted in parallel rather than establishing complementary relations. Competition of interests aim establishing legitimacy of power and enlarging the areas of influence. At the same time, Ghedrovici & Ostapenko (2016) concluded that in countries such as the Republic of Moldova business is determined by the political connectivity of the entrepreneurs which assure protection against over claimant institutions. In case there is no such “an umbrella”, the business risks to be forced either to live the market and close the activities or to obtain protection. Nevertheless, the growing economic and political integration with the European Union lead to strengthening entrepreneurial sector, many practices which have been widely spread during the transition period, presently, are much less intervening in the affairs of the private sector. Also, Aculai *et al* (2015) as well as Dodu-Gugea & Stihi (2014) said that the Republic of Moldova’s entrepreneurial sector is highly vulnerable and underdeveloped due to restrictiveness of policies and extractive institutions. Particularly, it should be mentioned the small and medium sized enterprises which lack both resources and feasible business opportunities as well as efficient policy support, the fact diminishing the survival rates (Crudu, 2019). This circumstances explain massive emigration of citizens which are not able to develop competitive businesses home and do not find suitable employment opportunities capable of insuring better living standards. Extractive institutions tend to suppress the entrepreneurial spirit decreasing the ability of the economy to growth and enhance economic competitiveness. Further, Aculai, Maier & Novac (2017) identified that the international rankings of entrepreneurial environment in the Republic of Moldova are comparable to the weakest economies in Asia and Africa. High corruption, monopolisation of each market by political backed businesses, red tape, petty bureaucracy and lack of competences are among the factors which decrease the ability and willingness of business sector to increase its competitiveness and innovation. In these conditions, the business sector is not able to insure sufficient boost of the economic processes capable of generating higher productivity and employment. The EU’s support in this regard is feeble incapable to assure stable improvement of the situation.

Campbell (2017) stated that despite of the weak business environment, the Republic of Moldova has a strong potential in attracting investments and developing innovative oriented business sector. This fact is determined by relatively high quality of the human capital, gained abilities and experience during wide implication in migration. In these circumstances, the right policy measures and reforms implementation, the government is capable in relatively short term of consolidating the business environment. This fact is improved by establishing free and comprehensive trade area with the European Union which is a large market providing important

profit opportunities. Moreover, Le Heron & Yol (2018) determined that an important boost to Moldovan business environment was insured by affluence of remittances which is a consistent source of income fostering the development of the country through increasing the household consumption. Nevertheless, government has failed in building efficient mechanisms of transforming remittances into investments the situation which minimised the growth potential. Since the vast majority of the income was paid for imports on consumer goods, the economic growth did not improve the capital accumulation in the country, thus, not consolidating the productivity basis. Moreover, remittances minimised the attractiveness of the economy for foreign investments through raising salaries and prices for consumer and industrial goods. Finally, Turcan & Fraser (2016) underlined that the Republic of Moldova needs consolidation of the business sector through liberalising the legislation and reducing the influence of the institutions on the economic processes.

Therefore, good governance and efficient institutions is, in this regard, the key component to economic development and general societal progress. Corner stone features of good governance are integrity and efficiency. Integrity is important to assure the neutral character of legislation and regulation taking into account general interests of the society and not the individual interests of the bureaucratic representatives or politically affiliated business. Efficiency regards operational capacities of institutions to develop, implement and monitor regulations' application considering time and resource constraints. Moreover, efficiency is linked to the quality of developed policy and its impact upon business environment and living standards. These preconditions are important since transparency, equity and efficiency are the basic values assuring harmonisation of socio-economic processes.

### **3 Methodology**

The dataset analysed contains information regarding 14 countries of the Eastern Europe alongside with the Republic of Moldova. The fundament of the data is assured by Worldwide Governance Indicators which are provided by the World Bank. The period covered in the research is 2002-2017. The directions regarded are voice and accountability (VA), political stability (PS), government effectiveness (GE), regulatory quality (RQ), rule of law (RL), and control of corruption (CC), which serve as the independent variables of the present study. The dimensions analysed is the minimal percentile rank indicating the countries' rank among all countries covered by the aggregate indicator, with 0 corresponding to lowest rank, and 100 to highest rank. The dependent variable is the natural logarithm of the GDP per capita, which is intended to show the evolution of economic dynamics of the countries considering the independent variables. The first step of the analysis consists of qualitative assessment of the raw data. Analysis of the independent variables is aimed to identify the efficiency of mechanisms of assuring social order marking the patterns of interrelating and networking among individuals, private and public sectors. These factors determine the overall efficiency of the legal and administrative organization creating an enabling environment for generating wealth within economies. It should be highlighted that these dimensions are fundamental factors which are crucial in motivating business sector in engaging in economic activities. Fundamental factors form the means assuring the functionality of the economic system by empowering people and businesses to pursue and benefit from unique

opportunities. Fundamental factors determine the efficiency of the markets and assure the basis for entrepreneurial development and competitiveness. Control of corruption shows the extent to which public sector is transparent and do not exercise their power to gain personal benefit; government effectiveness includes the quality of civil and public services, institutional independence, efficiency of policy developing and implementation, and government legitimacy; regulatory quality determines the extent to which the legal environment and its enforcement allows the business sector to progress; rule of law shows the extent to which all participants in the economy are considered equal in the front of law; voice and accountability marks the extent to which citizens' voice is accounted for when developing policies, and efficiency of monitoring; political stability underlines the stability of government, degree of uncertainty and the propensity of government to change. The second step of the analysis consists of a throughout statistical assessment which is aimed to provide a strong fundament on which the conclusions will build. Firstly, there are identified the descriptive statistics of the dataset. Afterwards, it is analysed the Pearson's correlation coefficients among the indicators to show the extent to which the indicators are linearly associated. Further, it is undertaken a multiple linear regression estimation between log GDP per capita, as the dependent variable, and the selected indicators, respectively as independent ones. Finally, the Kaiser-Meyer-Olkin test is performed to identify the proportion of variance in the variables that might be caused by underlying factors as well as Bartlett's test of sphericity to prove that the variables are unrelated and therefore unsuitable for structure detection. In this way, it can be identified where the dataset is adequate and the regressions are relevant.

#### **4 Results**

Table 1 provides information regarding the performance of the Republic of Moldova in the area of fighting both petty and grand corruption as compared to the rest of the Eastern European nations. As it can be remarked, the Republic of Moldova is the second most corrupted country in the Eastern Europe, its performance being slightly higher than Azerbaijan. Moreover, this fact means that the country is positioned among 21.2% most corrupted countries of the world, the situation which underlines serious problems in policy making and implementation of the legislation. For comparison, the least corrupted country is Estonia the performance of which exceeds 87% of the countries, followed by Georgia, 77.4%. It should be underlined that Georgia has consistently improved its scoring within 2002-2017, registering the highest growth among the countries. At the same time, Moldova rather stagnated over period, no consistent melioration of the situation being recorded, similar results being reported by Ukraine. Being one of the most corrupted countries in the world and second in the region, the Republic of Moldova certainly decreases its entrepreneurial attractiveness both for local and foreign businesses, the situation which undermines its competitiveness and economic potential. Despite of the wide support of the European Union, anticorruption measures which the Republic of Moldova has implemented since 2009 proved to have little effect in increasing country's performance.

**Table 1. Worldwide Governance Indicators: Control of Corruption (CC), Min. Percentile Rank**

	2002	2004	2006	2008	2010	2012	2014	2016	2017
Estonia	77.8	82.4	82.0	81.1	80.5	82.0	88.0	88.9	87.0
Georgia	5.6	37.1	58.5	54.4	57.1	68.7	76.4	74.0	77.4
Poland	70.2	59.0	64.9	69.9	71.9	73.0	72.6	76.0	76.0
Czech Republic	69.2	69.8	67.8	67.0	66.7	64.9	66.3	69.2	70.7
Lithuania	63.1	69.3	60.5	61.7	69.0	68.2	70.7	75.0	70.2
Latvia	59.6	60.5	68.8	63.6	63.8	64.5	67.8	66.8	69.7
Slovak Republic	58.6	67.8	69.3	67.5	64.8	61.1	60.1	63.5	62.5
Hungary	74.2	75.6	74.1	70.9	68.6	67.3	60.6	60.6	59.1
Romania	40.4	46.8	53.2	53.9	52.4	48.8	53.8	56.7	55.3
Bulgaria	53.0	58.0	56.1	49.5	53.3	51.2	50.5	51.0	51.0
Belarus	30.8	23.4	31.7	32.0	27.1	36.5	48.1	48.6	47.1
Armenia	27.8	30.2	29.8	27.7	26.7	33.6	36.1	32.7	32.7
Ukraine	11.6	16.6	24.9	19.9	16.2	12.8	14.9	20.7	22.1
Moldova	19.2	14.6	31.2	31.6	29.0	31.8	20.7	14.9	21.2
Azerbaijan	7.1	10.7	12.7	11.2	6.7	11.8	14.4	19.2	17.8

**Source:** The World Bank Group, retrieved from [info.worldbank.org](http://info.worldbank.org) on February, 22<sup>nd</sup>, 2019

Government effectiveness is a basic factor, a *condicio sine qua non* for business development. It affects directly entrepreneurial competitiveness of the countries through reflecting the quality of the civil service, the quality of provided public services, as well as the degree of its independence from political pressures. At the same time, it comprises the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Based on the information provided in table 2, it can be underlined that the Republic of Moldova is the least performant country in the region in terms of government effectiveness, shortly after Ukraine. The government of the state is ranked among 34.1% least efficient in the world, the situation which considerably reduces the ability of the nation to compete for local and foreign business investments. The registered dynamics are also weak no significant improvement being reported within 2002-2017. Estonia, Czech Republic and Lithuania are the Eastern European states with the most competitive governments, while Georgia is the country with the most remarkable evolution. It should be underlined that Belarus, Romania and Azerbaijan, alongside with Moldova and Ukraine have the least competitive governments in the region being positioned significantly behind the leading powers in this area of the Eastern Europe.

**Table 2. Worldwide Governance Indicators: Government Effectiveness (GE), Min. Percentile rank**

	2002	2004	2006	2008	2010	2012	2014	2016	2017
Estonia	75.5	80.3	83.9	84.0	82.3	78.2	80.3	82.7	83.7
Czech Republic	81.6	78.3	83.4	79.6	78.5	77.3	80.8	79.8	81.3
Lithuania	71.9	75.9	75.1	73.3	74.2	73.9	78.8	81.3	80.3
Latvia	71.4	72.4	74.1	70.4	72.7	75.8	78.4	78.8	78.8
Slovak Republic	73.0	78.8	79.0	77.7	76.1	74.4	75.0	76.9	75.0
Poland	69.9	69.5	65.9	67.5	71.3	72.0	74.5	73.6	74.0
Georgia	24.0	36.5	47.8	65.5	65.1	70.1	71.6	70.7	72.1
Hungary	82.7	77.8	77.6	75.2	72.2	70.6	72.1	69.2	70.2
Bulgaria	63.8	63.1	54.6	53.4	59.3	60.7	57.7	65.4	63.9
Armenia	54.1	54.2	46.3	49.0	48.8	54.0	45.7	49.0	50.0
Azerbaijan	14.8	23.6	30.2	22.8	23.0	25.1	41.8	48.1	47.1
Romania	49.5	49.8	48.8	45.1	45.9	45.0	54.8	47.6	46.2
Belarus	15.3	10.8	11.7	12.6	11.5	19.9	34.6	36.1	39.4
Ukraine	30.1	32.5	36.6	27.2	24.4	32.2	39.9	31.7	35.1
Moldova	33.2	18.7	24.4	23.3	29.7	33.2	38.9	29.8	34.1

**Source:** The World Bank Group, retrieved from [info.worldbank.org](http://info.worldbank.org) on January, 22<sup>nd</sup>, 2019

Another important indicator which is a fundament for entrepreneurial competitiveness is regulatory quality. It should be remarked that the Republic of Moldova registers relatively high performance in this area ranking better than 54.3% of all countries of the world (table 3). Yet, in the regional context, its results are rather modest recording the fourth lowest efficiency in terms of regulatory quality. In this regard, Moldova scores better than Belarus, Ukraine, and Azerbaijan, however, consistently lower than Armenia and Romania. During the researched period, the country has increased its performance, nevertheless, during the last years the growth has stagnated the fact pointing severe difficulties in implementing European supported reforms. Estonia is the leading force in terms of regulatory quality in the Eastern Europe being positioned higher than 93.3% of all countries of the world. It is followed by the Czech Republic, Lithuania, Latvia as well as Georgia, the least registering consistent improvement of the performance dynamics. It should be underlined that the region’s scores, on overall, are favourable with 10 states out of 15 recording results exceeding 70<sup>th</sup> percentile. In these conditions, the performance of the Republic of Moldova, which is higher than in the previous cases, is not providing any significant advantage since in the regional context it is still not sufficient.

**Table 3. Worldwide Governance Indicators: Regulatory quality (RQ), Min. Percentile rank**

	2002	2004	2006	2008	2010	2012	2014	2016	2017
Estonia	88.8	87.2	88.2	91.7	88.5	91.0	93.3	93.3	93.3
Czech Republic	84.2	79.3	83.3	85.0	86.1	81.0	80.8	80.8	86.1
Lithuania	81.6	80.8	77.9	83.0	79.4	82.9	86.1	84.6	83.2
Latvia	76.5	78.8	79.4	80.6	80.4	80.1	85.6	83.7	82.7
Georgia	21.4	36.5	51.0	64.6	70.8	74.4	79.3	81.7	81.7
Poland	74.0	75.9	72.1	75.2	79.9	78.7	81.3	79.8	78.8
Slovak Republic	78.1	82.8	84.8	82.5	80.9	80.6	78.4	78.8	76.4
Hungary	87.2	83.3	85.8	85.9	81.3	79.1	75.5	71.6	73.1
Bulgaria	69.9	72.4	68.1	72.8	74.2	69.7	70.7	73.6	72.6
Romania	56.6	59.6	64.7	68.0	71.8	69.2	71.6	70.7	70.2
Armenia	57.1	58.1	58.8	62.1	60.3	61.1	59.6	63.0	64.4
Moldova	39.8	37.4	42.6	50.0	49.3	49.3	54.3	50.5	54.3
Azerbaijan	23.5	28.1	31.4	41.3	39.2	35.5	44.2	43.8	43.3
Ukraine	30.1	39.4	31.9	33.0	34.0	29.9	29.3	36.1	40.4
Belarus	5.1	10.3	3.4	9.2	12.4	13.7	15.4	16.3	24.5

**Source:** The World Bank Group, retrieved from [info.worldbank.org](http://info.worldbank.org) on January, 22<sup>nd</sup>, 2019

Table 4 provides information regarding the performance of the Eastern European countries in terms of rule of law. As it can be remarked, the Republic of Moldova scores the fourth least competitive country in the region being ranked on the 37.5 percentile in the world, which is rather a modest performance and could insure a competitive advantage. Moreover, the Republic of Moldova is stagnating in dynamics, thus, during 2002-2017 the state has not registered a significant improvement of the results. The declining scoring for the last two years points severe difficulties in terms of the rule of law, neither the Association Agreement nor the comprehensive support of the European Union being efficient in this regard. As in the cases of the previous indicators, the leading country in the Eastern Europe considering the rule of law is Estonia which is positioned on the 86.5 percentile, followed by the Czech Republic, Lithuania and Latvia (table 4). Georgia which has been one of the leaders in the cases of the previous indicators records more modest scoring being positioned on the 63<sup>rd</sup> percentile. The states with the lowest results, besides the Republic of Moldova, are Belarus, Ukraine and Azerbaijan. Thus, these markets have reduced attractiveness for doing business since weak rule of law imposes high operational risks, thus, conditioning an unfavourable environment for development.

**Table 4. Worldwide Governance Indicators: Rule of Law (RL), Min. Percentile rank**

	2002	2004	2006	2008	2010	2012	2014	2016	2017
Estonia	75.2	81.3	88.0	87.0	85.3	85.9	86.5	86.5	86.5
Czech Republic	77.7	72.7	76.6	80.8	80.1	82.2	84.6	82.2	83.7
Lithuania	65.3	68.9	70.3	71.6	73.5	76.1	79.3	81.7	80.8
Latvia	63.4	67.9	68.9	74.5	73.9	72.8	78.4	80.3	80.3
Slovak Republic	60.9	65.1	65.6	68.8	66.4	65.3	70.7	74.5	71.6
Hungary	80.7	77.5	82.8	81.3	73.0	68.1	71.2	66.8	70.2
Poland	72.3	63.2	62.7	66.8	68.7	72.3	77.4	74.0	68.3
Romania	46.0	47.4	50.7	53.8	56.4	57.7	63.5	63.9	63.9
Georgia	15.3	32.1	40.2	47.6	47.9	54.9	64.9	64.9	63.0
Bulgaria	52.0	49.3	51.2	52.4	53.1	52.1	56.7	52.4	51.9
Armenia	39.6	39.2	35.4	44.7	37.4	42.7	41.3	50.5	49.5
Moldova	34.2	42.6	38.3	39.4	43.1	46.0	46.6	33.2	37.5
Azerbaijan	20.3	20.1	21.5	21.6	20.9	23.5	28.8	32.2	32.2
Ukraine	24.8	26.3	24.9	27.4	25.1	26.3	23.1	24.5	25.0
Belarus	7.4	9.6	8.1	13.9	14.2	17.4	20.7	26.4	21.6

**Source:** The World Bank Group, retrieved from [info.worldbank.org](http://info.worldbank.org) on January, 22<sup>nd</sup>, 2019

Another important indicator determining the competitiveness of the entrepreneurial environment is voice and accountability. Based on the information provided in table 5, it can be remarked that the performance of the Republic of Moldova is relatively low considering the regional context since it scores the twelfth most performant, in the world being positioned on the 45.3th percentile. Even if the score has increased during the period of 2002-2017, it decreased during the last two years the fact underlining important challenges which the state is confronting with. Alongside with the Republic of Moldova, low scoring is registered also by Azerbaijan, Armenia and Belarus as well as Ukraine and Georgia. The Eastern European nations which managed to integrate into the European Union are significantly more competitive than the previous states. The leader is Estonia which is ranked in the 89.7<sup>th</sup> percentile, followed by Lithuania and Czech Republic and Slovak Republic. It is important to underline that the Eastern Partnership countries which established association agreements as well as deep and comprehensive free trade areas with the European Union i.e. Moldova, Ukraine and Georgia report considerably higher performances than the states which have not deepened the cooperation with the community i.e. Armenia, Azerbaijan and Belarus. This fact underlines the favourable effect of European backed reforms on fostering democratic capacities in the Eastern European states which have chosen to follow the European integration route.

**Table 5. Worldwide Governance Indicators: Voice and accountability (VA), Min. Percentile rank**

	2002	2004	2006	2008	2010	2012	2014	2016	2017
Estonia	79.6	83.7	84.6	85.6	83.4	85.9	88.2	89.2	89.7
Lithuania	73.1	77.9	74.5	72.6	75.4	75.1	76.4	78.3	78.3
Czech Republic	76.6	80.3	77.4	81.7	78.7	77.0	78.8	81.3	76.8
Slovak Republic	74.6	79.3	76.4	74.0	74.9	77.5	75.9	76.4	75.9
Latvia	72.6	71.2	74.0	71.2	72.0	71.8	72.4	73.9	73.9
Poland	80.6	82.2	73.6	76.0	80.1	82.6	82.3	74.4	72.9
Romania	60.7	60.1	63.0	62.0	59.2	57.7	60.6	65.5	64.5
Bulgaria	63.7	66.3	65.9	65.9	64.5	61.5	59.6	59.1	59.1
Hungary	86.1	85.6	78.8	76.4	73.5	70.9	66.0	59.6	58.1
Georgia	33.8	46.6	43.8	39.4	41.7	50.2	57.6	55.7	54.7
Ukraine	33.3	28.4	47.6	50.5	45.0	40.4	43.3	47.3	47.3
Moldova	32.3	29.8	37.0	36.5	46.9	47.4	49.3	46.8	45.3
Armenia	36.8	30.3	26.4	24.5	25.1	30.0	30.5	31.0	32.0
Belarus	8.5	5.8	5.3	6.7	7.1	6.1	7.9	12.8	12.3
Azerbaijan	20.4	18.8	10.6	11.1	12.8	12.2	7.4	6.4	6.9

**Source:** The World Bank Group, retrieved from [info.worldbank.org](http://info.worldbank.org) on January, 22<sup>nd</sup>, 2019

Another important indicator which determines the competitiveness of countries in terms of entrepreneurship and business is political stability. Based on the information provided in table 6, the Republic of Moldova is the fifth least competitive country among the selected in terms of political stability being ranked on the 38.6<sup>th</sup> percentile ahead of Georgia, Armenia, Azerbaijan and Ukraine. It should be mentioned that all of these countries including the Republic of Moldova have frozen military conflicts on their territory and significant social tensions. If analysing the dynamics, it can be underlined that political stability in Moldova has slightly declined over the researched period and stagnated during the last years. The states with the highest political stability in the region are the Czech Republic being ranked on the 84.3<sup>th</sup> percentile, followed by Slovakia, Hungary and Lithuania. Estonia which was a leader in the cases of the previous indicators records rather modest results. Romania, the European neighbour of the Republic of Moldova, registers modest scoring in terms of political stability being positioned near the countries of the Eastern Partnership. Thus, the regional context of the Republic of Moldova is unfavourable for business activities since the neighbouring countries i.e. Ukraine and Romania, as well as the proper low scoring of Moldova, condition less attractive business environment.

**Table 6. Worldwide Governance Indicators: Political stability (PS), Min. Percentile rank**

	2002	2004	2006	2008	2010	2012	2014	2016	2017
Czech Republic	83.1	68.4	85.5	85.6	82.9	86.7	83.3	81.4	84.3
Slovak Republic	81.5	65.0	71.0	87.0	86.7	88.2	85.7	71.4	76.2
Hungary	91.0	75.2	80.7	71.2	69.2	68.7	68.6	67.1	74.3
Lithuania	77.2	72.8	74.9	70.7	70.6	72.5	70.5	73.8	72.9
Estonia	80.4	71.4	68.6	65.9	67.8	67.3	72.9	68.6	69.0
Poland	71.4	51.0	55.1	77.9	84.4	86.3	76.2	63.3	64.8
Latvia	82.0	66.0	72.9	51.9	64.5	61.1	61.9	62.4	63.8
Bulgaria	64.0	45.1	57.5	56.3	57.8	58.8	49.5	49.0	60.5
Romania	63.5	47.6	50.2	50.5	54.0	48.8	48.6	56.2	49.0
Belarus	55.6	51.5	49.8	62.5	42.2	47.9	52.9	51.0	45.7
Moldova	41.8	37.9	31.9	35.6	33.2	46.9	39.0	34.8	38.6
Georgia	16.9	19.4	17.9	16.8	24.2	24.2	34.8	33.8	32.4
Armenia	37.6	40.8	37.7	44.2	49.8	51.2	35.7	22.4	20.5
Azerbaijan	16.4	17.0	16.4	32.7	36.5	23.2	26.2	18.6	18.6
Ukraine	33.9	29.6	44.0	45.7	45.5	41.7	5.7	6.7	6.7

**Source:** The World Bank Group, retrieved from [info.worldbank.org](http://info.worldbank.org) on January, 22<sup>nd</sup>, 2019

Table 7 provides information regarding the descriptive statistics of the dataset. As it can be observed, the countries of the Eastern Europe register higher performance in terms of regulatory quality, followed by governmental effectiveness, voice and accountability. The lowest levels of institutional efficiency are in the area of control of corruption, rule of law and political stability. The highest discrepancies are recorded in the area of voice and accountability, while the lowest is remarked for political stability. Yet, it should be remarked that the performances across the selected indicators are more or less similar, the countries’ governance efficiencies not changing much from one to another indicator. All the considered indicators are strongly correlated. Thus, by examining table 8, it can be noticed, that there is an accentuated linear association in all cases, the situation which underlines two fundamental ideas. First, the evolution of governance efficiency is directly linked to all considered dimensions. Second, there is a high level of linear association between the indicators reflecting institutional strength and the dynamics of economic development.

**Table 7. Descriptive statistics of the indicators.**

	VA	PS	RL	RQ	GE	CC	Log GDP
Mean	56.2	55.6	54.9	64.0	57.2	51.2	9.5
Standard Error	1.6	1.3	1.4	1.5	1.4	1.4	0.0
Median	64.1	56.3	59.3	72.8	65.5	58.3	9.7
Standard Deviation	24.7	20.9	22.0	22.9	21.3	22.0	0.6
Sample Variance	611.6	434.8	484.2	523.9	455.6	484.3	0.4
Kurtosis	-0.7	-0.7	-1.0	-0.2	-1.0	-1.1	-0.4
Skewness	-0.7	-0.4	-0.4	-1.0	-0.6	-0.5	-0.7
Range	86.3	85.8	80.6	89.8	75.1	83.4	2.8
Minimum	3.4	5.2	7.4	3.4	10.5	5.6	7.7
Maximum	89.7	91.0	88.0	93.3	85.6	88.9	10.5
Count	240	240	240	240	240	240	240

Source: Own calculations

**Table 8. Pearson’s correlation matrix of the indicators**

	VA	PS	RL	RQ	GE	CC	Log GDP
VA	1						
PS	0.72	1					
RL	0.92	0.74	1				
RQ	0.89	0.64	0.95	1			
GE	0.87	0.69	0.94	0.94	1		
CC	0.85	0.73	0.90	0.85	0.90	1	
Log GDP	0.55	0.68	0.65	0.57	0.63	0.66	1

Source: Own calculations

Further, it has been undertaken a linear regression analysis between log GDP per capita and the selected indicators of institutional efficiency, to check the extent to which governance efficiency affects economic growth in the countries of the Eastern Europe. Accordingly, if the relations among these indicators are relevant, it can be built a model of showing the dependence of economic development on the institutional efficiency. The multiple linear regression performed takes the form of  $y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \dots + \beta_kx_k + e$ . By examining the information presented in table 9, it can be underlined that the model which has been built has a relatively high coefficient of determination of 0.558. This fact underlines that the variation in the dynamics of GDP per capita are explained by the selected explanatory variables at an extent of more than 55.8%, which is a consistent rate for our model containing 6 independent variables. It is important to underline that the significance level F is relevant for the model built reaching negligible values. Referring to the P-values of the model, it can be observed that the majority do not reach 0.05, the fact highlighting the idea that they can be considered as relevant. Moreover, two P-values recorded slightly overpass 0.05 reaching 0.058 and respectively, 0.062. Since the values are very close to 0.05, it has been decided to include them in the model, as they may be also regarded as consistent, the difference being negligible. As a result, the performed multiple linear regression makes it possible

to build the following model exemplified by the 1 formula. It has been performed the Kaiser-Meyer-Olkin test (Kaiser, 1974) for sampling adequacy which has the value of 0.985, the fact which underlines that the factors identified are reliable and the sample is relevant. Moreover, it has been performed the Bartlett’s test of sphericity (Tobias & Carlson, 1969), with a p-value being close 0, the fact which expresses the idea that factor analysis is relevant for the present study. It should be mentioned that Mavragani *et al* (2016) have used similar methodology of analysis in an attempt to identify the dependence of efficient environmental protection on the quality of institutions.

$$\text{Log (GDP per capita)} = 8.254 - 0.01VA + 0.012PS + 0.016RL - 0.009RQ + 0.009GE + 0.007CC \quad (1)$$

**Table 9. Multiple linear regression estimations of log GDP per capita and the selected indicators**

Regression Statistics		ANOVA						
Multiple R	0.747		df	SS	MS	F	Significance F	
R Square	0.558	Regression	6	55.21	9.20	48.94	0.000	
Adjusted R Square	0.546	Residual	233	43.81	0.19			
Standard Error	0.434	Total	239	99.02				
Observations	240							
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	8.254	0.099	83.7	0.000	8.059	8.448	8.059	8.448
VA	-0.010	0.003	-3.4	0.001	-0.016	-0.004	-0.016	-0.004
PS	0.012	0.002	5.6	0.000	0.008	0.017	0.008	0.017
RL	0.016	0.006	2.7	0.006	0.005	0.028	0.005	0.028
RQ	-0.009	0.005	-1.9	0.058	-0.019	0.000	-0.019	0.000
GE	0.009	0.005	1.8	0.062	0.000	0.018	0.000	0.018
CC	0.007	0.003	1.9	0.047	0.000	0.013	0.000	0.013

Source: Own calculations

## 5 Conclusions

This study concludes that the Republic of Moldova is one of the least competitive countries in the Eastern Europe considering the attractiveness of the business and entrepreneurial environment, the fact which is reflected by weak overall institutional performance regulating economic processes. This fact determines that the economic competitiveness of the Republic of Moldova is lower as compared to other nations of the Eastern Europe. This situation contributes to

state's more modest level of economic development and living standards. Partly, this unfavourable situation is determined by weaker entrepreneurial competitiveness and reduced efficiency of the business sector. Based on the undertaken analysis, the present study accepts the first hypothesis mentioning that the Republic of Moldova has a limited and non-competitive environment for the private sector. At the same time, the study accepts the second hypothesis highlighting that low institutional performance of the Republic of Moldova hampers the development of its business environment. Accordingly, as it was possible to observe based on the qualitative and quantitative data analyses, the country has relatively weak positions considering the fundamental factors for entrepreneurial competitiveness (i.e. control of corruption, government effectiveness, regulatory quality, rule of law, voice and accountability, political stability) as compared to other Eastern European countries, both members and non-members of the European Union. This fact reduces the economic attractiveness of the country the fact which demotes business initiatives and private sector growth. The business environment in the Republic of Moldova is suppressed by an extractive institutional framework which assure a non – competitive and unfair business climate.

Accordingly, it can be remarked that the Republic of Moldova in the context of the global economy is economically weak and register feeble entrepreneurial activity and, consequently, economic competitiveness. It is much weaker than the leading economies of the world such as the United States of America or the European Union, and China, or less developed economies such as Ukraine, Georgia and Romania, the fact which should alarm governing elites towards implementing more business-oriented policies acting as a pillar of competitiveness. Moreover, the economic attractiveness of the Republic of Moldova in the region is shrinking due to institutional stagnation, the situation minimising the ability of the state in attracting foreign and domestic investments. The most recent evolution of the country in terms of institutional effectiveness has demonstrated the inability of the governing elites in the country in pursuing efficient anti-corruption policies the fact leading the Republic of Moldova to declining economic competitiveness and growth potential. Weak unity, leadership and institutions undermine the strategic socio-economic security of the country, the national institutional structures which despite of large investments and support from the EU has limited political influence both in reducing corruption and improving governmental policies' efficiency.

Over-regulation which in most of the times is applied to extract benefits from entrepreneurs by the representatives of the public sector. This interference into the economic processes is leading towards misallocation of resources and concentration of them into unproductive areas the fact resulting in very income growth in the country. Moreover, paying protection taxes leads to minimising the investments of business in strengthening innovation and research and development capacities since entrepreneurs could gain advantages through implying protection mechanisms. Despite the fact that government developed several policies oriented towards fostering the business activity, they rather proved to be inefficient due to unfavourable economic environment. The country intended to stimulate the progress of the private sector through reforms implementation, yet, they were not well-designed and over complex. Countries with more efficient policy making are more effective in generating welfare and improve the long-term wellbeing of the population as compared to states promoting initiatives restricting the entrepreneurial freedom and imposing additional direct or indirect barriers to the free market mechanisms. Additionally, in

the economies with stronger bureaucratic interference, as is the case of the Republic of Moldova, into the business processes, the public institutions responsible of overall day to day activities tend to become affected by red tape and corruption at different levels the fact causing the decline of economic competitiveness and entrepreneurial performance. These conclusions have as a strong fundament the economic model which has been built by the present study explaining the interdependence between economic growth and institutional efficiency, a key pillar of entrepreneurial competitiveness the fact being confirmed by the Kaiser-Meyer-Olkin test and Bartlett’s test of sphericity.

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## EVOLUTION OF INTERNATIONAL TRADE IN THE LIGHT OF THE WAR IN UKRAINE

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*Abstract: The article focuses on the analysis of the main changes in trade policies and international trade flows in the light of the war in Ukraine, and the impact of other factors such as rising interest rates, inflationary pressures in many countries on international trade and challenges for global supply chains in the short- and medium-term perspective. In particular, the case of Republic of Moldova and other countries in the region will be analysed, highlighting the main socio-economic effects of the latest events and developments on the economies in the region.*

**Keywords:** international trade, trade policy, war, supply chains, inflation.

**JEL Classification:** F4

After 83 years since the beginning of the second world war, it was hard to imagine that Europe will see another war in the twenty first century. Nevertheless, it is a horrible reality, a tragedy that affects not only Ukraine that was attacked in a cruel, barbar, unfair and unprovoked way by an aggressor country that is Russian Federation, but also the neighbouring countries, as well as the whole continent and world economy in general.

Although the war in Ukraine is impacting international trade, supply chains, logistic networks, commodities markets, international investments, food security, energy security worldwide, definitely the degree of impact varies across countries and sectors. Obviously, the countries with lower income are the ones that are exposed to a greater extent to the negative effects deriving from the war in Ukraine, with less possibilities of compensating internally the associated losses.

Needless to say, that the war in Ukraine came when the world economy was still struggling with two years Covid-19 pandemic, thus putting additional pressure on the international trade, investments, supply chains, logistic networks and commodities markets.

The highest negative impact is felt in such markets as the one of fuels, food and fertilizers, where Ukraine and Russian Federation have a high share in international trade.

Overall, the effects of the war in Ukraine on international trade range from deficit of food products, raw materials and components faced by a number of countries to cancelled trade routes, changes in demand and significant increase of prices for agricultural products, energy and metals, thus determining a higher inflation rate worldwide.

Looking from microeconomic perspective, the war in Ukraine has direct effects on the companies operating in Russian Federation and Ukraine and on firms relying on suppliers from those markets (Winkler et al. 2022). Nevertheless, the shock caused by the war goes far beyond Russian Federation, Ukraine and Belarus, as geopolitical risks have increased significantly at the global level. The global Geopolitical Risk Index (Caldara and Iacoviello 2022) has more than doubled since the beginning of the year. The data also show substantial changes in geopolitical risks in several economies that are more integrated than Russia and Ukraine in global value chains, including China, Finland, Sweden, Taiwan, among others, pointing to changing perceptions on the risks of future conflicts and sanctions.<sup>1</sup>

Significant negative effect on international transportation is determined by the increase in the fuel costs that determine higher freight rates, that have already reached record highs during the COVID-19 pandemic. Additionally, economic sanctions against Russia and safety concerns have disrupted land and air transport routes via Ukraine and Russia. Rerouting these connections is expensive. More than that there are limited possibilities to divert shipments via the already disrupted maritime transport sector. Correspondingly, there are fewer Black Sea trade routes, thus even countries that do not have trade restrictions may face difficulties to import from the region.

According to World Trade Organisation (WTO), the merchandise trade volume growth is expected at 3.0% in 2022 and 3.4% in 2023, but these estimates are subject to changes due to the fluid nature of the war. Global GDP at market exchange rates is expected to grow by 2,8% in the year 2022 following an increase of 5,7% in the year 2021, and for the year 2023 the estimation is for a growth rate of 3,2%, thus no fundamental changes in the trade to GDP ratio are expected in the years 2022-2023 in comparison with the corresponding ration registered in the previous decade. As for the regions that are expected to register a decline in trade flows, as per WTO estimations, CIS is foreseen to have a 12% decline in imports in 2022, but on the export side it is expected to register an increase of 4,9% due to still considerable exports of energy from Russian Federation, the growth being determined mostly by the increase of prices in energy resources. It is also expected for regional disparities to narrow due to weak import demand in Europe and Asia. According to WTO forecasts in 2022 export volume growth per regions is expected as follows: 3,4% in North America, -0.3% in South America, 2.9% in Europe, 4.9% in the CIS, 1.4% in Africa, 11.0% in the Middle East, and 2.0% for Asia. On the import side it is estimated an import growth of 3.9% in North America, 4.8% in South America, 3.7% in Europe, -12.0% in the CIS, 2.5% in Africa, 11.7% in the Middle East and 2.0% in Asia. As for estimations for 2023, except for the Middle East, according to WTO all regions are expected to register downward evolution. Trade costs increase in the short run as a result of sanctions, export restrictions, energy costs and disruptions in transport. Considering the world trade in services, it is estimated that it will also be impacted by the war in Ukraine, in particular transport sector covering container shipping and passenger air transport. The sanctions applied on Russian businesses and individuals are likely to have a strong effect on commercial services trade.<sup>2</sup>

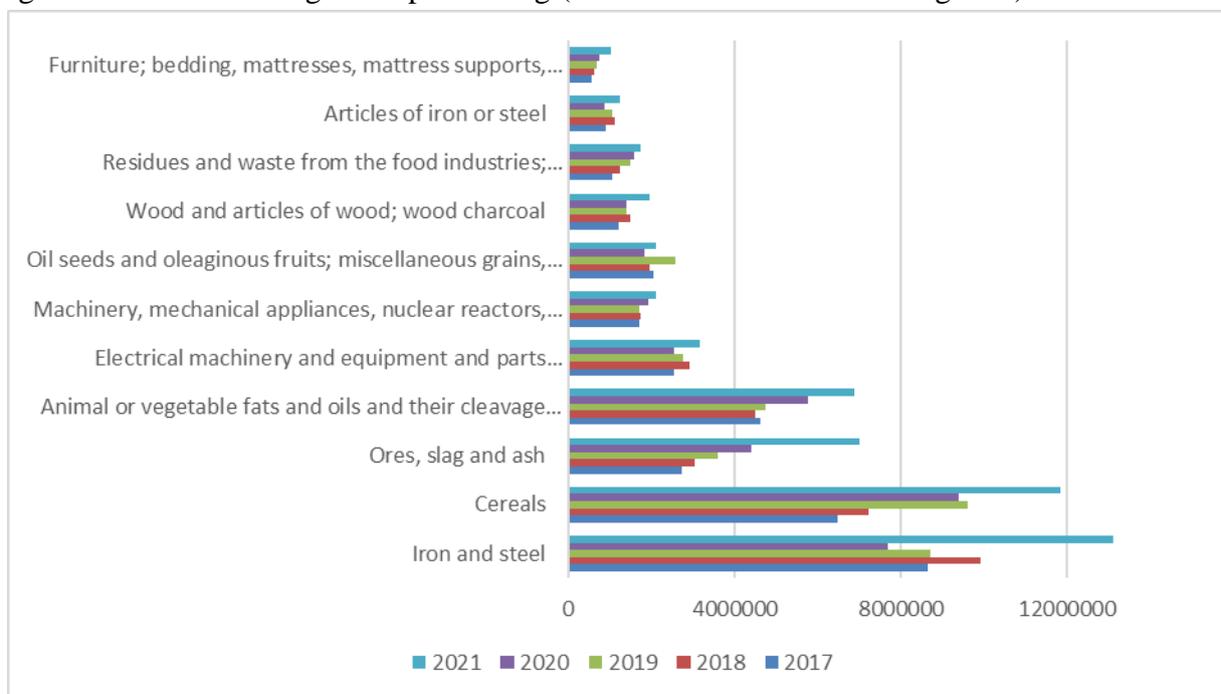
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<sup>1</sup> Caldara, D and M Iacoviello (2022), “Measuring Geopolitical Risk”, *American Economic Review* 112(4): 1194-1225

<sup>2</sup> WTO, [https://www.wto.org/english/news\\_e/pres22\\_e/pr902\\_e.htm](https://www.wto.org/english/news_e/pres22_e/pr902_e.htm) (accessed on 4.10.2022)

The most immediate economic impact of the crisis has been a sharp rise in commodity prices. Despite their small shares in world trade and output, Russia and Ukraine are key suppliers of essential goods including food, energy, and fertilizers, supplies of which are now threatened by the war. Grain shipments through Black Sea ports have already been halted, with potentially dire consequences for food security in poor countries.

According to UNCTAD data, in the year 2021 Ukraine had registered revealed comparative advantage (RCA) for over 60 groups of products, nine of which registered an RCA higher than 10: in particular for fixed vegetable fats and oils, crude, refined, fractionated, RCA – 37,9, for maize it registered an RCA of 36,9, Barley, unmilled, RCA – 35,5, wheat RCA – 26, ingots, primary forms, of iron or steel – 25,5, fuel wood and wood charcoal, RCA – 16,9, pig iron and spiegeleisen, sponge iron, powder RCA – 15,7<sup>3</sup>. It is to be highlighted that from the total number of groups with RCA higher than 1, about 64% are manufactured goods or goods with certain degree of processing (semi-finished and finished goods).



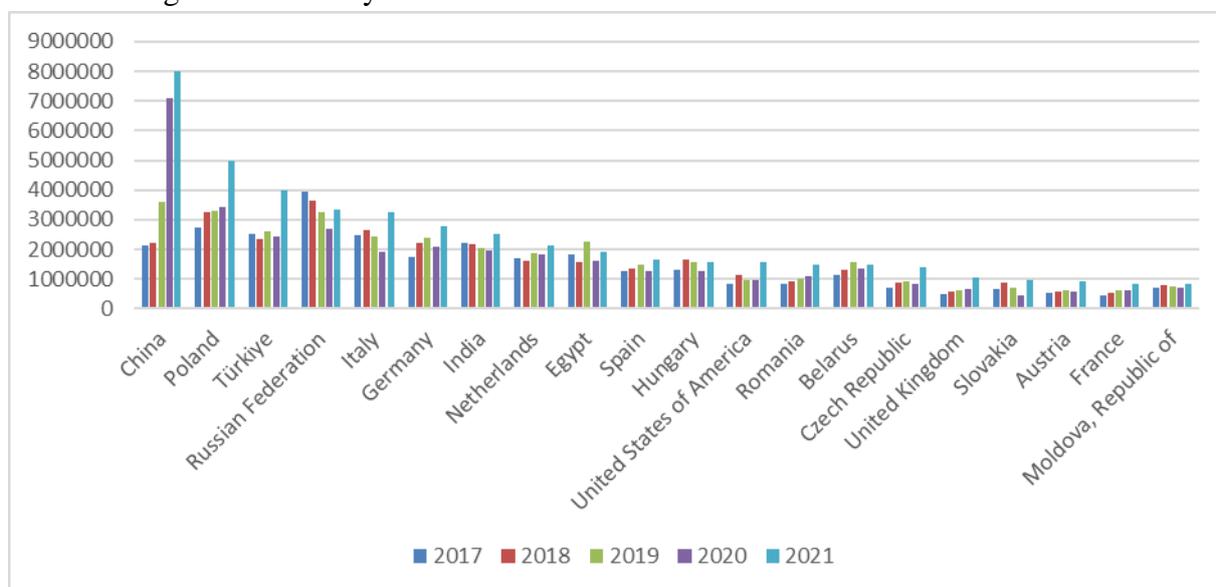
*Figure nr. 1. Evolution of Exports of Ukraine by main group of products in 2017-2021, thousands USD*

*Source: elaborated by the author based on data from ITC (trademap.org)*

The greatest share in Ukrainian exports in the year 2021 is held by iron and steel that registered an increase of more than 30% in 2021 in comparison with 2020, followed by cereals that similarly in 2021 registered a sound increase in exports in comparison with the year 2020 around 12,5%. The following groups of products that registered the highest share in exports similarly increased the volumes of exports in 2021 heating the highest values registered in the

<sup>3</sup> UNCTAD, Revealed Comparative Advantage RCA Radar Plots, <https://unctadstat.unctad.org/en/RcaRadar.html> (accessed on 5.10.2022)

period 2017-2021, the only exception being oil seeds and oleaginous fruits, for which the record was registered in the year 2019.



*Figure nr. 2. Main importing countries of Ukraine merchandise exports in 2017-2021, thousands USD*

*Source: elaborated by the author based on data from ITC (trademap.org)*

Analysing the geographical distribution of Ukraine exports of merchandise, among the most important partners in 2021 were: China, Poland, Turkey, Russian Federation, Italy, Germany, Romania being on the 13<sup>th</sup> place, Belarus – on the 14<sup>th</sup> place and Republic of Moldova – on the 20<sup>th</sup> place. Thus, following the invasion of Russia in Ukraine with the support of Belarus, and consequent restrictions imposed by Ukraine to the aggressor countries: Russia and Belarus, the exports to these countries in 2022 will register a dramatic decrease, correspondingly the imports from these countries will have a similar evolution.

As a response to Russian Federation’s invasion in Ukraine, a number of countries have applied temporary trade measures as part of the economic sanctions applied to Russian Federation, Belarus and other countries. In this context export restrictions/bans were applied by 57 countries by October 2022 according to ITC Market Access Map.

There were 151 trade measures related to the War in Ukraine in force on 28 October 2022, as per ITC Market Access Map data.

All applied liberalizing measures were directed towards supporting Ukraine’s exports, for example, Australia starting with 4 July 2022 for a 12-month period, applies free rate of duty for goods that are the produce or manufacture of Ukraine. Similarly, Canada, starting with May 2022 has removed tariffs for a one-year period, thus supporting Ukraine’s economy by ensuring that Ukrainian goods are able to enter Canada duty-free. United Kingdom starting with April 2022 decided to cut tariffs on all goods from Ukraine to zero under the UK-Ukraine FTA, providing much-needed economic support to Ukraine. Similar measures were applied by EU, starting with April 27, 2022, the European Commission suspended for one-year import duties on all Ukrainian exports to the European Union, including the suspension for one year

of all EU anti-dumping and safeguard measures in place on Ukrainian steel exports. On May 24, 2022, the Council of the European Union adopted a regulation allowing for temporary trade liberalisation and other trade concessions with regard to specified Ukrainian goods. In May 2022, United States of America United have temporarily suspended 232 tariffs on Ukrainian steel for one year. A number of other countries have applied similar supporting liberalizing measures towards Ukrainian products.

At the same time, in order to ensure availability at reasonable prices of basic products and products of vital importance in the manufacturing process, countries all over the world have introduced a series of liberalization measures on imports. Some countries have applied zero customs duty rate for the import of selected goods, like agri-food products, in an effort to reduce the increase of prices of these goods. For example, Brazil starting with March 2022 until 31 December 2022 applies 0% import customs duty for the following products: coffee, margarine, cheese, macaroni, soybean oil, ethanol and sugar. Similarly, Dominican Republic, starting with April 27, 2022 enacted a Law to temporarily remove import taxes from 67 tariff subheadings of basic products.<sup>4</sup> These measures are taken to counter the increases in the prices of basic necessities and fuels that have risen further after Russia's invasion of Ukraine.

Simultaneously, the majority of countries have applied restrictive measures on the aggressor countries: Russian Federation and Belarus, in order decrease their military capacity and indirectly contribute to the reduction of the war magnitude or even its eventually, these measures were applied together with other support measures, including military and economic support provided by the majority of countries to Ukraine, including support offered to refugees from Ukraine.

Canada has withdrawn the Most-Favoured-Nation (MFN) tariff from goods that originate in Russia or Belarus since March 2022. Correspondingly all goods originating from Russian Federation or Belarus will be subject to the General Tariff rate of customs duty of 35%.

European Union since Russia's invasion in Ukraine has imposed a wide range of sanctions on Russian Federation and Belarus, eight packages of sanctions were adopted and applied until October 2022 for a wide range of products.

Since March 2022, Japan has designated 200 items and technologies to an export ban on Russia and Belarus. It prohibits the export of general-purpose products that are thought to contribute to strengthening the military capabilities of the Russian Federation. Additionally, Japan bans the export of high-end cars and other luxury goods to Russia starting from April 2022. Similar measures were applied in respect to Belarus. Additionally, Japan starting with April, May 2022 has announced measures to reduce its reliance on Russia for energy, which includes phasing out and banning Russian coal and oil imports. Since September 2022, Japan bans exports to Russia of chemical weapons-related goods and exports to 21 organizations.

In a similar mode, New Zealand has imposed export restrictions on 25 February 2022 for military and other goods that have a civilian use but that are intended for military use to Russian Federation, and on March 15, 2022 - the measure was extended to Belarus. On August

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<sup>4</sup> ITC <https://www.macmap.org/ukraine> (accessed on 11.10.2022)

1, 2022 were announced further sanctions on the armed forces and military-industrial complex of the Russian Federation and Belarus.

Starting with March 2022, United Kingdom applies export prohibitions to critical-industry, dual-use, military goods, as well as luxury vehicles, high-end fashion, works of art, aviation and space related goods to Russian Federation.

From March 2022 USA imposed restrictions on the export, reexport, and transfer of luxury goods to all end users in the Russian Federation and Belarus. Also export prohibition on goods related to the oil industry to Russian Federation was imposed from March 2022. Additionally, USA imposed embargo on the importation into the United States of the following products of the Russian Federation: crude oil, petroleum, fuels, coal, other specified products, fish, seafood, alcoholic beverages, non-industrial diamonds, other products. The United States also imposed further export controls on specified items that can support Russian and Belarusian military, such as military and other dual-use goods, starting with 15 September 2022.<sup>5</sup>

As a result of implementation of the above-mentioned restrictive measures, it was registered in the period July 2021 and July 2022, a decline of the share of the Russian Federation's total exports to countries with restrictive measures by 24% (to 32%), with the value of exports to countries with restrictive measures falling by \$4.6 billion, and the value of exports to countries without restrictive measures increasing by \$8.5 billion. Over the same period, the share of the Russian Federation's total imports from countries with restrictive measures registered a decline of 24% (to 26%), with the value of imports from countries with restrictive measures falling by \$4.4 billion, and the value of imports from countries without restrictive measures increasing by \$1.2 billion. So, we can observe that the difference between increase of exports and imports to and from countries without restrictive measures vary significantly in favour of exports of Russian Federation towards these countries.

If to analyse the share of Belarus's total exports to countries with restrictive measures in the same period, July 2021 and July 2022, it declined by 21% (to 34%), with the value of exports to countries with restrictive measures falling by \$231 million, and the value of exports to countries without restrictive measures falling by \$30 million. In July 2021-July 2022, the share of Belarus's total imports from countries with restrictive measures declined by 6% (to 46%), with the value of imports from countries with restrictive measures falling by \$79 million, and the value of imports from countries without restrictive measures increasing by \$4.5 million.<sup>6</sup> Thus, in case of Belarus, exports have declined for both countries with and without restrictive measures, and for imports while the imports from countries with restrictive measures declined, the imports from countries without restrictive measures have increased.

Additionally, the transportation networks were considerably affected, first of all Russian Federation connections to European ports have been cut, and goods exports to other destinations have been constrained. Secondly, Ukraine's Black Sea ports have been blockaded or occupied, leaving the country few routes for its commodity exports. Thirdly, the war brought reciprocal closures of air space between Russia and 36 countries, having as a consequence longer routes and

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<sup>5</sup> ITC data <https://www.macmap.org/ukraine> (accessed on 12 October 2022)

<sup>6</sup> ITC <https://tradebriefs.intracen.org/2022/9/series> (accessed on 14.10.2022)

higher prices for air freight between Europe and East Asia. As a consequence, disruptions to global and regional supply chains have caused input deficits and price increase.

A significant area of concern is the commodity markets of food and fuels, being given the fact that Russian Federation and Ukraine are global players in agrifood markets and that they account together for 53% of the share of global trade in sunflower oil and seeds, 27% of the share of global trade in wheat, and 23% of the share of world trade in barely.

The degree of dependence on Russian Federation and Ukrainian agrifood products varies among countries, with some being particularly dependent on imports from the Russian Federation and Ukraine, such as Turkey – 25,9%, China – 23% and India – 13% of total imports of wheat, corn, barley, colza, sunflower oil and seeds.

The highest concern is raised in relation to lower income countries that are the most exposed to the shortage of agrifood products. Based on UNCTAD calculations, on average, more than 5% of the import basket of the poorest countries are products that are likely to face a price increase resulting from the ongoing war in Ukraine. While the share is below 1% for richer countries.

An example of highly dependent market on the exports from Russian Federation and Ukraine is the wheat market. In 2018–2020, Africa imported \$3.7 billion in wheat, representing 32% of total African imports from Russian Federation and \$1.4 billion from Ukraine, representing 12% of total African wheat imports. The corresponding imports by the least developed countries of wheat from were, respectively: \$1.4 billion (29%) from Russian Federation and \$0.5 billion (10%) from Ukraine. Analysing closer the dependence of African countries, including the least developed countries, reveals for some countries a much higher dependence on the wheat imports from Russian Federation and Ukraine. Around 25 African countries import more than one third of wheat from Ukraine and Russia, the highest share of wheat imports from these two countries belong to the following countries: Somalia – 100%, Benin – 99%, Lao People’s Democratic Republic – 93%, Egypt – 81%, Sudan – 75%.<sup>7</sup>

Overall, the war in Ukraine will have the highest negative impact and correspondingly the GDP contractions are estimated by IMF to be registered for countries actively involved in the war, thus in 2022 it estimated that GDP decline for Ukraine will be equal to -35%, the GDP decline for Russian Federation will be -8,5% and for Belarus -6,4%.

At the same time there is a high dependence of some countries on the exports markets of Ukraine, Russian Federation and Belarus, in this regard, the example of Guinea that exports 100% of its aluminium oxide, and 99% of its fresh fruits to these countries reveals the high dependence of some countries on these markets.<sup>8</sup> These countries would have to value the unrealized export potential on other markets besides these countries, but this is something that would require time and investment.

Concerning Republic of Moldova, it can be highlighted that besides the countries directly involved in the war, Moldova is the one most significantly affected, facing indirect consequences of the war in Ukraine, being the neighbour of Ukraine, having tight trade

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<sup>7</sup> UNCTAD, The Impact on Trade and Development of the War in Ukraine, UNCTAD Rapid Assessment, 16 March 2022

<sup>8</sup> IMF, World Economic Outlook, July 2022

relations with Ukraine and Russian Federation, as well as Belarus, having the political issue of unresolved Transnistria region status. Also, Republic of Moldova received over 400 thousand refugees from Ukraine, and nearly 100 thousand of them decided to settle in the country until they will be able to return safely to their homes in Ukraine. Despite being one of the poorest and smallest nations in Europe, Moldova was able to quickly provide refuge to over 100 thousand Ukrainians.

At the same time, Moldova did not join the sanctions against Russia. It was explained that joining the anti-Russian sanctions would not harm Russia and yet significantly jeopardize Moldova’s gas imports from Russia [Ukrinform.net, 2022]. The supply of natural gas is one of the most sensitive issues in the country, the country relying 100% on the imports of natural gas from Russian Federation. Moldova is one of the countries that were most severely hit by the rise in natural gas prices and the recent sharp increase in gas prices became perhaps one of the most acute economic problems for the population. Currently, Moldova has no alternative for Russian natural gas, and the price of supply from other channels, in any case, would be higher than that of Russia.

It should be mentioned that Russia is still an important market for Moldova’s exports. Nearly 8% of Moldova’s exports go to Russia. In some sectors of the Moldovan exports, the share of Russia is very high. For instance, Russia accounts for nearly half of all agricultural exports of Moldova [UN Comtrade, 2021].

Moldova imports over 90% of its seeds, fuel, and fertilizer from Ukraine and Russia. The war has left 33,000 small- and medium-scale Moldovan farmers virtually empty-handed. In the absence of fertilizers, the production of selected crops was about 30% lower this year.<sup>9</sup>

The war in Ukraine has increased food and energy prices, which fuel Moldova’s already high inflation (28,5%) In 2022. Therefore, financial support from external partners plays a key role for Moldova. Moldova is expected to register a growth of GDP of about 0% in 2022, and a budget deficit of 7,5% of GDP.<sup>10</sup>

The war in Ukraine impacts international trade, supply chains, logistic networks, commodities markets, international investments, food security, energy security worldwide, but the degree of impact varies across countries and sectors. The country that is suffering the most is Ukraine, but if to consider other countries excluding aggressors like Russian Federation and Belarus, the countries with lower income are the ones that are exposed to a greater extent to the negative effects deriving from the war in Ukraine, with less possibilities of compensating internally the associated losses. In this regard, it is to be highlighted the negative effects, and risks associated with increased rate of hunger of some African countries, but also if to focus on the neighbouring countries, Republic of Moldova is the one suffering most because of inflationary pressure and energy crises. More than that, it has limited internal capacity to cope with associated risks, including security risk.

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<sup>9</sup> [https://statistica.gov.md/en/statistic\\_indicator\\_details/19](https://statistica.gov.md/en/statistic_indicator_details/19) (accessed on 16.10.2022)

<sup>10</sup> IMF data, <https://www.imf.org/en/Countries/MDA> (accessed on 17.10.2022)

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## **BARRIERS IN INTERCULTURAL COMMUNICATION AND WAYS TO OVERCOME**

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***Abstract.** In the following article, we propose to analyze elements likely to obstruct the proper development of intercultural communication, contributing to the decrease of the degree of fidelity, accuracy and efficiency of the message transfer.*

*In order to have a successful intercultural communication, it is necessary to take into account the characteristics of a certain type of national culture, whose representatives come into contact.*

*The model discussed in the present paper is the most popular one, that of Geert Hofstede with its 6 dimensions, and their values and contribution to communication in the Republic of Moldova.*

**Keywords:** barriers, intercultural communication, Hofstede, cultural dimension, Republic of Moldova

**JEL Classification:** A 22, I 21, M14, Z13

### **Introduction**

The process of globalization and integration of civilizations at the planetary level, the growing importance of international business, the intensification of population migration and travel for personal and professional interests, as well as the various challenges related to the pandemic, conflicts, etc., have significantly increased the role of communication in an intercultural context. In this sense, communication has become a much more complex process than we could imagine.

The difficulties that arise in the communication of representatives of different cultures are largely due to the national characteristics of their communicative behavior. Overall, both the verbal and non-verbal behavior of an individual or a group of people is defined through the norms and traditions of the societies they represent.

The subject discussed in this paper is very important. In order to have a successful intercultural communication, it is necessary to take into account the characteristics of a certain type of national culture, whose representatives come into contact. In cultures with different indicators of cultural parameters, there are different approaches to communication. Thus, the knowledge of cultural dimensions from different models: Hall, Hofstede, Trompenaars and others, becomes an important element in the intercultural approach to communication.

The present study focused on the most used model, that of Geert Hofstede, a Dutch scientist in intercultural management, which includes 6 cultural dimensions. The paper below represents the analysis of the results obtained in the Republic of Moldova. So, in the investigative approach we tried to deduce the impact of intercultural barriers on communication, proposing some suggestions and solutions in order to neutralize the factors that generate them or to diminish their influences.

### **Barriers in intercultural communication**

Intercultural differences can obviously influence the quality of the complex communication process. Being culturally dependent, communicational relationships between individuals and groups at the level of encoding, decoding, message and feedback must always be interpreted in a concrete context.

Both anthropologists and social scientists try to identify, systematize and explain the specific elements/dimensions of cultural, attitudinal and behavioral differentiations. Furthermore, various recommendations are offered in order to reduce differences and overcome possible communication barriers, internal and external, voluntary or involuntary, formal or informal, sometimes very subtle, at cultural or intercultural level, which can generate misunderstandings, ridiculous confusions, considerable mistakes.

In general terms, intercultural barriers represent various obstacles, blockages, disturbances, dysfunctions that reduce to a greater or lesser extent the effectiveness of intercultural skills, especially those of communication. In other words, any element that can obstruct the proper development of communication, diminishing the degree of fidelity, accuracy, efficiency and effectiveness of the message transfer, represents a barrier or an impediment in the process of intercultural communication.

Numerous classifications of communication barriers are present in the specialized literature.

I.-O. Pânișoara argues on the barrier concept, with a processual and progressive vision of the component parts of the communication process, identifying system barriers (at the receiver and transmitter level) and process barriers (resulting from the interaction within communication) [6, p. 95].

Researchers R.M.Cândeia and D.Cândeia call them "disturbances" which can be both external in nature (physical environment, distance between communicators, visual stimuli, time, interruptions in the communication process, technical means, organizational structure and channel system, etc.), as well as internal (physiological factors, semantic, perceptual and serial distortion, tendency to evaluate, defective message formation, individual differences, etc.) [1, pp.121-124.]

A. Prodan lists three categories of communication barriers: reception, understanding, acceptance, and offers some recommendations in order to reduce their effects [8, p. 31].

V. Marinescu, citing Burton and Dimbley, presents three types of factors that inhibit intercultural communication: technical (physical barriers such as noise), semantic (lack of ability to understand the meaning of verbal and non-verbal signals), psychological (erroneous perception of the message) [5, p. 61].

Analyzing the impact and unwanted consequences on intercultural communication, we propose some ways of overcoming the problems, minimizing and mitigating the negative impact, eliminating gaps, decreasing negative incidence. The initial identification of the existing or

potential barriers, according to the typology, and the advancement of solutions capable of optimizing and making the communication process more efficient.

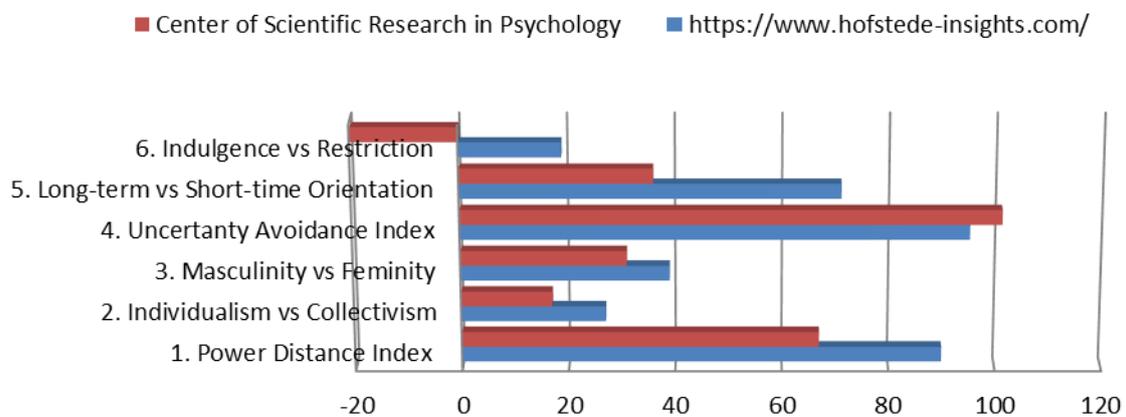
### **Cultural dimensions in overcoming communication barriers**

Intercultural communication requires an awareness of cultural differences, as what may be considered perfectly acceptable and natural in one culture may become confusing or even offensive in another culture. It follows that all levels of communication: verbal (words and language itself), non-verbal (body language, gestures) and etiquette (clothing, gifts, meals, customs and protocol) are affected by cultural dimensions.

Researching cultural dimensions in the Republic of Moldova, as well as communication from intercultural perspective, are fairly recent approaches. However, on the official website of the Hofstede model [9], values regarding our country are also estimated. In 2019, as part of the research of the Center for Scientific Research in Psychology [7], national dimensions were explored according to Hofstede's model, obtaining similar scores for the Republic of Moldova to those proposed by the Dutch researcher on the website official.

Following the comparative study of the results of the investigations mentioned in Figure 1, we can highlight the peculiarities of the national culture in the Republic of Moldova, which determine the orientations of the national cultural profile, with the characteristics influencing the communication process.

### **Cultural Dimensions in the Republic of Moldova**



**Figure 1. Hofstede dimensions in the Republic of Moldova**

Source: Own work based on [2]

Thus, in the Republic of Moldova, a **large hierarchical distance** is noticed, which indicates that authority is concentrated in centralized decision-making structures, there are strict organizational hierarchies, the flow of information is constrained by these hierarchies [3]. Also, there is a lack of information in the framework of horizontal hierarchical communication. In the case of interacting with people from a high power distance culture, a special approach to obtaining feedback and engaging in discussion would be necessary, as their cultural framework may prevent

active participation in the communication process. Less powerful people must accept decisions without comment, even if they have a concern or know there is a significant problem.

At the same time, we report a **high collectivism** index in the Republic of Moldova, which implies the involvement of all members of society. Society in the Republic of Moldova tends to cultivate specific communicative values, such as: self-respect, friendship and the feeling of achievement within the group (vertical collectivism), working for the well-being of those closest to the collective. For a successful intercultural dialogue, communication styles favorable to the situation must be applied, being aware of the differences in perception and thinking of the participants in the communication act. In order to overcome possible barriers in intercultural communication and increase collaboration, representatives of collectivist cultures must know and be aware of the main features of individualist culture, such as: autonomy, independence, ambition, inner harmony, etc.

The dominance in communication of traditional **feminine values**, characteristic for the Republic of Moldova, means that caring for others is a dominant value. In communication behavior, society members seek a collaborative environment and request the support of all group members, regardless of their contribution [4]. Thus, in the process of communication, feminine values such as: patience, tolerance, care, the quality of the communicative act, prevail over specifically masculine values: affirmation, competition, achievement, assertiveness, possession of money and goods, but also indifference, carelessness towards others. In this sense, it would be good for communication to combine not only satisfaction and care for loved ones, members of the group/society, but also courage, the desire for achievement and evolution, both personal and professional.

In general, uncertainty avoidance refers to the level of acceptance of uncertainty and ambiguity within a society [9]. The Republic of Moldova is a country with an **extremely high uncertainty avoidance** score, which demonstrates a low tolerance for uncertainty and ambiguity.

The high uncertainty avoidance index in the intercultural communication process can be reduced by reducing apparent uncertainties, for example, by introducing rules and following clearly defined procedures, rituals, etc., to make group members less stressed and anxious, more open to change, curious rather than fearful of what is different in the context of linguistic diversity.

In a culture that has a **short-term orientation**, such as that of the Republic of Moldova, it is necessary to put greater emphasis on the reciprocity of the communicative act, of gifts and rewards. While there may be respect for tradition, there is also a predilection for personal representation and honor, a reflection of identity and integrity in communication. Personal stability and consistency are also valued in a short-term oriented culture, thus contributing to an overall sense of predictability and familiarity [9].

**Restriction** in communication is specific to the culture of the Republic of Moldova. Due to cultural constraints that inhibit the development of personality, the realization of one's own desires, people become tense, stressed and nervous. This is felt in everyday social interactions where citizens show irritation, nervousness and unkindness [9]. Because expressing personality is difficult, communication is austere, and people fear criticism and others' opinion. In order to reduce the level of austerity, such characteristics as: critical thinking, flexibility, creativity and originality, self-esteem have to be encouraged.

## **Conclusions**

In the era of globalization and cultural expansion, communication with people from various countries and cultures becomes a much more complex process. It is necessary to know, understand and accept specific elements/dimensions or those related to language, religion, cultural evolution, behavior and style of communication, perception of time and space and so on

Recognizing existing and potential barriers, including their impact in an intercultural context, is of particular importance in order to communicate efficiently and effectively at the level of individuals, groups, society.

The study carried out according to the Hofstede model and the analysis of the obtained results, allow us to find some similarities, but also differences in the approach to communication in a cultural and intercultural context.

After analysing the dimensions described in the paper, it is highly recommended to train and develop intercultural skills necessary in a new environment in order to mitigate, minimize the negative effects and to remove blockages and misunderstandings. Communication techniques, including active listening and positive feedback, promotion of common values focused on self-esteem, collaboration, empathy, support and motivation, involvement in decision-making, critical thinking will make a creative and harmonious environment of intercultural interaction.

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## PROSPECTS FOR ENERGY COOPERATION BETWEEN THE EU AND ISRAEL IN THE LIGHT OF ISRAEL'S AGGRESSIVE FOREIGN POLICY IN THE MIDDLE EAST

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**Abstract.** *This article presents the results of an analysis of energy cooperation between the EU and Israel, which is aimed at reducing the dependence of European states on Russian energy carriers. The need for getting rid of energy dependence on Russian oil, gas and coal among the EU member states arose after the invasion of Russian troops in Ukraine on February 24, 2022. The Russian-Ukrainian war led not only to the deterioration of Russian-Ukrainian relations, but also to the imposition of Western sanctions against Russia, a country that is the main supplier of energy to the European market. The desire to abandon Russian energy carriers forced the European states to look for new suppliers of oil, gas and coal. One of these suppliers decided to become Israel, which, according to Western human rights activists, is pursuing a policy of apartheid. The purpose of this study was to analyze the cooperation between the European Union and Israel in the field of natural gas supplies from the eastern Mediterranean Sea. During the study, the author came to the conclusion that this cooperation:*

*1) most likely will not help the countries of the European Union to fully compensate for the reduction in natural gas supplies from Russia;*

*2) carries risks for the reputation of the European Union as a defender of human rights and freedoms in the world (because Israel continues to pursue an aggressive foreign policy in the Middle East, continues to occupy and annex the territories of neighboring states, build illegal Jewish settlements in the occupied territories<sup>11</sup> of Palestine and Syria, conduct apartheid, commit politically motivated assassinations of their critics).*

**Keywords:** EU, Energy Cooperation, Israel, Apartheid, war in Ukraine, Palestine

**JEL Classification:** F51, F53, F68, K33

The Russian invasion of Ukraine on February 24, 2022 forced the European Union to impose unprecedented financial and economic sanctions against the Russian Federation, aimed at exerting maximum economic and political pressure on the Russian leadership in order to force it to abandon its policy towards the Ukrainian state. According to the initiators of the imposition of sanctions, the most tangible for the Russian economy should have been the sanctions imposed against the Russian energy sector, as well as the embargo on imports by EU member states of Russian oil, gas and coal. The sanctions imposed by the Europeans, however, did not stop the war in Ukraine, but led to an increase in energy prices in European countries, as well as to a shortage of coal (in particular in Poland), oil and gas. This deficit could become a major problem for EU member states this winter. Having decided to minimize the negative economic consequences of

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<sup>11</sup> P. Pokrzywiński, Zjawisko izraelskich nieautoryzowanych osiedli na Zachodnim Brzegu Jordanu, [https://www.researchgate.net/publication/350735882\\_Zjawisko\\_izraelskich\\_nieautoryzowanych\\_osiedli\\_na\\_Zachodnim\\_Brzegu\\_Jordanu\\_Wschodnioznawstwo\\_2020\\_vol\\_14](https://www.researchgate.net/publication/350735882_Zjawisko_izraelskich_nieautoryzowanych_osiedli_na_Zachodnim_Brzegu_Jordanu_Wschodnioznawstwo_2020_vol_14) [09.10.2022]

their decision to get rid of energy dependence on Russia, the countries of the European Union began to look for alternative energy suppliers to the European market. Among the potential exporters were considered Algeria (this country has large oil and gas reserves, and is also connected by pipelines to France), Angola (this country has large natural gas reserves), Qatar (this country is one of the world leaders in the export of liquefied natural gas), Azerbaijan (this country has large oil and gas reserves, and also has a pipeline infrastructure that bypasses Russia, such as the Baku-Tbilisi-Ceyhan oil pipeline), Saudi Arabia (this country is a world leader in oil production and export, as well as a leader in the Organization of Nations - oil exporters, OPEC) and others. It was not difficult for European states to find a replacement for Russian oil, but serious difficulties arose with the replacement of Russian gas. For example, Qatar, on whose liquefied gas both Germany and the countries of Central and Eastern Europe counted (having terminals for receiving LNG tankers), refused to supply more gas to the EU. The emirate's authorities motivate their decision by their unwillingness to reduce their presence in the Chinese energy market, which is the main market for Qatari LNG<sup>12</sup>. The countries of the Eastern Mediterranean, including Turkey, Cyprus, Egypt and the partially recognized state of Israel, decided to take advantage of the situation in the European energy market. Turkey has intensified geological work to search for gas fields off the coast of Turkish-occupied Northern Cyprus and hopes to start producing gas there, which could be both exported to the EU countries and also sold on the domestic market<sup>13</sup>. This would help Turkey reduce its dependence on Russian gas imports. Egypt and Israel also announced their readiness to increase gas production and sell it to Europe in the form of LNG.

In June 2022, the Eastern Mediterranean Gas Forum was held in Cairo, at which the EU signed an agreement with Egypt and Israel on the supply of liquefied natural gas to Europe. The head of the European Commission, Ursula von der Leyen, called this agreement "historic" and expressed confidence that gas supplies from Egypt and Israel will help EU member states get rid of dependence on Russian gas<sup>14</sup>. However, this agreement caused serious discussion in the European scientific community, as well as among politicians, experts and human rights activists. The discussion was driven by the following factors:

1. Israel is a partially recognized state in the Middle East, whose independence is not recognized by most countries in the region;
2. Israel's land and sea borders are disputed (including the sea border with Lebanon. The Lebanese authorities claim that Israel illegally produces gas in Lebanese waters)<sup>15</sup>;

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12 K. Wójcicka, Gaz z Kataru może nie dotrzeć do Europy, <https://forsal.pl/finanse/notowania/artykuly/8357363.gaz-z-kataru-moze-nie-dotrzec-do-europy-wywiad.html> [09.10.2022]

13 Turcja zacznie poszukiwania ropy i gazu na Morzu Śródziemnym, <https://www.portalmorski.pl/offshore/40905-turcja-zacznie-poszukiwania-ropy-i-gazu-na-morzu-sroziemnym> [09.10.2022]

14 Gaz z Izraela popłynie do Unii przez Egipt, <https://energia.rp.pl/gaz/art36517741-gaz-z-izraela-poplynie-do-unii-przez-egipt> [09.10.2022]

15 K. Wójcicka, Na granicy konfliktu Izraelem z Libanem. Trwa spór o złoża gazu i ropy, <https://www.gazetaprawna.pl/wiadomosci/swiat/artykuly/8523293.bliski-wschod-izrael-liban-gaz-ropa-naftowa.html> [09.10.2022]

3. Israel is pursuing an aggressive policy in the Middle East, which is no different from Russia's policy towards Ukraine and other neighboring countries of the former USSR;
4. Western human rights organizations (such as Amnesty International) have labeled Israel as an "apartheid state" that systematically and at the state level violates human rights<sup>16</sup> and pursues a policy of national and religious segregation (and thereby violates the international Convention on the Suppression and Punishment of the Crime of Apartheid, which states that “apartheid is a crime against humanity and that the inhuman acts resulting from the policies and practices of apartheid and similar policies and practices of racial segregation and discrimination [...] are crimes that violate the principles of international law, in particular the purpose and principles of the Charter of the United Nations, and posing a serious threat to international peace and security”)<sup>17</sup>;
5. Israel continues the illegal occupation of part of the territories of neighboring states, namely: the West Bank of the Jordan River, Western Galilee and East Jerusalem (Palestine), the Golan Heights (Syria), Shabaa Farms (Lebanon). Israel also continues the illegal, from the point of view of international law, sea and land blockade of the Gaza Strip. Moreover, Israel has annexed East Jerusalem, Western Galilee, the Golan Heights, and Shebaa Farms, which is considered a flagrant violation of international law that prohibits annexation;
6. Israel continues to violate the sovereignty of neighboring Syria by regularly launching missile and bomb attacks on this country, which is an illegal military aggression, since the use of force in international law is permissible only with the permission of the UN Security Council. Israel also commits politically motivated assassinations in the Middle East (killing, for example, Iranian nuclear physicists). Countries in the region refer to such killings as state terrorism;
7. Israel continues to build illegal Jewish settlements in the occupied and annexed territories of Palestine and Syria, which is also a violation of international law, which prohibits the colonization of occupied territories.

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16 Israel’s apartheid against Palestinians: a cruel system of domination and a crime against humanity, <https://www.amnesty.org/en/latest/news/2022/02/israels-apartheid-against-palestinians-a-cruel-system-of-domination-and-a-crime-against-humanity/> [09.10.2022]

17 International Convention on the Suppression and Punishment of the Crime of Apartheid, [https://www.un.org/en/genocideprevention/documents/atrocities-crimes/Doc.10\\_International%20Convention%20on%20the%20Suppression%20and%20Punishment%20of%20the%20Crime%20of%20Apartheid.pdf](https://www.un.org/en/genocideprevention/documents/atrocities-crimes/Doc.10_International%20Convention%20on%20the%20Suppression%20and%20Punishment%20of%20the%20Crime%20of%20Apartheid.pdf) [09.10.2022]



**Figure 1. Israel-Lebanon maritime border dispute.**

Source: <https://www.ynetnews.com/article/SJd74wVPw>

These factors are a serious challenge for the European Union, since the rejection of the "bloody Russian gas" is actually in favor of the "bloody Israeli gas". In order to avoid serious reputational problems and loss of confidence on the part of civilized states, the European Union, according to the author, should:

- abandon the agreement with Israel on gas supplies;
- stop cooperation with Israel in the gas field until it resolves all disputes with neighboring states peacefully (primarily related to borders, including maritime ones);
- impose international sanctions against Israel similar to those imposed on the Russian Federation for the annexation of Crimea in 2014 and the start of a full-scale war against Ukraine in 2022;
- demand that Israel eliminate all illegal Jewish settlements in the occupied and annexed territories of Palestine and Syria;

- demand from Israel the observance of human rights and freedoms (including the Muslim and Christian minorities);
- demand that the Israeli regime abandon its policy of apartheid;
- demand from Israel the de-occupation of all illegally occupied and annexed territories, in accordance with UN resolutions and international law.

According to the author, in order to reduce gas dependence on Russia, the European Union should look for reliable partners in the international arena who do not pursue an aggressive foreign policy, but also respect the sovereignty and territorial integrity of neighboring states, do not violate international law and respect human rights. To date, Israel is not such a partner. Therefore, cooperation with Israel will harm the image and reputation of the European Union.

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## **SESSION IV**

# **CARPE SCIENTIAM: THE EVOLUTION OF SOCIAL AND HUMAN SCIENCES IN THE KNOWLADGE ECONOMY**

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## OVERCOMING BARRIERS TO DIGITAL TRANSFORMATION OF HIGHER EDUCATION

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**Abstract:** *The modern world can hardly be imagined without digital technologies. They are used in any sphere of human activity, education being one of them. Using digital technologies in higher education is not just an option anymore; it is an imperious necessity conditioned by a number of factors. Digital technologies are widely used by students for developing their personalized learning environment. However, technology adoption and use by instructors is uneven and often quite modest. Of course, there are faculty members actively and effectively using and promoting available digital teaching tools, as well as those just willing (or unwilling) to do it due to various types of barriers. Sometimes it looks contradictory enough, as most instructors are active users of digital technologies in their personal lives, but in classrooms, some of them encounter serious technical, logistical, and pedagogical problems. Understanding the reasons for some reluctance to incorporate technology, as well as teachers' concerns in this respect, can essentially contribute to the enhancement of learning environment and professionalism. The present study aims to extend what is known about the factors and issues negatively affecting the adoption and use of modern technologies by faculty members, as well as to offer some recommendations for solving problems and reducing the barriers to technology adoption.*

**Keywords:** digital media, instructional technology, higher education, changes, barriers, innovation

**JEL Classification:** I23, O30

*“There is nothing permanent but change.”  
(Heraclitus, Greek philosopher, 535 BC)*

### 1 Introduction

The modern world can hardly be imagined without digital technologies. They are used in any sphere of human activity, education being one of them. Digital pedagogies, blended, hybrid, online learning are not new, but they have never been used as intensively and extensively as it is happening now. Using digital technologies in higher education is not just an option anymore; it is an imperious necessity conditioned by a number of factors. The landscape of higher education is being constantly transformed due to a number of reasons and demands. Change is our greatest friend and sometimes

our worst enemy. It's inevitable, and its pace is increasing exponentially. The educational environment is constantly changing, as well as beneficiaries' expectations are. These changes are happening at an ever-accelerating pace. In order to survive and, ideally, thrive in this climate, educational institutions, their services, and all stakeholders must be flexible and resilient.

With the rise of the 21<sup>st</sup> century, lots of educators around the world were thrust into a new teaching environment of the online classroom, often without their absolute readiness, concern and proper preparation. With the rise of the COVID-19 pandemic all of them, not depending on the education level, had to plunge into teaching online. Higher education was not an exception in this respect. “During 2020 higher education systems worldwide embarked on a journey that for many of us felt more like a roller coaster ride than a planned outing” (Brown, 2021). Higher educational establishments had to embrace the concept of online education, acknowledge its benefits and limitations, and act upon it to remain competitive. COVID-19 has increased society's requirements for remote and online delivery of learning. Thus, faculty staff more than ever have become involved in designing and delivering interactive and engaging learning for all students across all disciplines all over the world. Therefore, it has become vital to invest in supporting them to develop corresponding digital skills and enable them to teach with confidence, meeting new educational requirements of the digital transformation.

## **2 Virtues and Challenges of Digital Transformation from Students' Perspective**

Today, online education is a reality, whether you like it or not. Its benefits have a positive impact on institutional growth, and its limitations, or barriers, affect (mostly negatively) institutional image, instructor workload, as well as the level of students' satisfaction. In today's fast-changing higher education landscape, universities are facing unprecedented challenges and, at the same time, opportunities, where technology can play the central role in students' learning activity and experiences. Digital technologies are widely used by students for developing their personalized learning environment.

Pearson and Wonkhe's research on students' learning experience, which was published in July 2020 and was based on the opinions of 3,461 students (82% from the UK, 6% from the EU, 12% - international) finds that, despite their struggles with studying during Covid-19, students are open to flexible learning post-pandemic. According to this research, 76% agree that more college and university students will attend virtually vs a traditional education setting within ten years. Moreover, the most popular answer (about 58% of students) to the question ‘What can your university do to meet your expectations for next year? (i.e. 2021)’ was high quality online teaching (Pearson and Wonkhe, 2020).

According to Anna Jackson, Head of Customer Insights at Pearson (Jackson, 2021), there seems to be a consensus among university leaders of learning and teaching that while the explosion in online and blended learning didn't come about in exactly the same way the sector would have chosen, there's now little sense in reverting back to the way things were before. It is both heartening and daunting in equal measure that there are very few elements of online learning and teaching that the students they surveyed would NOT like to see continue after the pandemic.

Wonkhe and Pearson collaborated again on a survey of students exploring their academic experience in the autumn 2020 term and their hope for the future of learning and teaching. This

time the survey included 3,389 students (75% from the UK, 10% from the EU, 15% outside the UK and EU) being at different level and from different educational backgrounds. According to a new survey, which was published in February 2021, over 80% of students agreed that they would like to see recorded lectures, availability of all essential learning materials in the virtual learning environment, as well as online access to support services. 79% said they would like to continue online tutorials or check-ins with tutors. Among the benefits of digital transformation, students mentioned that they liked the flexibility of virtual learning, working at their own pace and not having to commute to campus. 72% said they would welcome online tests that allow them to check their learning, and 69% mentioned they would like to see online discussion forums continue. 58% would like to continue with online seminars. However, students were more equivocal regarding virtual placements/internships and virtual labs. Just about 33% would like to do it online. At the same time, when students were asked straight out whether they thought their online academic experience had been of sufficiently good quality (during autumn 2020 term), only 40 per cent said yes (Pearson and Wonkhe, 2021).

Thus, it can be concluded that students are ready for digital transformation of higher education, they are willing to benefit from a number of advantages it can offer, but they are not quite satisfied with its present quality.

### **3 Technology Adoption and Use**

Technology adoption and use by instructors is uneven and often quite modest. Of course, there are faculty members who are actively and effectively using and promoting available digital teaching tools, as well as those willing (or unwilling) to do it due to various types of barriers. Sometimes it looks contradictory enough, as most instructors are active users of digital technologies in their personal lives, but in classrooms, some of them encounter serious technical, logistical, and pedagogical problems. Understanding the reasons for teachers' concerns and some reluctance to incorporate technology can essentially contribute to the enhancement of learning environment and professionalism.

With the passage of each day, society's use of technology impacts every aspect of their lives. Consequently, as the technology has changed and student use of technology has changed, faculty have needed to adjust to new digital demands to satisfy the emerging needs of new student generations. The success of faculty members in adopting technology directly impacts students' success and ultimately institution's on the whole.

Online learning has become available at lots of colleges and universities around the world. Lots of courses are offered through learning management systems (LMS) like Moodle, D2L, Canvas, Blackboard. The technological change has altered the perception of the university campus from a one-dimensional (physical) concept to a multi-dimensional (physical and online) one, which has brought great transformations into all aspects of higher education. The growing population of learners willing to study online has created a favorable market for courses delivered online (totally and/or partially), which has made universities around the world respond to rapid economic and technological changes.

While this trend of increasing online instruction was boosted by negative COVID reasons, now it's seen as a positive direction for 21<sup>st</sup> century higher education. Even traditional

campus/resident students, as well as teaching staff, sometimes prefer online courses, as it helps to sort out issues related to schedule or transportation. Besides, it lets a greater number of students take popular courses when physical space limits enrollment. It has become possible to study/work abroad without leaving your home country. When COVID does not determine the necessity of studying/teaching online, these are often the primary reasons for delivering online courses, which gives rise to increased access to higher educational services for those who cannot participate in a campus-based learning experience for various reasons. However, online courses should provide more than just access. Good online courses should offer high quality instruction. That’s where issues can arise. Many universities face challenges related to motivation (both students’ and professors’), learning designs that are less suitable for distance education, as well as restricted access to technology because of limited resources.

#### 4 Diffusion of Innovations

Today, instructional technology is widely available on most campuses and its intensive integration is deemed as vital for the survival of higher education institutions. Thus, they must be ready and prepare their faculty to implement the new technologies within their classes. It is difficult, or even impossible, to imagine successful functioning of any university as a whole or its separate components independently of technology. All the university components, including organization, people, learning and teaching processes, knowledge transfer and information exchange processes are served and supported by technology. Although universities require the use of instructional technology by their professors, many of them use the minimum from the technology that is at their disposal. It means that the innovation-decision process is not effective enough.

In terms of higher education, the innovation-decision process is the process through which universities pass from first knowledge of an innovation to forming an attitude toward it, followed by a decision on its adoption or rejection, then, in case of adoption, to implementation and use of the new idea, and, finally, to confirmation of this decision (Rogers, 1995). Thus, there are five main steps in the innovation-decision process:



**Figure 1** Steps in the innovation-decision process.

**Source:** based on Rogers (1995)

*Knowledge* occurs when an organization learns of the innovation’s existence and gains some understanding of how it functions. *Persuasion* occurs when a favorable or unfavorable attitude toward the innovation is formed. *Decision* is a critical stage occurring when there is engagement in activities, weighing advantages and disadvantages, which leads either to adoption or rejection of the innovation. *Implementation* happens when an innovation is put into use and organizations and their staff employ the innovation to a varying degree. Finally, *confirmation* takes place when a decision-making unit seeks reinforcement of an innovation-decision that has been made, but which might be reversed if there are any conflicting messages about the innovation. Thus, the theory suggests that potential adopters of an innovation must initially become aware and learn about the innovation, then they have to get persuaded as to the benefits of the innovation, after

that, decide to adopt and implement it, and, finally, confirm (reaffirm or reject) the decision about its adoption. Those that are predisposed to being innovative will adopt an innovation earlier than those who are less predisposed. In this context, there are innovators (risk takers and pioneers who adopt an innovation very early in the diffusion process) and laggards (are resistant to adopting an innovation until rather late in the diffusion process, if ever). In terms of using and promoting educational technologies, the former are engines of digital transformation, whereas the latter are its brakes, who necessitate special attention from administrators and instructional technologists to reduce the negative effect of this obstacle.

The process of adopting new technologies has been an ongoing area of study for a number of decades throughout the world. Rogers (1995, p.21) defined adoption as “a decision to make full use of an innovation as the best course of action available”. As it is stated above, rejection can also happen, which is “a decision not to adopt an innovation”. Getting a new idea adopted, even when it has obvious advantages, is often very difficult. Many innovations require a lengthy period, often of many years, from the time they become available to the time they are widely adopted. The Covid-19 pandemic did not offer any time at all, as universities had to adapt to relatively new online conditions of teaching/studying extremely fast. Nowadays, the modern higher education environment also does not dispose of so much time to adopt various educational technologies. Therefore, a common problem for universities is speeding up the rate of diffusion of innovations, which is “the process by which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 1995, p.5).

Rapidly changing educational technology combined with various degrees of financial support (which can be stronger or less strong, depending on the country, the region of the country, the type of institution, etc.) often cause some resistance from the faculty to adopting new instructional technologies. The four major factors that interact to influence the innovation diffusion are the following: features of the innovation itself, the way information about the innovation is communicated, time, and the nature of the social system into which the innovation is being introduced. These factors interact in various ways and subsequently facilitate or impede the adoption and usage of a specific product or practice.

Many instructional technologists deal with lack of utilization of technology by faculty members. There is a number of factors which can be blamed in this respect ranging from faculty resistance to change and unwillingness to adopt innovations to bureaucracy, inadequate funding, or limits imposed by institutions. Instructional technology is inherently based on innovation, so through better understanding the factors that influence adoption of innovation, it will be easier to explain and potentially predict the scale and the speed of diffusion of innovative products and methods.

New generations entering universities have significant, very often advanced, skills associated with the use of the latest information technology, they are ready and willing to use it, as they find instructional technology beneficial to their learning. Higher education institutions all over the world spend lots of effort and money on instructional technology purchase and application. However, it is not unusual that administrators, instructional technologists, students complain that faculty are adopting them in a very limited way, or even not adopting at all. Thus, it is widely recognized by every part related to the field of higher education that there are barriers preventing instructors to effectively integrate the instructional technology.

## **5 Barriers to Digital Transformation**

As it has been stated above, educational technologies absorb a significant amount of the university effort and budget, but not all faculty are using them to their full potential (or at all). That is why it is crucial to identify the barriers for creating and delivering online courses, or just some of their elements, in order to integrate new strategies that will provide the instructors with the appropriate teaching tools to make successful courses.

### ***5.1 Internal vs external barriers***

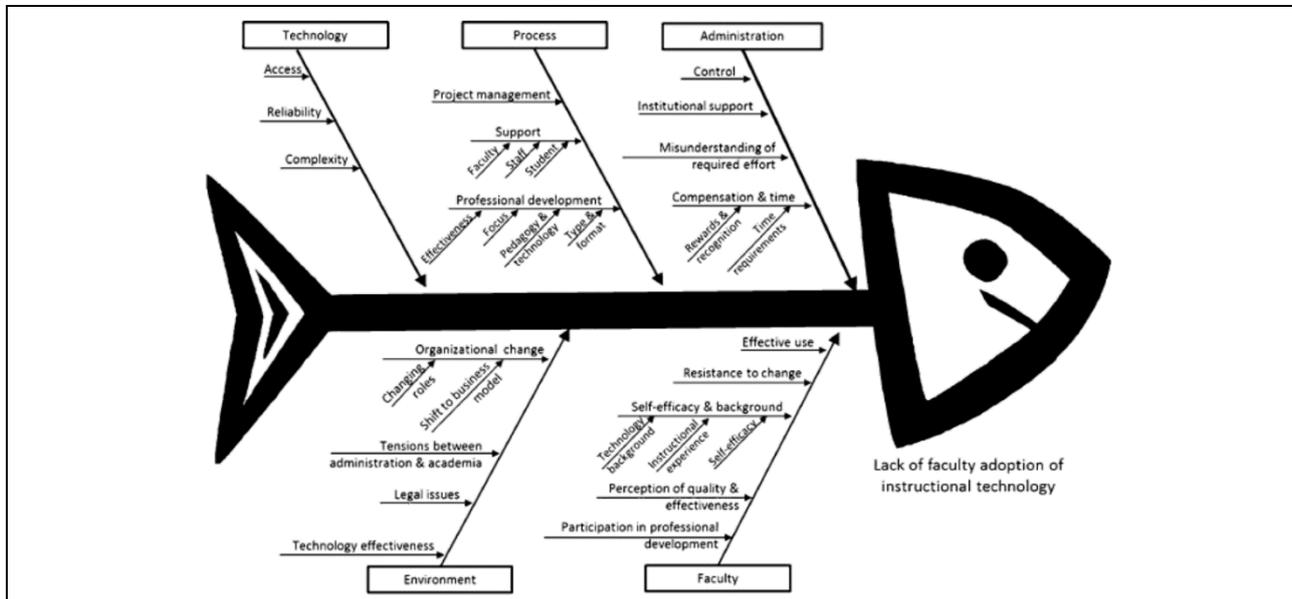
Barriers that the faculty have to overcome in order to adopt new instructional technology methods fall into two broad categories: internal and external (Rogers, 2000). The former includes teachers' attitudes or perceptions about technology, lack of time for mastering, implementing or improving digital skills, in addition to their actual competency level of mastering and applying instructional technologies in the process of instruction. The latter might include availability and accessibility of necessary technology, the presence of technical personnel, the existence (or non-existence) of special programs for staff digital development and skill building, as well as lack of funding. External barriers are associated with unavailable resources, such as the lack of equipment, or lack of training. Internal barriers affect professors' attitude to adopting new instructional technologies and might include beliefs, established practices, conservatism, etc.

External sources of barriers can be categorized under three general headings: availability, institutional and technical support, and stakeholder development (Rogers, 2000). The availability and accessibility category of barriers includes limited access to useful, relevant, and appropriate hardware and software. The second general category of external barriers is related to institutional and technical support in the form of user services or media specialists who assist staff in using and maintaining different technologies. Employing a limited number of technical support staff severely hinders technology adoption. Another problem might be connected with the fact that technical support personnel may lack proper technical support expertise, i.e. they do not have necessary technical skills to meet the needs of the faculty. Lack of institutional support may include lack of administration encouragement to try new technologies, not providing required funding, which can become a major barrier to the adoption of new technologies in a university. The third general category of external barriers is related to stakeholder development, where the term 'stakeholder' includes faculty, staff, and students. This category of barriers includes lack of time/funds to develop a new course incorporating educational technology, as well as to acquire new skills. These issues become barriers at both individual and institutional levels. It is necessary to invest a considerable amount of personal time to build new skills or create new teaching materials. It is especially problematic for teachers who are just starting to use new educational technologies. Besides, there might adjoin the fear factor, which stops many teachers from even trying new things.

Lack of time from external or institutional perspective can be connected with the limits regarding release time for a course or professional development. If the necessary release time is not just available, and if personal time is too fragmented or limited, professors cannot learn new skills and develop new materials. Funding issues make the situation even more problematic.

### 5.2 Five categories of barriers

Another classification of barriers was suggested by Reid (2014), who identified five categories of barriers related to technology, process, administration, environment and faculty.



**Figure 2 Fishbone diagram of barriers to adoption of instructional technologies**

Source: Reid, 2014, p.385

#### ➤ Access to technology

The most obvious barrier in terms of technology is when it is simply unavailable. Another major technology problem found in lots of universities, especially in developing countries, is that most teaching staff are dissatisfied with the current investment in technology and distribution of available resources among departments. This issue becomes even worse because of the extra tasks required from instructors who plan to use instructional technologies. In some institutes for each class session instructors are individually responsible for obtaining, setting up, and then returning, projectors, laptops, or other equipment they need, to use instructional technology in the classroom. Theoretically, technology is available to instructors, but practically, there is a great degree of frustration and feeling it is not worth the extra work and considerable additional effort.

Besides, technology might be not available consistently. Sometimes, it cannot be used in the classroom because of poor internet coverage or lack of necessary hardware among students. Or the available equipment is just unreliable, old fashioned, not compatible with other items. Whatever technical issue arises, faculty members become reluctant to use educational technologies, if it makes the process of instruction more complicated.

Another technology-related reason is that there is so much educational technology available nowadays, and the progress in this field is so intensive, that it is really challenging both for teachers and students to keep up pace with rapidly developing software tools and devices. The variety of instructional technologies and tools, as well as their potential and limits, can cause confusion, which, in its turn, causes many faculty members to refuse from using them as they assume (often incorrectly) that learning how to use the technology will take a lot of time and effort.

#### ➤ Process

Adopting new instructional technologies on the institutional level does not happen in a flash. A number of processes are involved ranging from identifying and implementing a new technology to providing help through professional development and support. It can be an expensive failure if there is lack of a clear vision, well-organized leadership, incentive, and extensive faculty participation.

Faculty members can be reluctant to adopt new technologies for a number of reasons: they are comfortable with the way things are and do not welcome changes, some of them are simply uncooperative, there is some deficit of information and communication, they do not have the necessary skills to do it, there is lack of institutional support (administrative, technical, instructional).

Students may also face barriers when trying to use technology, which can result in additional problems for faculty. If this is the case, both parties, being frustrated, need technical support. It is hardly ever provided 24/7, whereas it is often necessary beyond the standard working hours, in the evenings, or at weekends, when both students and faculty members are working individually (students doing homework assignments, professors preparing content, tasks, evaluation activities for the courses). If the institute does not provide this support, or provides it in a rather limited way, then the faculty members face students' worries and frustration and, consequently, need even more support and assistance. If students or teaching staff cannot get what they need in a timely manner, the most probable result will be refusal from using technology by major stakeholders of the education process.

One more major group of obstacles to adopting and using new technologies by faculty is related to the lack of necessary skills and knowledge. Basically, university teaching staff members believe that their institution is mostly responsible for instructional technology training. Universities most often provide professional development opportunities, but it might be not enough. The related courses are usually short-term, whereas they are unlikely to lead to significant professional growth or change. In this case, self-education could be helpful, or looking for instruction outside university, but not all staff are interested in it or can afford it. Another problem is that many professional development courses focus on how to use the technology in very general lines, without delving into the variety of methodological details related to its effective pedagogical use. Technology itself might be relatively easy to understand, but learning how to apply it in the most effective way to enhance both teaching and learning, might be difficult. As a result, these short-term courses do not really help professors incorporate the technology into teaching in the best way.

Exaggerated conservatism can represent another barrier, which is difficult to overcome. New technologies require faculty members to abandon many traditional practices and relationships and find new ways to deliver qualitative classes, and this is often really difficult.

Thus, lack of necessary pedagogical background on the one hand, and limited access to detailed instruction on the other hand, give rise to essential barriers to digital transformation of higher education.

#### ➤ **Administration**

University administration is also pertinent, directly or indirectly, to the appearance of barriers to digital transformation. In many higher education institutes, technology decisions are made without faculty input or administrative consideration of faculty adoption issues. Sometimes,

decisions related to new technologies are made without a well-considered overall plan for their instructional use. Technology use (such as learning management systems, interactive boards, modern equipment, etc.) are usually controlled by structures beyond academic departments. So, the distance between the initiators of using new technologies and their actual users (faculty members and students) is considerable, which makes the process of adoption new technologies even more complicated.

One more factor which slows down the process of digitalization of higher education is administrative control, which many faculty members see as negatively influencing their teaching and learning processes. They are afraid that controls will lead to more controls, which is always stressing.

Another group of administrative barriers derives from the fact that, at many institutions, teaching has long been considered less important than research and scholarship, which require lots of time and effort. So, faculty members just do not have enough time and energy to get acquainted with new technologies, not speaking about trying to use them. In addition to it, there are some other things that are currently lacking in a number of universities because of some administrative issues, for example decent physical resources, including offices and classrooms, additional equipment, enough funding, incentives, lower teaching loads and higher release times.

To sum up, increasing instructional technology use is translated into more faculty time at every stage of the process, which is not simply a matter of learning the technology. Instructors receive few, if any, incentives for adopting new technologies. Leadership may not understand the complexities of the technologies, or the time needed to master them. Further, administration may be controlling access without considering faculty needs.

#### ➤ **Environment**

Instructional technologies are not adopted in a vacuum. Higher education institutes are constantly running lots of processes, implementing multiple strategies, going through various changes at the same time. Different institutes have different cultures that guide the processes related to technology adoption, implementation and use in these changing environments. Institutional environmental considerations are conditioned by various changes (from local, organizational to more global, happening on the government or country level), the nature of relationship between administration and academia (which can have a more conservative or liberal vector, stick more to traditions or innovations, be more authoritarian or democratic), legal issues, the level of institutional autonomy, the effectiveness of instructional technology, etc. There are many issues regarding academic freedom and responsibility. In terms of legal issues, there are barriers connected with the rights to online materials. Universities might treat online materials as inventions rather than intellectual property. Moreover, placing materials into an online environment can cause piracy and copyright infringement. Taking into account the complexity of copyright laws and regulations, and lack of necessary knowledge and insight in this area, faculty members may not feel they understand all the related issues well enough and therefore resist creating and adding online materials on university learning management system. Faculty who are concerned about these issues might be hesitant and, as a result, reluctant to place any materials in any environment which is beyond their control. All these environment-related issues cause a supply-and-demand conflict. On the one hand, many students, government agencies, businesses

demand the inclusion of more instructional technologies in academic courses, which keeps pace with the modern life realia. On the other hand, higher education institutions and their staff cannot meet these requirements completely because of existing barriers of various nature.

➤ **Faculty**

The faculty-related barriers are more fundamental and personal. That is why they are more difficult to overcome. These barriers are very specific. Every faculty member, facing the need to adopt and use new technologies, may experience varying degrees of resistance to change. Self-efficacy and background, the knowledge and skills in this field may also differ considerably. There can be various perceptions regarding instructional technology effectiveness, more or less active participation in respective professional development courses, and so on and so forth. Since these barriers are internal to individuals, they cannot be controlled externally, which makes them especially difficult to deal with.

Having a closer look at the above-mentioned barriers, it can be noticed how interconnected and interrelated they are. This picture is created because of overlapping issues and needs, causing these barriers to happen. ‘More digital’ institutional needs are connected with respective students’ needs, personnel needs are tied to staff development needs, which, in their turn, depend on the available time and funds, both personal and institutional.

## **6 Improving the Effectiveness of Digital Transformation**

Having examined an extensive set of barriers to technology adoption by higher educational establishments, and having studied the suggestions in the related sources, a number of recommendations can be made on removing or reducing their negative effect, and, consequently, improving the effectiveness of higher education digitalization. This list cannot be exhaustive, taking into account a great number of all the related components and issues. However, some broad recommendations can be listed to assist in the process of digital transformation and electronically enhanced curriculum development. Thus, in this connection, it can be helpful to do the following:

- determine the goals of teaching and learning first, taking into account the mission of the educational institution, learners’ needs, as well as some considerations regarding the institution’s future;
- determine what technologies can support and promote educational goals;
- assess the level of technology adoption of the stakeholders, especially the faculty and staff, which will guide the selection of technical support and choice of equipment;
- design phases and strategies of university faculty and staff’s professional development;
- assess and change (if necessary) the attitudes of stakeholders regarding educational technology, as both individual and institutional attitudes and perceptions are critical when confronting barriers;
- consider all categories of barriers to technology adoption and use simultaneously, as, for instance, it is useless to purchase high-tech equipment without providing qualified technical support and staff development opportunities;
- hire well-prepared instructional technologists and technicians, who have appropriate skills in maintaining and servicing such high-end equipment and can assist teaching staff with

using this equipment and provide necessary training and support; and to make them available and accessible to teachers;

- take into account considerations of time and funding issues (to develop new course materials, learn new skills);
- allocate funds in an appropriate way, taking into account a broad picture of the current situation, but not just some specific details (e.g. purchasing new up-market technology without investing in staff training can be waste of money, which can contribute to negative attitude toward technology, and, ultimately, become a major barrier to technology adoption);
- promote the benefits of digital transformation among both faculty members and students, provide and support related learning/teaching experiences and develop proper digital skills;
- offer responsive support for technical and user-related issues;
- demonstrate use of all platforms, systems and software, which are used in a particular institutional environment, at the beginning of the academic year and at regular intervals throughout it;
- offer regular check-in sessions to help students see how they are progressing academically and personally and identify additional support needs;
- improve communication among all the related stakeholders by setting out clear channels and by responding promptly;
- facilitate access to digital learning/teaching (as to the availability of necessary equipment and software);
- improve the interactive aspects of technology-based learning/teaching (encourage more socialization, collaboration, cooperative learning, use online quizzes, didactic games, polls, online collaboration boards);
- signpost useful tools and strategies within learning episodes;
- in terms of teaching, use variety of different mediums and software to create content and organize engaging activities and discussions, which makes learning experiences more memorable and motivating;
- have more technology-based informal quizzes and formative assessment opportunities to consolidate learning and help students manage their progress;
- ensure a timely and sufficiently detailed feedback to aid progress;
- increase the number of copies of digital resources and purchase more licenses to key/in-demand resources;
- minimize confusion and improve navigation through reducing the number of platforms and software being used;
- to ensure consistent structure of courses and modules within them;
- in terms of staff and students’ wellbeing, offer comprehensive mental health care solutions for those who struggle to learn/teach using digital technologies;
- provide guidance on how to manage online workload;
- develop a sector-wide evidence base that demonstrates the value of digital technology in higher education;

- raise awareness of the strategic importance of embedding digital technologies within the curriculum;
- prioritize building digital capabilities;
- make a long-term commitment to tackle digital inclusivity.

## 7 Conclusion

The overall purpose of this study was to identify the barriers that higher education institutions have in implementing online instructional technology. The review of the literature and data related to the focus of the study provides a framework for further research in methods for minimizing the impact of each barrier. The framework of categories of barriers presented here might provide institutions and relevant stakeholders with a starting point to approach adoption and use of instructional technology with a plan to mitigate and minimize as many barriers as possible, giving it a better chance of success. Although it would be helpful to know which barriers were more important than others, there is no definitive, ranked list. There are barriers at national, institutional and personal levels – they all contribute to slow uptake of digital transformation of higher education. Taking into account their complex nature, a complex approach is needed to overcome these barriers, or, at least, reduce their negative effect, and create the belief in digital transformation that is needed for a successful instruction meeting modern society requirements, as well as for continued growth.

***“Technology will never replace great teachers,  
but technology in the hands of a great teacher can be transformational.”***  
(George Couros)

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## **THE LEGAL-PROCEDURAL STATUS OF THE MINOR IN THE FRAMEWORK OF THE EXAMINATION OF CIVIL DISPUTES**

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***Abstract.** In Republic of Moldova, the necessity and obligation of the existence of a normative framework, in accordance with international standards, regarding the protection of minors involved in civil processes is a prerogative, considering the commitment of the state authorities to ensure the protection of children, adolescents and young people against any abuse likely to harm their interests or even their health, physical or moral development. However, nowadays there is a number of legislative gaps in the way civil proceedings are filed and conducted, namely in situations where minors are parties to the proceedings. Thus, the actuality of this topic is determined by the urgent need to ensure an effective protection in the process for the minors, so that they have the opportunity to effectively capitalize on their rights and freedoms. The purpose of the study is to reveal the deficiencies of the normative framework, in the chapter of implementation of the procedural status of the minors during the civil case examination and the submission of some legislative proposals to improve the procedural system in force. Research methods - logical, comparative and systemic analysis methods were used in the study process. The materials used are the research in the relevant field developed by researchers from the Republic of Moldova and Romania, as well as the analysis of the legislation in force regarding the legal status of the minors in the civil process. The final conclusion shows that the national procedural legislation does not consider the civil cases specifics with the participation of minors, a fact that requires the establishment by law of the mandatory participation of the ex officio lawyer for trials involving minors, in order to improve the efficiency of their protection.*

**Key words:** minors; legal capacity, procedural status of minors, legal representatives, protection of rights and interests.

**JEL Classification:** K41

### **I. Introduction**

In the Republic of Moldova, in accordance with international standards, the necessity and obligation of the existence of a normative framework, regarding the protection of minors involved in civil processes is a prerogative procedure, considering the commitment of the state authorities to ensure the protection of children, adolescents, young people from any abuse likely to harm their personal interests, as well as their health, physical or moral development.

The series of normative acts that enshrine both the fundamental rights of children, and various protection measures, as well as the state authorities meant to oversee the implementation of the legal framework are quite impressive, although some areas of the country still require legislator's intervention. In this case study, we consider the procedural legal status of minors, who for various reasons end up having the capacity of participants in a civil process. Until present, in

the structure of the CPC of the Republic of Moldova (Civil Procedure Code, 2003) there is no chapter or at least one article devoted to the particularities of the procedural position of the plaintiff, the defendant or the intervener who is a minor between the age of 14 and 18, respectively having the right of personal participation in judicial debates. However, both the procedure of submitting the request and the hearing of the minor, or the exertion of his procedural rights, should benefit from a separate legal management, especially since we do not have specialized courts for cases in which minors are involved, nor specialized court panels for such litigation categories. The general and lapidary nature of the procedural rules regarding the procedural exercise capacity, which enshrine the minor's right to be represented or to personally take part at the civil process, during the legal process, do not cover the numerous practical situations, when due to the lack of a well determined normative framework the minor's interests or manifestations of will treated superficially, or worse, the submitted application will be returned, on the grounds that the interested subject has not reached the age of 18, although art. 58 al. 5 CPC (Civil Procedure Code, 2003) also establishes situations when a minor between 14 and 18 years of age can personally submit a request at court in certain types of disputes. All these findings lead us to resort to a more thorough analysis of the civil procedural provisions in this field, in order to identify the gaps and present some optimal solutions, which would allow to avoid the additional traumatization of minors, who are already quite affected by the judicial process in which they are involved.

## **2. Legislative controversies regarding the procedure in civil cases hearing for minors**

### **2.1 Conceptual boundaries between the terminology "child", "minor", "minor child"**

Notions such as "child protection", "defending the minors' interests", "protecting children in difficult situations" have become common in recent years, the literature of specialty being overspread with studies and researches devoted to these subjects. However, there are areas in which the valorization of the rights and interests of minors remains quite difficult, given the fact that the legislator limits himself to a narrow, abstract normative framework, which leaves room for interpretation, more precisely, of negligence or abuse on the part of empowered authorities in the sphere of rights and interests protection for minors. Specifically, we are referring to the legal status of minors in the civil process, but there are quite frequent cases in which children are involved in civil processes, in different capacities - plaintiffs, defendants or interveners - their real protection in the given situations remains ineffective, as it results from the analysis of the judicial practice. From the very beginning, we emphasize that we cannot develop the assigned theme without clarifying the meaning of such notions as: "child", "minor", "minor child" and "adult child". All these terms are found in domestic legislation and require some explanation. Thus, in the specialized literature this notion is approached in two senses. In the broad sense, "child" means a physical person, regardless of their age and ability to exercise, who is related in a direct first-degree descending line to another person. (Bobar, C.-F., 2018). Respectively, in this sense, the quality of the term "child" derives from the kinship relationship with his first-degree ascendant, and the applicability of the notion can be found, for example, in art. 2178 of the Civil Code of the Republic of Moldova, which disposes: "The children of the deceased will inherit in equal shares". (Civil Code, 2002) Also, the broad meaning of this concept can be found in art. 74 of the Family Code, which operates with two notions — minor child and adult child — stipulating: " Parents are

obliged to support their minor children and adult children, who are incapable of work and who require material support." (Family Code, 2000) To analyze the notion of "child" in the narrow sense, we must start from article 1 of the UN Convention on the Rights of the Child, which states that, "for the purposes of this convention, a child means any human being under the age of 18, except for cases when, based on the law applicable to the child, the age majority is established under this age". (UN Convention on the Rights of the Child, 1989) On the same line of thoughts, the Law on the Rights of the Child from the Republic of Moldova, in art.1 paragraph 2 stipulates that, "a person is considered a child from the moment of birth until the age of 18. " (Child Rights Law, 1994) In this context, the question arises whether the concepts "child" and "minor" are synonymous, or if there are certain differences between them? For example, in Romanian doctrine, Prof. T. Bodoasca (2005, p. 54) emphasizes that the notion of a minor person is more comprehensive than that of a child, because the minor who marries still remains a minor, but is no longer a child. It was also mentioned in the national doctrine (Focsa, T., Plamadala, V., 2015, p.176) that "the notions of "child" and "minor" should not be confused, as they denote different legal categories". However, the term "child" is used in any context when considering a person under 18 years of age, and the notion of a "minor" refers to the legal capacity of the person. However, if we analyze the legislation in force, we find that the legislator uses these terms as synonyms. For example, in art. 142 paragraph 2 of the Family Code, it is mentioned that, "guardianship is instituted over children who have not reached the age of 14." (Family Code, 2000).

The same provision can be found in the Civil Code, which in art. 51 paragraph 1 provides: "Guardianship is established over minors aged up to 14." (Civil Code, 2002) As we can see, the same category of subjects is called differently, and, respectively, the legislator treats the term "child" and the term "minor" as synonymous. Such an approach can lead to different interpretations and even non-unitary judicial solutions, (Bobar, C.F., 2018., p.169) because there are minors who do not have full exercise capacity and minors who have full exercise capacity (for example, those who have benefited from the emancipation procedure). As a result, the legislator must resort to some specifications when using the term "minor", at the same time renouncing the notion of "minor child" which is considered a pleonasm, thus the term "minor" is provided expressly and implicitly, by using the term "child". In a correct legal expression, in *stricto sensu*, the term "child" must be used alone, without attaching the appellative "minor". (Bobar. C.-F. 2018., p.170)

## **2.2 Procedural deficiencies during civil cases hearings for minors**

In this context, we emphasize that both civil and procedural civil legislation predominantly use the term "minor", an explainable fact, once the domains in question focus more on the notion of legal capacity of individuals. Thus, in procedural matters, one of the general premises of civil lawsuit filing, is the procedural capacity in use, which, by virtue of art. 57 para. 1 of CPC "is equally recognized by all physical persons". (Civil Procedure Code, 2003) At the same time, in order to fully exercise, personally or through a representative, the procedural rights and obligations in court, the physical person, according to art. 58 paragraph 1 CPC (Civil Procedure Code, 2003 ) must have the capacity to exercise civil procedural rights, which the legislator recognizes only for subjects who have reached the age of 18, which does not mean that people

who have not reached this age limit, cannot become participants in the judicial process. Of course, the volume of rights and obligations of people who have not reached the age of majority differs substantially from those who have become of majority age, the legislator establishing (art. 58 al. 2-2' CPC) a delimitation of them, even within the group of minors, depending on their age, respectively their physiological and psycho-emotional development, and namely:

- 1) minors up to 14 years old;
- 2) minors aged between 14 and 18 years old.

Minors in the first category, although they can have the capacity of parties to the civil process or interveners, however, they cannot exercise their rights or personally assume procedural obligations, art. 58 al. 6 of the CPC stipulating that, "rights, freedoms and the legitimate interests of minors up to the age of 14 are defended in court by their legal representatives — parents, adoptive parents, guardians." (Civil Procedure Code, 2003) Therefore, the legislator leaves no room for interpretation, in the sense of the possibility of hearing the participants in the trial who are under the age of 14, although such situations appear quite frequently in practice. It is curious that the hearing of minor witnesses is expressly provided for in the legislation, art. 218 paragraph 1 CPC stipulating that, "when hearing the witness aged up to 14 years old, when the court deems appropriate, at the hearing of the witness aged 14 to 16, a pedagogue will be summoned to assist." (Civil Procedure Code, 2003) Thus, in this context, it is allowed to hear a witness under 14 years old, or even more so, when it becomes necessary to hear the minor – who is the party of the judicial process, whose rights and interests will be directly affected by the pronounced court's decision.

The procedure of respecting the minor's right in a judicial process is a fundamental right, established at the international level as well. Thus, according to art. 6 of the European Convention for the exercise of the rights of the child, which regulates the decision-making process by the court in case one of the participants is a minor, "the judicial authority, before making a decision, must allow the child to express his opinion" (European Convention for the exercise of the rights of the child, 1996). The particular importance of the opinion expressed by the minor is also revealed by the practice of the European Court of Human Rights (case of Pini and Bertani, Manera and Atripaldi vs. Romania, 2004) which held that "the interest of the children required that their opinions be taken into account from the moment they have reached the necessary maturity to express their point of view on this matter". In this case, the children rejected the idea of going to Italy with their adoptive parents. It was assessed that upon reaching the age from which it could reasonably be considered that their personality has been sufficiently structured, and they have acquired the necessary maturity to express their opinion regarding the environment in which they want to be raised, the European court giving precedence to their opinion, in taking the decision. [Pini si Bertani, Manera si Atripaldi vs. Romania § 74, 76]

At the same time, at the national material law level, some normative acts regulate the possibility of hearing the minor under 14 years old during the legal process. Moreover, until 2020, some provisions limited the child's right to be heard until the age of 10. However, with the adoption of the Law for the amendment of some normative acts no. 112 of July 9, 2020, this age barrier was removed. For example, art. 63 paragraph 2 of the Family Code before the amendment, provided: "... the minor's domicile is determined by the court, taking into account the child's interests and opinion (if he has reached the age of 10)"; after the legislative amendment, this paragraph has the following content: "

...the domicile of the minor is established by the court, taking into account the child's interests and opinion, in accordance with his age and degree of maturity."

(Family Code, 2000) Also, presently, art. 70 paragraph 3 of the Family Code mentions: "When restoring parental rights, the opinion of the child is taken into account, compulsorily, in accordance with his age and degree of maturity." (Family Code, 2000) In this way, a presumption regarding the age from which the child can be considered to have discernment. Respectively, in each concrete case the court is to evaluate the degree of maturity and discernment of the minor, without imposing a certain age limit. In our view, if such exceptions from the general rule are admitted, then it would be useful for the legislator to enshrine the possibility of hearing minors under 14 years old, and to resort to these provisions within the Code of Civil Procedure, in case of necessity, in other civil cases where minors are involved as participants in the process (for example, on files related to the protection of intellectual property rights, that the minor could acquire, or upon acquired rights of inheritance). In this sense, we propose the completion of art. 58 paragraph 6 of the CPC with the following phrase: "At the request of the minor's legal representative or ex officio, the court may order the hearing of the minor under the age of 14, in the presence of a psychologist, if his rights and interests could be directly and indirectly affected by the court decision". (Civil Procedure Code, 2003) Such a provision is all the more important as, for example, the legislator remains silent regarding the participation in the process of the minor under 14 years of age, whose parents requested the deprivation of parental rights, so in such cases, the minor's opinion should have an overwhelming role in revealing the realities, the judge having the task of "distinguishing between false and true facts, between attitudes that facilitate dialogue and those that close evident options, or moreover block or divert the answers that can be given by the child" (Pivniceru , M., Luca, C., 2009., p.14).

In this context, the findings made by the People's Advocate Office from the Republic of Moldova, which, in one of the analyzes dedicated to the hearing of minors in criminal cases, mentioned: "It should be given due importance to the child's opinion according to his age and level of maturity. The right to be heard cannot be considered as an obligation of the child. A child should not be prevented from being heard only for reasons related to age. Whenever a child wishes to be heard in a case that directly affects him, the judge should not refuse, unless it is in the child's best interest, to objectively hear him and listen to his opinion." (Crestenco, T., 2015) These observations are also valid for civil cases, thus the judge should grant to the minor the right to be heard in all matters that concern him or, at least on the matters, where he is considered to have the necessary discernment regarding the discussed aspects. Judicial practice, however, sometimes presents a different situation. For example, through a decision of the Supreme Court of Justice of the Republic of Moldova dated 09/07/2016, which is based on a request by which the domicile of the minor child was to be determined, finds that the minor XXXX, whose interests are concerned in the file, born on October 11, 2005, and the appeal court examined the case between January 5, 2016, time when the decision was pronounced, March 10, 2016, and respectively, contrary to the legal provisions, the court of appeal did not examine the child's opinion in this regard, which according to the present law it is mandatory." (Supreme Court of Justice of the Republic of Moldova, decision of September 7, 2016).

As for the second category of minors, aged between 14 and 18 years, art. 58 paragraph 4 of CPC, which provides: "The rights, freedoms and legitimate interests of minors between the age of

14 and 18 are defended in court by their parents, adoptive parents or guardians, and the court being obliged to admit the respective minors in such legal cases." (Civil Procedure Code. 2003) A problem that can be identified from these provisions is related to the hearing procedure for these minors, thus the legislator does not expressly regulate whether they will give statements in the presence of the legal representatives or in their absence, not even specifying the possibility of appeal to the guardianship authority or to a psychologist in the event that certain hostilities, pressures or conflicting interests that emerge between the minor and his representative. Considering the concrete circumstances of the case, the court should have the power to order the hearing of the minor in the presence of subjects who would effectively protect his rights. In our opinion, the reasonable solution in this case would be to turn to legal assistance guaranteed by the state. For this reason, we propose to complete article 58 of the CPC with paragraph 4(1), which will have the following content: "If, during the judicial debates, it is found that the minor between the age of 14-18 is in a conflict of interests with his legal representative, or the legal representative exerts pressure or intimidation on the minor, the judge will request the coordinator of the territorial office of the National Council for Guaranteed State Legal Assistance, by appointing a lawyer to defend his interests."

Violation or disregard of the rights of minors between the age of 14 and 18 cannot always be considered by their legal representatives. For this reason, the legislator in art. 58, paragraph 5 of CPC orders: "in cases provided by law, in such cases that arise from civil, matrimonial, family, work and other legal relationships, minors should independently defend their rights, freedoms and legitimate interests in the courts. The court finds the need to introduce a legal representative in the process involving minors." (Civil Procedure Code, 2003) Thus, we can mention that in a series of civil files, the minor himself can file the request in court, representing his interest personally. For example, according to art. 53 paragraph 5 of the Family Code, "in case of violation of the rights and legitimate interests of the child, including through the non-fulfillment or improper fulfillment by the parents (of by one of the parents) of duties related to maintenance, education and training obligations, or in case of parental abuse of legitimate rights, the child can independently apply to the local/territorial guardianship authority for the defense of his rights and legitimate interests, and also from the age of 14 – address these pledges to the court." (Family Code, 2000) These provisions allow the minor to obtain the status of a plaintiff in a process in which irregularities regarding his fundamental rights, enshrined both in The Law on the rights of the child, as well as in the Family Code. Also, in accordance with art. 2009 al. 1 of the Civil Code, "the minor between 14 and 18 years of age is personally responsible for the damages caused, according to the general rules." (Civil Code, 2002) It follows that, in the situation when the minor is guilty of committing an illegal act, committed with guilt, by which he caused damage to another person, he will be given the possibility to be involved in the process as a defendant, bearing personal liability, to the extent that his material situation allows him to pay the caused damages.

Continuing with the exemplification of this topic, we also refer to the Labor Code, which in art. 46 paragraph 2 provides: "The physical person acquires the capacity to work upon reaching the age of 16." (Labor Code, 2003) This norm denotes that the minor being part of an individual employment contract from the age of 16, can become a plaintiff or defendant in court in the labor disputes, determined by the violation of the provisions of this contract by one of the parties, and

he will personally exercise his procedural rights and obligations. At the same time, the situation regulated by art. 57(1) of the Family Code, the paragraph 1 of which stipulates: "The child has the right to reparation of material and moral damage caused by injury to bodily integrity or health, by violation of non-patrimonial personal rights as a result of violence, neglect, exploitation, or evasion in any ways by the parents to exercise their parental rights and obligations, which as a result may harm the life and health of the child, as well as by the non-fulfilment or improper fulfillment of the obligation established by the normative acts for the purpose of protection against the risk of causing a certain injury by a public authority or institution." (Family Code, 2000) Since the legislator uses the term "child", it is not clear who will be able to submit the claim for damages — only the legal representative (for example, the guardianship authority) or the minor who has already reached the age of 14. For the insurance certainty and preventing the restitution of requests from judges who are tempted not to admit such requests from minors between 14 and 18 years old, we propose to complete article 571 of the Family Code which in paragraph 2 mentions that the reparation of material and moral damages takes place in the manner provided by the civil legislation, with the following sentence: "Minors between the age of 14 and 18 can personally request in court the reparation of material and moral damages". We note that, although the possibility for the minor to personally defend his rights is regulated, the court is still entitled to also include in the process a representative for its legal purpose. In the specialized literature, in such situations, many debates result from the subject of the procedural quality of the legal representative. We rely on the authors (Gadjiemenov, R.B., 2019, p.237) who claims that the involvement of representatives in the court procedures does not affect the minor's capacity as plaintiff or defendant, as well as his personal right to dispose of certain procedural instruments (renunciation of the action, transaction, recognition of the action). Respectively, the legal representative in the cases provided for by art. 58 paragraph 5 of CPC (Civil Procedure Code, 2003) cannot influence the procedural actions, requests or actions from the part of the minor.

A final aspect, which cannot be overlooked, is the jurisdiction of the courts in the civil cases involving minors. Thus, unlike the legislation of other states, our legislator does not expressly regulate territorial jurisdiction in lawsuits filed by minors between 14 and 18 years old, the fact that often places the minor in a difficult situation, who has to travel to the court within the radius of his domicile or the defendant's premises. From this consideration and guided by the principle of respecting the best interests of the child, we propose to complete art. 39 paragraph 7 of CPC, called *Competence at plaintiff's choice* as follows: "Actions related to the restoration of the right to work, to pension, to housing, to claim assets or their value, to repair the damages caused by illegal conviction, illegal prosecution, by illegal application of the preventive measure in the form of preventive arrest or in the form of imposing a written commitment not to leave the locality, or by applying the illegal administrative sanction of arrest, submitted by a minor between the ages of 14 and 18, can be filed in any of the courts according to the applicant's domicile."

### **3. Conclusions**

- The carried-out research confirms the assertion that the legal status of minors represents an institution with an interbranch and transdisciplinary character, including a system of legal norms that enshrine the rights, freedoms and obligations of the child, starting from the birth until the age of 18. The domain of the civil process remains that legal sphere in which the legal status of

the minor does not benefit from sufficient protection, there are deficiencies in the chapter of the hearing procedure of the minors during the legal proceedings, thus the right of the discerning child to express his free opinion in any matter of his concern not being fully realized. In conclusion, the analysis of the internal procedural legislation shows the non-existence of a concrete, detailed regulation of the hearing procedure for the minor, and despite the international recommendations in this regard, the rights are reduced to some disparate procedural norms, circumscribed to certain special hearing procedures, as for example in the case of the minor witness.

- At the same time, the national procedural legislation does not consider the specifics of civil cases with the participation of minors. Minors are subjects of the civil procedural legal relationship, with a specific character, and the same legislation is applied to them that applies to adult participants in the process. This fact leads us to affirm that, due to the intellectual immaturity of the minors, and due to some particularities, that limit their legal competence in various decisions, it is necessary to establish and regulate some measures of assistance, protection and security, through which the minor can capitalize on his rights, without being injured or prejudiced in any way.

Based on the conclusions formulated and the need for the practical transposition of the principle of the best interests for the child, which is intrinsically linked to that of respecting and consulting the child's opinions, we submit the following proposals:

1) To supplement art. 58 of the CPC with the following sentence: "At the request of the minor's legal representative or ex officio, the court may order the hearing of the minor under the age of 14, in the presence of a psychologist, if the court decision could directly and indirectly affect his rights and interests".

2) Article 571 paragraph 2 of the Family Code should be supplemented with the following sentence: "Minors between the ages of 14 and 18 can independently request the reparation of material and moral damage in the court".

3) To complete art. 58 of the CPC with paragraph 41 which will have the following content: "If during the judicial debates it is established that the minor between the ages of 14-18 has found himself in a conflict of interests with his legal representative, or his legal representative exercises pressure or intimidation, the judge should request the coordinator of the territorial office of the National Council for State-Guaranteed Legal Assistance, in order to appoint a lawyer to defend his interests."

4) At the same time, the fragility of age and possible financial difficulties should determine the legislator to supplement art. 39 of CPC in the sense of enshrining the minor's right to file the action in the court with its headquarters in the area of his domicile.

5) Within the framework of Chapter XV of the CPC dedicated to the stage of judicial debates, it is necessary to introduce a new article that would refer to the procedure for notifying and hearing the minor participants at the trial, with the specification of the following aspects:

- a) directly notifying the minors about the date and place of the court hearing;
- b) outlining the situations in which the minor is to be heard alone, in private interview spaces, specially designed to protect him from pressure and intimidation;
- c) the consecration of the minor's right to choose the person who will accompany him as the legal representative at the legal proceedings, when the court deems his presence necessary;

d) the evaluation of the minor's opinion by the judge will be carried out, based on his age and degree of maturity, and based on the consultation of an expert psychologist in qualified assistance for children or adolescents.

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## THE GATHERING – PREMISE OF EFFECTIVE INSTITUTIONAL COMMUNICATION

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**Abstract:** *Currently, the fluidity and quality of information are among the favoring factors of the organization's competitiveness. In this sense, a working group becomes innovative and creative when it is able to effectively capture the information presented in gatherings. The purpose of this study is to contribute to the achievement of correct, efficient and effective information both vertically and horizontally, in order to create, under optimal conditions, internal and external requests in accordance with the established organizational objectives. For this, in the process of managerial communication, a number of fundamental communications needs of work groups, but also of each individual employee, must be satisfied. One of the priority, dominant forms of internal organizational communication is "gatherings." Based on the information received during the gatherings, the managerial staff / decision-making group can perceive whether it is moving towards the set objective, or it is deviating. At the same time, in a gathering, information is vital for the performance of the group for the quality of the decisions made. Therefore, the manager who exercises the role of gathering moderator must have initiatives to increase the fluidity and quality of information by disseminating and facilitating the circulation of information.*

*At the same time, the promptness of information circulation was and continues to be a determining element of decision-making efficiency and effectiveness. This is influenced by the pace of changes, especially in the field of technologies that allow/ensure an informational transit. In conclusion, we affirm that the success of a gathering is conditioned by the ability of the participants to communicate pertinently and with a positive decision-making impact.*

**Keywords:** communication, competence, competitiveness, dissemination of information, group performance, meeting, gathering.

**JEL Classification:** F52, I21, I25, P36

Motto:

*"If a problem requires many meetings,  
they eventually become more important than the problem."  
(Hendrikson's law)*

### Introduction

The economic development of society has continuously generated new organizations, so today it can be said that society is a gathering of organizations. The organization is the result of a process of organizing a group of people, with the aim of achieving common objectives,

which, due to their scope and complexity, cannot be achieved by a single person. Organization is a human creation that developed together with the industrial revolution, from the need to produce goods in much larger quantities than craftsmen could do in their small workshops (SCRIGROUP Int., 2022).

The semantic dynamics of the concept of organization and the different perspectives from which it was used by specialists, naturally led to the formulation of a real spectrum of definitions from which we choose a few. E. H. Schein believes that "an organization is the planned coordination of the activities of a number of people for the achievement of common, explicit goals or objectives, through the division of labor and activity, and through a hierarchy of authority and responsibility." (E. H. Schein cited by SCRIGROUP Int., 2022) And M. Vlăsceanu states that "an organization is a structured system of interaction of people in order to achieve common and specific objectives." (M. Vlăsceanu quoted by SCRIGROUP Int., 2022)

In this last definition, by introducing the lexeme "structured", we want to specify the fact that it is a functional, formal entity, with explicit goals and with a precise delimitation of the norms, positions, roles, or relationships between the members of the institution. In such an entity, organizationally and functionally structured, there is a series of written and unwritten rules, which make possible the distribution of decision-making power and responsibility in order to achieve specific objectives. Regardless of how the above definitions were formulated, it can be said that "the organization is a system that is characterized by a certain functional structure and a certain process through which certain common and specific objectives are achieved." (Vlăsceanu, 2003), pp.45-89) In this rationalistic approach to organizations is emphasized their function of transforming input quantities into output quantities satisfy certain social requirements or needs through the newly created value.

### **Content**

In an organization, the manager is the person vested with the authority to exercise the functions of the management process. He uses his authority and ensures the coordination of the group's efforts towards the achievement of a set of objectives considered as 'defining' for an organization. To achieve such objectives, the manager foresees, organizes, coordinates, motivates and controls "what" and "how" the group does a certain activity. As a result, mutual understandings are established between the manager and the group members. "The finished products of management are decisions; their adoption is determined by the collection and processing of information, the identification of solutions to achieve the goal and their implementation". (Stanciu S., 2001, p. 5) Trading mutual understandings with the help of symbols defines the process of managerial communication. This process, in essence, consists in the display of a behavior.

Specialists in the field identify two types of communication behavior: "behavior oriented towards solving the task and behavior oriented towards maintaining good relationships in the group."(Constantinescu, D., Gârboveanu, S., 2011, p. 209)

The manager, in his capacity as a leader and administrator, must be aware that any work group needs both behaviors in order to be efficient and effective. The manager's role is to ensure that an appropriate balance is achieved. It has been determined, through various

studies, that the manager has the need to mobilize his collaborators by managing a balance, which we consider the balance of rewards. Each member of the group has its own balance; on one hand there are the group member's contributions (time, energy, intelligence, skills) and on another hand there are the rewards (salary, social identity, training, work recognition, job security). When the balance is stable, the group members will have the feeling of being rewarded. Conversely, when the balance is unstable, i.e. because one group member feels that he is doing more than he is getting, then the manager will have difficulty in mobilizing that group member to solve the task and maintain good group relations. Thus, the appropriate balance between task-oriented behavior and behavior oriented toward maintaining good group relations is dependent on ensuring the balance between what each member of the group gives and what they receive. Ensuring balance can also be achieved by avoiding information distortion. "Messages are distorted by filtering as they pass from one organizational or departmental level. According to a study, only 63% of the information sent by the board of directors reached the vice presidents, 40% - to the store managers and 20% - to the workers." (materiale.pvgazeta.info, 2022)

Managerial ethics are of particular importance in ensuring the stability of the balance. In this regard, it should be noted that in the process of communication there are situations when managers distort information. Unintended distortion of information due to human nature is a factor that needs to be considered ethically. The messages are not in themselves ethical or unethical. What determines a message to be ethical or not depends on the intention of the sender of the message.

The researchers note that "from an ethical point of view, the issue is quite complicated and there are no general or ideal solutions. The consciousness of each of us, the power of analysis and free will are the only ones that can give an answer and generate a certain mode of action, a certain kind of behavior." (Constantinescu D. et al. 2011, p. 210) Supporting what has been stated, we will consider that managerial ethics generates a personal image in front of subordinates. Therefore, for managers, honest communication is not only the most appropriate behavior, but also an open way of communication.

In an organization, ethics are created and supported by organizational culture, organizational politics and, of course, the individual ethics of managers. As far as managers are concerned, their ethical behavior must be continuously manifested, especially in the following situations: providing information necessary for the functioning of the group, gathering information and how to work with information.

Ensuring the balance between communication behaviors it requires the group manager to be apply a correct, professional approach to interpersonal, informational, and decision-making roles. As we analyze the problem of organizing and moderating meetings, we will focus on the interpersonal role of the moderator of a meeting.

Before moving on to the actual approach to this topic, we will clarify, on one hand, the rejection of the term "ședință" (translation: meeting) in Romanian, while on the other hand, we will announce our option for the term "gathering".

Today, in the Romanian-speaking area, the term "ședință"(translation: meeting) is 5.5 times ahead of the term "meeting". However, we believe that at the semantic level "ședință"

(translation: meeting) presents a certain imprecision due to its root in the verb „a ședeă” (translation: to sit). This verb fueled, in an exaggerated way, the "generation" of jokes and anecdotes. Two jokes circulate with great frequency. The first joke: "A meeting is where several people make minutes and waste hours" and the second joke: "A meeting is a group of people who, separately, can do nothing, and together decide that there is nothing to be done".

Naturally, the two jokes satirize the faulty way of organizing and conducting meetings. Satire is justified and is not grounds for rejection. What we accuse is the semantics of the term, i.e. the poor meaning which, in turn, can be perceived as lacking synergy. By comparison, the term "gathering" suggests the existence of an appropriate framework for interpersonal communication, achieved by bringing together several people. "Gathering" suggests the activation of forces, and "staying" their inactivation.

To the extent that the gathering promotes brainstorming norms, it generates a relational system suitable for achieving performance: the value of the group exceeds the sum of the individual values of the group members. This result indicates success, a high level of synergy, effectiveness, and efficiency. "In principle, the meeting is one of the tools that managers have at hand through which they manifest their leadership act. It should be noted that meetings are resource consuming (time, money, energy). A meeting that achieved its goal brings profit to the organization while a meeting that did not achieve its goal is a waste of money” (hqm\_web, 2020).

Cândeă&Cândeă professors consider the meeting (gathering) as a specific process of communication within the group. Of course, in an organization a gathering usually defines the set of interrelationships between managers and the groups they lead. Gatherings play an important role in the management process. The importance of a gathering can be explained by its functions such as:

- defines the group, its unity, and gives members the sense of collective identity;
- supports the group to revise, add knowledge, experiences, judgments and habits;
- enriches the collective mind;
- helps all group members understand common goals and how everyone's work can contribute to the group's success;
- satisfies the desire of group members to be consulted;
- transforms the relational framework into an "arena" for displaying the role of individuals. (Cândeă&Cândeă cited by Constantinescu et al., 2011, p. 211)

In order to respect and fulfill the functions of the gathering, the managers of the organization must take into account when the role of moderator, information and communication interferes.

*The information.* Among the favoring factors of the organization's competitiveness, today and especially in the future, specialists place the fluidity and quality of information. In this sense, it is argued that "a group becomes innovative and creative when it is able to capture information from the environment. Based on the information, the group can know if it is progressing towards the set goal. Then, by interpreting the information, for example about the market, the group thinks and chooses the best alternative for positioning on the market." (Constantinescu et al., 2011, p. 212)

In a gathering, information is vital to group performance. Therefore, the manager exercising the role of moderator of a gathering must have initiatives to increase the fluidity

and quality of information by: disseminating and facilitating the flow of information. We recall that the process of effective identification of information goes through two stages: categorical identification and individual identification. (Tarnovschi A, Tacu J, 2017, p.27)

By *disseminating information*, the manager puts the group members in relation to the facts, with the data useful in their activity and development. If the manager broadcasts too much information, group members may not have the time to understand and process it. Furthermore, the relevance of information may decrease as the volume of information increases. Conversely, if the information is disseminated sparingly, there is a risk that the manager will be accused of censorship. Therefore, the objective to be achieved is to disseminate internal and external information necessary for understanding and piloting the activity carried out by the group members.

In relation to the dissemination of information, managers are advised to opt for a certain amount of information and to give meaning to the information disseminated.

In terms of the quantity of information, it is oriented towards one of the directions: to select the information or to be exhaustive.

In the first case, the manager selects the useful information needed by each member of the group or each subgroup to quickly make it available. Selectivity is not to the liking of all group members. Some members want to be provided with details to make a connection between their personal contribution and the group's results, or between the group's contribution and the organization as a whole.

When the manager chooses the exhaustive path, he makes available to the group parts of the total information at his disposal. In this case, the manager is forced to create a "library" corner where he stores the information on the themes. This time, the group members want to have access to all the information. It seems that lately managers are using modern means of broadcasting that facilitate the intelligent circulation of information (in meeting rooms more group members are seen with their phones or laptops connected to the Internet).

Regarding the meaning of information, the manager knows that one of his essential tasks is to "manufacture" meaning for group members. In other words, the manager, through the proposed project, provides the group members with a perspective, because he disseminates information both for himself and for the each group member in part. The main concern of the manager is to convey the results of the organization and to select the information that makes "sense" in relation to the project proposed to the group. The project contains dashboards that put the numbers into perspective.

A well-functioning group is "irrigated" by an amount of information that flows both vertically (downward and upward) and horizontally. The amount of information a group needs is influenced by the speed at which it travels. That is why managers, in order to ensure the "health" of the group, take actions to facilitate the flow of information. The faster information flows, the less pressure there is on managers to disseminate more information.

The speed of information circulation was and continues to be a determining element of the efficiency and effectiveness of the group. The speed of information circulation is influenced by the pace of changes, especially in the field of technologies. New technologies allow greater fluidity of information. It is, at the same time, vital to differentiate between what

is truly urgent and what is not. Therefore, the management must therefore see that the information is relevant and that it is useful to circulate quickly. It seems that speed is more important than reliability.

Members of a group end up having more information than their manager because a manager cannot limit himself to providing information only to the group. This situation turns into a motivating factor at the group level to complete their received information. Blaming a lack of information, group members are forced to accumulate additional information. In turn, the manager initiates the movement of information from the top down and, most of the time, has no problem getting the information passed to him.

Another way to provide the group with information results from the manager's attitude toward the group. In this sense, the manager must tell the group what interests them in the direction of maintaining the quality of being listened to and showing early while doing with the information received from the group. If the group feels that it has listened to the manager but never understood it, the group will one day stop providing useful information. The group agrees, in this case, to show that the manager is no longer at its center regarding the flow of information.

To increase the amount of information, the manager must encourage group members to exchange information directly, without it going through the manager. It is his responsibility to check whether any member of the group knows the needs of the others and, if necessary, to immediately redirect the information to a good recipient.

In general, the gathering is one of the tools that managers have at hand and through which they manifest their leadership. It should be noted that meetings are resource consuming (time, money, energy). A meeting that has achieved its purpose brings profit to the organization, otherwise it is a waste of money.

The quality of a meeting significantly influences the quality of management because it is directly involved in the exercise of managerial functions: forecasting, organization, coordination, motivation - training and control - evaluation.

So, the organization of a meeting must have a well-defined purpose and must follow a certain pattern (a certain standard).

Depending on the purpose, specialists in the field (De Visscher, P., Neculau, A., 2001) classify meetings as follows:

*Informative meetings* - its purpose is to facilitate communication between members of the organization. These can be meetings during which decisions adopted by the management of the organization are transmitted, during which the opinions of the participants are collected (their feedback); meetings during which organizational changes or changes in the company's personnel structure are communicated - the occasion when the new team member is introduced, meetings during which changes to the normative documents governing the company's activity are communicated; meetings during which commercial and/or financial results are communicated etc.

*Analysis meetings* - their purpose is to determine the degree of achievement/progress, at a certain reference date, of ongoing projects, performance indicators, the income and expenditure budget etc.

*Operative/harmonization meetings* - their purpose is to inform or organize in the event of the appearance of disruptive factors in the organization's current activity; these are summoned with a random frequency; the heads of departments, heads of divisions, commissions or other involved persons generally participate.

*Decision-making meetings* - their purpose is obviously to adopt some decisions related to the operational activity or the organization of the company.

*Heterogeneous sessions* – those that bring together two or more types of meetings previously presented.

Depending on the method, meetings can be organized offline or online. Online meetings also require some preparation to go well. (Upromania editorial team, 2022)

Any organization is like a mechanism, and its good functioning depends on the efficiency of each individual part, that is, on that of each employee.

For a team to function and be productive, its members must have common goals, support each other, communicate, collaborate. Only in this way will the team be able to reach its goal, and each member, as part of the team, will be able to enjoy the success.

Therefore, the work group represents "a collective formed on the basis of division and cooperation that performs work together, in order to achieve a common objective." (Goian, 1995, p.139)

The group, as a fundamental element in the structure of an organization, must be carefully managed by the manager, and the implications of communication are essential aspects.

British researcher and theorist Meredith Belbin became famous for the team role model, developed in the late 1970s. Belbin demonstrated that balanced teams, made up of people with different abilities, outperform unbalanced ones. This model is currently used by more than 40% of successful UK businesses, as well as thousands more internationally.

The Belbin ‘team role theory’ is a human-resources management tool, and the best results are obtained when the specialized staff of an organization are aware of the facilities offered by this tool and use it actively. The support offered by all managerial levels of the organization is also very important, as is the motivation of employees to use the obtained information so as to improve their individual performance and contribution to the level of the teams they are part of.

Initially, Belbin identified a set of eight roles that, when present within a team, are supposed to provide balance and increase the chances of success. Another role was added to the eight, the role of the expert. It must be emphasized that there is no such thing as a good or bad role, each role is important to the success of the entire team. But Belbin states that some roles have a more extroverted attitude and others are more introverted, although today this dimension is not important.

Each of these roles is valuable to the team and there are no primary or secondary roles. However, it is not absolutely necessary that each team consists of nine people, just that the roles are present. In small teams, one person may have more than one role.

By analyzing member behavior and team performance, it was found that this concept of team roles can lead to considerable improvements:

- In the case of low score achievements, a good coordinator or finisher is needed.
- Conflicts require a strong teammate or coordinator.

- Mediocre performances can be improved with the help of a resource investigator, innovator, or trainer.

- Teams prone to errors need a monitor - evaluator.

Different roles are useful in different circumstances:

- New team members need a good trainer.
- Competitive situations need an innovator with good ideas.
- A good evaluator is needed in risky situations.

Therefore, the team analysis must include both the roles of the members and the skills needed in the team.

The information about team roles obtained for individuals and for the positions they occupy helps us to build a balanced team. Team balance is a very important concept in team role theory, as research results have shown, balanced teams are the ones that have the best results. This implies that the team has those roles required by the nature of the objectives and the context in which it finds itself, at the same time, that there are not too many roles of the same type within the team that may come into conflict. Successful teams are aware of their strengths and weaknesses, maximize their strengths, and avoid engaging in areas they do not master, or seek alternative solutions to address these areas.

In the process of forming and developing a team it is advised to consider several types of information regarding the candidates competing for a vacant position or a newly created one. The first type of information refers to the eligibility of candidates expressed through: education, qualification, work experience, references, impression following recruitment interviews. The second type of information relates to the candidate's match to the nature of the job's activities and the team's contribution requirements. This match is given by the skills, flexibility, the results of the candidate's behavior and personality tests, but also by the need to achieve a balance of roles within the team.

In management processes, the communication process means perception, interpretation, evaluation, and selection. The greater the number of participants in communication, the more different are the goals pursued, the level of culture and training, mentalities, habits, personalities, the more obstacles appear in the way of communication. The problem of management is not whether to communicate, but in what way and with what results the communication is carried out.

Organizational communication, as a specific way of manifesting the management process, takes on the individuality elements of the organization. Wider or narrower, depending on the dimensions of the activity, more stereotyped or more diversified, pronounced, formal or unrestricted by written rules, facilitating or obstructing interpersonal relations, communication represents for modern management a process with multiple meanings and implications, even if they are not visible and quantifiable.

## **Conclusion**

The success of a meeting depends on the ability of the participants to communicate pertinently and with positive decision-making impact. However, communication occupies a central place both at the level of the management process and at work gatherings, experiencing

a spectacular evolution, from an authoritative, prescriptive communication to a relational and democratic communication.

Communication is a decisive factor that contributes to the effective implementation of change within the organization because employees must receive timely information about the reasons for the change and its consequences, whereas the reduction of uncertainty caused by the change can only be done by providing the correct information through official channels and clearing up rumors.

Effective communication within the organization contributes to the creation of a motivating organizational climate, and the barriers that appear (language, perceptual, contextual barriers) can be overcome by taking measures to improve the quality of communication.

Undoubtedly, communication leaves its mark on the efficiency of the activity of the members of an organization. Being encouraged to communicate freely and openly, employees once again gain awareness of their own value, are stimulated to perform, and put all the energy they have in order to achieve the proposed objectives.

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## THE REFERENTIAL FRAMEWORK OF THE MANAGEMENT CONCEPT OF THE ASSESSMENT OF SCHOOL RESULTS

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***Abstract.** Evaluation, being an integral part of the educational process, has an absolutely necessary role in decision-making, being present in any pedagogical activity and is in a relationship of interdetermination, of formal interaction with teaching and learning, and which provides necessary information to regulate and improve the didactic activity. The quintessence of the evaluation action is to know the effects of the activity carried out in order to improve the process in the following stages and which leads to a quality education. Evaluation is a chain of these operations. For student assessment to be effective, it must be based on effective learning standards, which are defined by objective success criteria and are used for individual, class, whole school and national development. Thus, the essence of evaluation refers, above all, to a targeted improvement. Missing or misunderstanding this formative function of assessment runs the risk of leading to superficial, haphazard or punitive assessment practices. Bearing in mind that each stage/stage/form of the process of evaluating school results requires organization/directing/completion, which corresponds to the functions of the management process, we record the emergence/formation/of such a discipline/process with the name of management of results evaluation school, which is based on various educational policies and has a legally grounded reference framework.*

**Keywords:** framework, management, concept, evaluation, results, school

**JEL CLASSIFICATION:** I20

Evaluation, being an integral part of the educational process, has an absolutely necessary role in decision-making, being present present in any pedagogical activity and is in a relationship of interdetermination, of formal interaction with teaching and learning and which provides necessary information to regulate and improve the activity didactic.

The quintessence of the evaluation action is to know the effects of the activity carried out in order to improve the process in the following stages and which leads to a quality education. Evaluation deserves a deep analysis, starting from the very term evaluation, a term that has a number of interpretations, the most significant being Gérard Scallon's: „*Evaluation means designing an evaluation procedure, that is, designing evaluation procedures and tools, to practically make an evaluation, i.e. to apply in practice the evaluation procedures and tools, to express a value, i.e. to explain what was evaluated*”. [2]

Depending on the perspective from which it is approached in pedagogy, the evaluation has several meanings, being understood as a tool or way of regulating the teaching-learning processes, as a value judgment on the results of the educational process by reference to the objectives; as a means of communicating the results obtained by students in the learning activity. [4]

Evaluation is a chain of these operations. Thus, Ioan Cerghit appreciates the idea that: measurement exists in order to appreciate, and appreciation is indispensable in order to make an

appropriate decision. One without another, these operations are not justified. Together they presuppose a system of thinking, measurement techniques, objective and coherent assessment criteria.[3]

Scientist Radu I. mentions that the concept of Management of evaluating school results is sometimes reduced to notions such as checking, evaluating, grading, but in fact it is a technique, a complex action, a set of mental and action operations, intellectual, attitudinal, affective, which specify the objectives and contents to be evaluated, the purpose and perspective of the decision, the moment of the evaluation, or how it is evaluated, how the data is processed and how the information is valued, the criteria based on which it is evaluated.[8]

Evaluating school results means determining the extent to which the objectives of the educational process have been achieved, as well as the effectiveness of the teaching strategies used.

Stoica A. mentions that the school results do not only refer to the students' acquisitions in the cognitive field - knowledge, skills, capacities, abilities, but to the entire spectrum of behaviors that contribute to the development of the student's personality. [9] In this context, the researcher I.T. Radu lists the following four types of school results, namely:

1. Accumulated knowledge (data, facts, concepts, definitions);
2. The ability to apply knowledge in carrying out some practical actions, some theoretical approaches, embodied in skills, habits, the mastery of some work techniques;
3. Intellectual abilities, expressed in the development of reasoning, the power of argumentation and interpretation, independence in thinking, the ability to perform logical operations;
4. Personality traits, attitudes, behaviors formed.

It is important to state that the evaluation is done with a specific purpose. According to the researcher Gh. Dumitriu, the following goals are reiterated: *monitoring of school progress during the training process, diagnosis of school results that deal with the student's unresolved problems, certification of the level of knowledge and capabilities, forecasting of students' future performance, school and professional orientation of students, student motivation.*

From the perspective of the curricular model, Sorin Cristea presents the evaluation action, which involves the triggering of a managerial process based on the operation of pedagogical processing and refinement of the information obtained through different technologies of measurement, appreciation and decision. [5]

In this context, it is important to emphasize that the main objective and the determining factor of the quality of a country's education are the achievements and progress of students. Assessment provides a means by which students, as well as their parents and teachers, learn about student performance and, more importantly, what they have learned and what they still need to develop and how they can do it.

For student assessment to be effective, it must be based on effective learning standards, which are defined by objective success criteria and are used for individual, class, whole school and national development.

Thus, the essence of evaluation refers, above all, to a targeted improvement. Missing or misunderstanding this formative function of assessment runs the risk of leading to superficial, haphazard or punitive assessment practices.

The following aspects were examined regarding the respective types of assessment:

- National guidelines in evaluation
- The ability of teachers to respect the national guidelines
- Designing the evaluation - Marking and marking the evaluation
- Follow-up and analysis of evaluation data
- The objectivity of evaluation and grading
- The importance and formative use of the assessment results

We reiterate that the assessment is the one that perfects and regulates the educational process, always having a direct or indirect relationship with the progress in the extension and quality of learning in order to increase the efficiency of the educational process and the quality of the school product offered to society.

Thus, *the management concept of the assessment of school results* is imperatively designed, integrating perfectly into the quality educational process.

The concept of management has registered successive accumulations and resizing, its epistemological approach highlighting the attempt to capture the essence and specificity of management as a leadership activity.

*Etymologically* the word *management* originates from the latin *manus-agere* (hand, handling, piloting, management). With reference to the English language, in the general understanding of the concept of *management* we distinguish a very complex semantics.

Thus, the verb *to manage* indicates to us the idea of succeeding, leading, coordinating, administering, solving, directing, guiding, succeeding, dealing with, handling something, mastering; while the noun *management* emphasizes the activity of achieving leadership, the art of leading, implementing strategy, the ability to organize, manage, succeed in achieving objectives, adopting decisions, and the noun *manager* represents/nominates a leader, director, administrator, organizer, leader, team coordinator. The multiple meanings and definitions given by various theoreticians and practitioners to the management term mark its intensity and accentuated extension.

Researcher *Frederick W. Taylor* originally defined management in terms of knowing exactly what you want people to do and supervising them to achieve it in the best and cheapest way; The scientist *Frederick W. Taylor* conceptualized scientific management, having concerns in the direction of studying the problems of managing the activity at the workshop level, in order to reduce losses and increase work efficiency.

Later, the researcher *Frederick W. Taylor* refined and redefined in a more in-depth manner the concept of scientific management, which is the kind of management that guides businesses using clear standards as guidelines, established on the basis of facts and truths resulting from concrete situational observations, experiments and systematic reasoning.

The researcher *Henri Fayol* mentioned that management means predicting, organizing, ordering, coordinating and controlling. *Arthur Mackenzie* reiterates in the *Harvard Business Review* that management is the process in which the manager operates with three fundamental elements - ideas, things and people - achieving the proposed objectives through others.

*Peter Drucker* considered to be the father of modern management, advances a personalizing perspective stating that *management is practically equivalent to leading people*. The author claims that organizational needs must be met by ordinary people capable of extraordinary performances,

and the main and perhaps the only task of management is to mobilize the organization's energies for the fulfillment of known and defined tasks. [1]

Therefore, the concept of general management defines, on the one hand, the management process of an organizational entity at the macrosystem level, for example: state, nation, state confederations or microsystem, such as: institutions, enterprises, organizations, and on the other part, it shows us the emerging springs of practices, science and art alike. The term management, in the last resort, designates *the science of managing organizations and their scientific management*.

As far as management in education is concerned, it should be noted that it represents a pedagogical discipline that is currently in an accelerated development. Management in education, in its double capacity as a relatively recent branch of management, but also as an interdisciplinary pedagogical science, knows multiple ways of operational definition, most of them deriving and borrowing their specificity from the particularities of the concrete reality at which they act, namely the educational reality at macro or micro pedagogical level.

In general terms, we can define management in education as the science that brings together in a systematic and non-contradictory manner, coherent from a teleological, axiological and action point of view, elements belonging to educational philosophy, politics and pragmatics in the direction of achieving the goals with maximum efficiency assumed educational.[7]

Management in education considers „the theory and practice, the science and art of designing, organizing, coordinating, evaluating and regulating the elements and resources of the educational activity, an action methodology comprising a set of principles, functions, norms and action strategies oriented towards ensuring the achievement the proposed didactic purposes and achieving success in education”. [6]

Analyzing the approaches of the authors in the definition of educational management, we notice a diversity of elements, respectively the points of view expressed:

- *E. Joița* (2000) emphasizes the need for an interdisciplinary approach to educational management from the point of view: psychological, sociological, ergonomic, philosophical, political, legal, epistemological; in detail, the author considers education management as the theory and practice, the science and art of designing, organizing, coordinating, evaluating, regulating, the elements of the educational activity, as an activity of free, integral, harmonious development of human individuality, permanently for the autonomous affirmation and creative of his personality, according to the ideal established at the level of the educational policy;
- *I. Jinga* considers that in essence pedagogical (educational) management can be defined as the science and art of preparing human resources, of forming personalities according to goals accepted by the individual and society;
- *I. Cristea* refers to the methodological difficulties of defining educational management;
- *E. Paun* refers to management fashion as a danger in the process of conceptualizing educational management;
- *Gilbert de Landsheere* defines educational or pedagogical management as a pedagogical, interdisciplinary discipline, which studies the events that intervene in the decision to organize a determined pedagogical activity and in the management of educational programs.

Education management appears as a border discipline, which studies the events involved in the decision to organize a specific pedagogical activity and in the administration of educational programs.

Therefore, educational management expresses at the macrosystemic social level the set of mechanisms and resources regarding the design, implementation and evaluation of the entire educational activity.

Management in education also has responsibilities aimed at the micro level, namely those aimed at verifying at the level of school organizations the degree to which the main conditions that any reform must meet in order to be validated as such are satisfied:

- Durability over time;
- obtaining significantly better results than in the case of previous practices;
- justification of costs through recorded performances; the absence of negative interference with other fields of activity.[7]

From an action-value perspective, educational management is objectified in a complex process of coordination and decision-making guidance of the structural groups in order to achieve the correct and efficient objectives set regarding the quality of the educational act.

Bearing in mind that each stage/phase/form of the process of evaluating school results requires organization/directing/completion, which corresponds to the functions of the management process, we record the emergence/formation of such a discipline/process with the name of *management of results evaluation school*, which is based on various educational policies and has a legally grounded reference framework.

Therefore, from the considerations analyzed and presented above, we deduce that the **management of the assessment of school results** *as a process of systematic organization and effective administration of the continuous and systematic stages of the collection, processing and contextual interpretation of information about the quality and dynamics of school results and of adopting some decisions according to the educational purposes and the purpose of the evaluation actions.*

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## THE PEDAGOGICAL DIMENSION OF THE PHYSICAL LEARNING ENVIRONMENT IN THE UNIVERSITY SYSTEM

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**Abstract.** *Nowadays there are unlimited opportunities to learn anytime and anywhere, in various environments, whether physical or digital, formal, informal, or non-formal. The teaching staff aims to create a learning environment that facilitates, stimulates, and optimizes the students' abilities to learn to easily adapt to the dynamic changes of society. The present paper showcases the learning context as a physical dimension of the learning environment. It is commonly accepted that the physical classroom represents an agent of change. It has also been assumed that each adjustment in the physical learning environment will produce deep transformations in the education system. Moreover, the learning space will reconceptualize the entire educational philosophy. Living in a highly globalized and digitalized era, the learning context has been explored from the perspective of introducing dual education at the university level, both at the Academy of Economic Studies of Moldova and the Technical University of Moldova. The dual education framework in professional technical education has been adopted as a platform that enables universities to prepare students fully equipped for their jobs. The dual education approach has also been analysed from the perspective of strengthening student learning since it provides a real-life environment that makes the learners combine theory with practice. While the theoretical courses are carried out at university, in traditional lecture halls or labs, the practical classes are organized in the company. The partnerships between the university and the industry will only contribute to forging a synergy between traditional and modern, theory and practice, classroom and real-life environments. Through this form of learning, our students will be more connected with the labour market, and the academic staff will manage to create a more efficient and more impactful learning process.*

**Keywords:** *dual education, globalization, learning space, labour market, partnerships*

**JEL Classification:** H75, I20, I23, I25

*Motto: "If you want students to come to school  
and feel delighted to be there,  
then don't put them in an old school...".  
(Ron Christie)*

### **INTRODUCTION**

In the context of recent multi-dimensional and multi-aspectual developments, global society is facing various tensions, people marked by economic crises, pandemics, and wars are gripped by a deep over-excitement, which compels them to rummage feverishly through the stock of uncertain solutions. "Contemporary globalization works on asymmetric bases argues the

sociologist Constantin Schifirnet, and, at the same time, forces all societies connected in one way or another to the global market to operate more or less profound reforms to comply with the imperatives of this indispensable sources of income and, paradoxically, of subordination, economic and not only." (Schifirent, 2016)

The globalization framework and the emergence of the so-called global culture "achieved not only through access to huge information systems, but also postulating a strong reference to what we could call international civil society." (Cosma, 2004) Vertiginous globalization, beyond the material flows that are increasingly reconfigured into digital ones, calls for imperative actions to reorganize both the global and national educational systems. Or, "The need to overcome tensions, even if they are not inner ones, will occupy a central role in the issues of the XXI<sup>st</sup> century. Knowing the ways of manifesting states of tension, the causes that generate them, can introduce us to the decoding of the complexity and diversity of the poles generating anxiety or, on the contrary, confidence in finding solutions to solve it." (Cosma, 2004)

The concept of globalization is a comprehensive one and it affects all aspects of human activity, including education. Of course, "technology is now developing simultaneously in the material and immaterial spheres, through services and information, a process in which occupational diversification is a more visible trend than sectoral diversification. The implications are not found only at the level of production, in its characteristics and structure, but society as a whole becomes an active participant: by supporting societal needs, by raising awareness of ethical aspects, by redefining educational principles." (Cojanu, 2018, p.62)

As a consequence, countries worldwide are trying, especially in the context of the strategic development objectives stipulated in Agenda 2030 - Sustainable Development, to meet the needs of the labour market, needs which, most of the time, are perceived through the prism of the non-compliance of university education with these needs. "In the Republic of Moldova, the adaptation of the 2030 Agenda began as a result of the collaboration between the Government, the UN Moldova, as a key development partner of the Republic of Moldova, and the Expert Group, which provided analytical support to the entire process. The task consisted in identifying the relevant and priority objectives for the Republic of Moldova, as well as adapting the objectives to meet the national specifics (without affecting the nature and spirit of the SDO objectives)." (Adaptation of the 2030 Agenda)

## **CONTENT**

Starting from the idea of the national priority of education, we specify that "the Republic of Moldova promotes an educational policy connected to European and international educational policies, relevant for solving the current problems and needs of the educational system and its beneficiaries." ("Education 2030" Strategy) Education is subordinated to the need to capitalize on human potential globally, focusing on the development of intellectual and psychophysical qualities, aesthetic and moral sense, and behaviour to optimally integrate into the present and future society.

"Given that *education* is both a goal and a means that contributes to the achievement of the country's socioeconomic development objectives, the "Education 2030" Development Strategy

exploits the pillars and sustainable development objectives provided for the "Moldova 2030 National Development Strategy" and transposes them into value axes and strategic visions on the development of education in the short and long term." ("Education 2030" Strategy)

"The globalization of education becomes a specific condition for quality education, one of the directions for the development of pedagogical theory and practice, focused on human training for a world in permanent change." (Callo, 2008, p.33)

The ongoing transformations and reforms, such as those carried out within the "Education Reform in Moldova" Project (PRIM), implemented between April 2013 and December 2022, the Higher Education Project in Moldova, implemented between 2020-2025, financed by the World Bank, focuses not only on general education and vocational training but also on the development of a new, more flexible model of people's behaviour in life and works under existing conditions, "improving the labour market orientation of higher education institutions and improving the mechanisms of quality assurance." (MCR, 2022)

A modern education system must constantly monitor changes in the demands of the labour market. In this sense, beyond the traditional indispensable component elements: the student, the knowledge, i.e. the scientific-practical content delivered to the educational beneficiaries, the teacher, the *environment* intervenes as a safe framework for the training/development of professional and transdisciplinary skills, a context of help and facilitation of interpersonal communication.

Pedagogical literature displays several meanings attributed to the learning situation, such as: "learning *context*"; set of conditional factors of education processes; *position* in which the subject of the educational action is placed, i.e. the person "put in the situation", (Nicorici, 2015, p.247) *learning space*, etc.

The concept of *context* originates from the Latin *contexere*, which means "to weave together". In the educational field, the learning environment/context is seen as a process of collaboration and interaction with the act of learning. A very relevant factor in educational activities, which, unfortunately, is often overlooked, is the impact of space, i.e. accessibility and flexibility, on learning. In other words, the design of a learning space influences the learning process, therefore, any design of the educational space must represent an "architectural embodiment" of the learning theory, presented more and more frequently as "built pedagogy".

In *ancient times*, education took place either in the open air or at the so-called teacher's house. The disciples learned from daily practice and routine and from the teachers' speeches, which today would correspond to the experiential method on the one hand, and the expository, one-way interaction, on the other.

In the early Middle Ages, which was also called the "Dark Ages" because there was a deep cultural decline in Western Europe, schools were usually located near medieval churches, which did not exactly provide the best conditions. "A small room with a low vaulted ceiling. Rare rays of sunlight make their way through the narrow windows. Boys of different ages sit at a long table. Good clothes betray the children of rich parents, there are no poor people here. At the head of the table is a priest. In front of him is a large handwritten book, and nearby there is a pile of rods. The priest mutters prayers in Latin. Children mechanically repeat incomprehensible words after him." (ik-ptz.ru, 2022)

In the *Middle Ages*, the first educational institutions were monastic and church/religious schools, where education experienced a cultural rise starting with Charlemagne's reign and later on with the "Carolingian Renaissance". It was during this period that religious educational institutions were established both conceptually and physically.

"Two main types of church educational institutions developed in early medieval Europe: episcopal (cathedral) schools and monastic schools. In some monasteries, there were internal schools, which trained clerks, and external schools, which trained simple people: in the first ones, they taught boys, whom their parents gave to monasticism and lived in monasteries; in the latter one - the children of the inhabitants of this church parish (laymen). Parochial schools were located in some church buildings or in the priest's house who took over the children's education. Monastic and cathedral schools, as a rule, had special rooms intended for teaching."(ik-ptz.ru, 2022)

Between the XII<sup>th</sup> - XV<sup>th</sup> centuries, school education went beyond the framework of churches and monasteries, and thanks to socioeconomic and political evolution, the so-called urban schools and universities appeared. Among the first urban schools (XII<sup>th</sup> - XIII<sup>th</sup> centuries) we can mention those in London, Paris, Milan, Florence, Lübeck, Hamburg, etc.

The oldest university in Europe considered a "free school" in the first half of the 12<sup>th</sup> century and the beginning of the XIII<sup>th</sup> century is considered the University of Paris. It was located as a physical space within the Notre Dame Cathedral in Paris.

In the XIV<sup>th</sup> - XV<sup>th</sup> centuries, the so-called *colleges* appear. An important point to make is that at the beginning, this was the name of the student dormitories, later they started holding lectures and debates in the given spaces, a fact that conditioned the reconceptualization of those spaces into learning environments. One such institution, the Sorbonne College, founded by Robert de Sorbon, confessor of the French king, evolved and expanded conceptually and physically into a new higher education institution, namely the Sorbonne University of Paris, considered the largest higher education institution of the Middle Ages.

If at the beginning of the XV<sup>th</sup> century in Europe students attended 65 universities, then at the end of the century, the number of universities increased to 79. The most famous were Paris, Bologna, Cambridge, Oxford, Prague, and Krakow. (ik-ptz. ru,2022), many of which function nowadays, aiming to exhibit and reinforce an institutional culture with old university traditions. And if in the urban environment we notice colleges and universities, then in the rural environment we can see schools with one room, where children of different ages study, called: the *blab school*, the *vocal school*, the *ABC school*, etc., and even Abraham Lincoln attended such a school. (upwikiro.top, 2022)

In the *pre-industrial period*, until the XIX<sup>th</sup> century, "personality formation was predominantly influenced by informal education, coming from the person's living environment, while the *industrial period*, the second half of the XIX<sup>th</sup> century the - the 80s of the XX<sup>th</sup> century, is characterized by an explosion of schooling."(Dandara & Negrei, 2021) We come across the so-called *institutionalized education*, which is equivalent to the notion of *studying/learning*. In the above-mentioned period, a reconceptualization of education can be observed, extending from a duration of 3-4 years, corresponding to the age of 7/8-10/12 years, to about 20 years later, with ages ranging between 3-23 years.

The massive industrialization of this period highlighted the need for intensive professional training of a large number of workers who could easily conform to the conditions of the large factories. From the perspective of the organization of the physical environment, the solution for the demands put forward by the rigours of professional education of the time was the so-called "factory model" and "the cells and bells" schools, named by Nair and his colleagues (2013) and the Ford Model. The description brings into focus the flow of the industrial organization of today's schools, focused on maximizing efficiency, strictly compartmentalized, by classes and groups, fragmented by the sound of the saving bell.

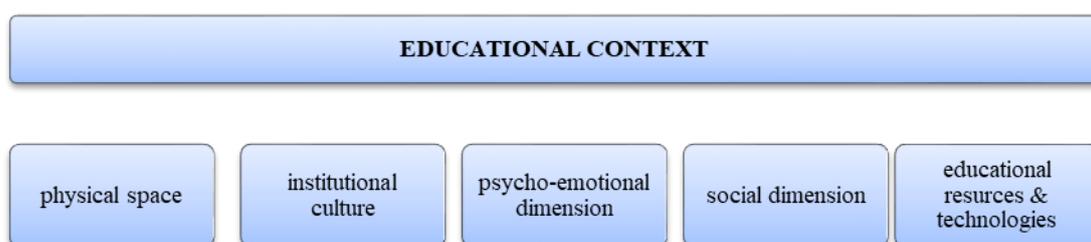
The standardized *Factory School* model, from the late XIX<sup>th</sup> century to the early XX<sup>th</sup> century, was the most common schooling form in many parts of the world. The classrooms and facilities were set up in "assembly lines", the disciples' desks and chairs were arranged in rows, often fixed in position, facing the teaching wall. Classrooms were also arranged in rows along double-loaded corridors. This pattern is also known as "cells and bells".

The use of the term "factory model school" dates back to the 1980s, being attributed to educational leaders such as Dr. Howard Lamb, Theresa Jablonski, Marilyn RothAl Shanker, etc. "The 'bells and cells' model is a common approach to design, but it has not been universal."(wikipedia.org, 2022)

From the definition suggested by the Educational Reform Glossary of August 29<sup>th</sup>, 2014, we derive the idea that an educational context forms a three-dimensional paradigm in which the teaching-learning-evaluation process takes place, namely:

- physical location
- the culture of an institution
- educational approaches.

Synthesizing scientific approaches from the specialized literature, we identify several distinctive constitutive components for a learning context, as reflected below:



The **context** represents the set of relationships between the learning agents and the environment in which they occur. The learning environment is approached two-dimensionally, referring to both the culture and the physical space created by teachers and students. "Learning space or learning setting refers to a physical setting for an educational environment, a place where teaching and learning occur. The term is commonly used as a more definitive alternative to "classroom", but can also refer to an indoor or outdoor location, real or virtual.

In addition to the above-mentioned models (*the blab/vocal school, the factory model school / "bells and cells"*) through the '60s of the XX<sup>th</sup> century, thanks to a progressive pedagogical movement, schools were developed, especially in Europe and North America with open classes, i.e.

without internal walls, thereby aiming for team teaching-learning, student mobility between learning areas. However, the lack of sound separation and visual distractions made this model fall out.

Learning spaces are extremely diverse in use, learning styles, configuration, location, and educational institutions supporting a variety of pedagogies, including quiet study, passive or active learning, kinesthetic or physical learning, vocational learning, experiential learning, and others.

Undoubtedly, the subject of the physical learning space is also of increased relevance for university education, especially for universities in the ex-Soviet space, where the teaching-learning process was unidirectional, and oriented towards imparting knowledge, respectively, the design of the spaces was distinguished by a standardized, uniform design and, according to us, very stiff.

The *Post-industrial period* showcases the continuous and multidimensional nature of education, increases the role of the student, or the teaching-learning process is one focused on the student. This form of education through which the person programs/designs his personal and professional development process calls for universities, and the community as a whole, to reconceptualize learning spaces. Preferable, in our opinion, would be the implementation and development of spaces following the *Model Learning Community*, which involves structuring the interior physical space in such a way as to provide more of an environment for personalized learning, including collaboration between teachers and students, interdisciplinary studies and learning based on projects.

Currently, the universities of the Republic of Moldova, although they have certain common study rooms, are increasingly reconfiguring their learning spaces into mobile areas, separate clusters or collaborative spaces or team learning centers, HUBs, open-space areas, etc. This means that the learning context/environment should be both in universities, but also outdoors, in the online environment, and outside the premises of the university campus, in other words, the classes should become authentic, extracted from reality, reflecting real-life needs. Of course, the goal of the educational actors (the student, the teacher, institutional decision-makers, LPA, CPA, as well as stakeholders, etc.) is to focus on the creation of a learning environment that facilitates, stimulates, and optimizes the ability of the learners to learn to achieve performance. To achieve an effective training process, it is necessary to explore the learning context, to make it attractive, innovative, collaborative, playful, and easily adaptable for various needs.

The present scientific approach showcases the learning context/space/ environment, called by Loris Malaguzzi and the "third teacher", as an agent of change, that assumes that each adjustment of the physical space will produce transformations in the didactic system, even reconceptualizations in the educational philosophy. However, the educational context influences strategies, teaching-learning-evaluation techniques, and teaching aids.

The development of the ability to transfer knowledge in new contexts does not occur by itself through the diversification of contexts, but through the good organization of the learning sequence, placed in a meaningful context.

The father of proxemics, E. T. Hall considers that space sends an extremely deep non-verbal message, making silent but visible statements ("space speaks") and, speaking before the teaching staff and, sometimes, in their place.

Considering the rapid evolution of information technologies, it is obvious that the models of virtual classrooms are becoming more and more ubiquitous. “The *Virtual Learning Environment* model (VLE) is a web environment or platform for learning, usually within educational institutions. VLEs typically: allow participants to be organized into cohorts, groups, and roles; present resources, activities, and interactions within a course structure; provide different stages of evaluation; participation reports, and have a certain level of integration with other institutional systems.”(upwikiro.top, 2022)

Because of the pandemic caused by COVID-19, in the Republic of Moldova, all universities, along with other educational institutions, have developed the Virtual Learning Environment model within the educational space. The Academy of Economic Studies from Moldova (ASEM), the Technical University of Moldova (TUM), etc. have actively implemented virtual learning spaces on the MOODLE platform, Teams, etc. continuing to use them along with other new educational platforms. In the case of these types of rooms, the ergonomic rigours aim at adequate furniture/space, wi-fi connectivity, acoustic insulation, etc. Moreover, this can be almost any environment with access to a wireless telephone, Internet, or communications network.

Starting from the idea of a healthy way of life, an idea of space would also be outdoor classes, the *California-style schools*, an example representing a "set of buildings that form together a single school or educational institution but which are not connected by closed internal corridors. All movement between major spaces is out of doors. This is similar to a university campus, but with buildings that do not have major internal circulation routes, as would be found in a faculty building". (upwikiro.top, 2022) Partially this model is also used in the Republic of Moldova, but it has not become a widespread experience, mainly because of its inadequacy in unfavourable weather in certain periods. For universities, this space is used more often in non-formal education.

An interesting solution is the *model of portable classrooms*. “This model consists of modular buildings which are also colloquially known around the world as portables, bungalows, cabins, trailers, lodges, T-buildings or relocates. They are created in a factory and delivered in two or more sections to an educational facility. They are assembled into one or two classroom buildings, normally without permanent foundations so that they can be removed. Their normal purpose is to provide temporary classroom space for schools that require additional instructional space”. (upwikiro.top, 2022)

To effectively develop the professional skills of the young generation, closer and more intensive collaboration between employers, the business environment/the industry, and universities are required. In this sense, **dual education** was conceived based on the collaboration between the *economic operator*, the *educational unit*, and the *administrative-territorial unit*. The value of the learning space results in dual education meaning that the theoretical training is carried out in the educational institution (university), and the practical one –is at the economic agent.

In our country, the dual system was introduced by law in 2014, but there are countries where this system has demonstrated its priorities, an eloquent example in this regard being Germany. In this country, the employment rate of graduates of this form of education is approximately 90%, with apprentices being paid most of the time even after the first year of training in the company.

The "duality" of this form of instruction consists of the fact that the degree courses are divided into practical and theoretical ones. The theoretical classes are held directly at the university as lectures, seminars, project work, and exams at the end of the semester. The practical part of a degree begins when students do their internship in a company with which the HEI has a training agreement. At the same time, students are given a good opportunity to directly understand the work processes in the company, gain real experience by getting involved in real-life production situations, and be involved in developing internal projects.

The Academy of Economic Studies of Moldova and the Technical University of Moldova, have moved their learning spaces from the university campus to enterprises, becoming the first universities in the country to implement the dual education model under the "COOPERA - Integrating Dual Higher Education in Moldova and Ukraine" project: 617490-EPP-1-2020-1-MD-EPPKA2-CBHE -SP, co-financed by the Erasmus+ program of the European Union.

ASEM, "following the consultation with the representatives of the companies, decided to adopt the following training model: 60% of the total number of study hours will be spent at the institution, 40% at the enterprise. In this way, all lectures will take place at the university, being taught by full Associate Professors and by specialists selected from the industry. A specific number of seminars and laboratory lessons will be carried out at the university, and the other part will be carried out within the economic units, the students being financially remunerated during their studies." (diez.md, 2022)

The Technical University of Moldova, also in the framework of the same project "COOPERA - Integrating Dual Higher Education In Moldova and Ukraine", adapted the requirements of dual education for two undergraduate engineering programmes in *Automation and Informatics* and *Robotics and Mechatronics*. "(fcim.utm.md, 2022) This approach can be translated into the fact that engineering students from TUM will also alternate their learning space: "Students from two undergraduate programmes *Automation and Informatics* and *Robotics and Mechatronics* who choose the dual model will complete 120 hours during the 2<sup>nd</sup> year at the company, and in the 3<sup>rd</sup> and 4<sup>th</sup> year they will spend 2 days at the university, studying the subjects from the study plan, and the other 3 days they will study at the company, that will help them develop practical skills and professional competences." (fcim.utm.md, 2022)

## CONCLUSIONS

Synthesizing the information presented, we conclude that in the postmodern era representation the idea of school/university no longer represents a commonplace: study buildings, no matter how modern they may be, with large and bright windows or small and economical, fenced yards, possibly with a gym/sports field and classrooms, laboratories, rigid, dark classrooms with tables, benches lined up in front of a chair. Or, the graphic representation and design of the learning space last over time in human memory.

Given that the learning environment is the place where we spend a large part of our lives, it must dominate in the individual's representations as areas of physical and, obviously, psychological comfort. A favourable learning environment "is a place that, if structured effectively, creates a mood for learning, amplifies this process, stimulates creativity, imagination, motivation, produces rapid development and contributes to well-being." (Nedelcu, 2019, p. 20)

Whatever the trend of modernizing education and, the learning spaces, it is important to take into account the beneficiaries' needs, students, in our case: *flexibility* and *interaction*, achieved by dynamizing spaces in the business environment, *experientiality*, and *productivity*, developed through involvement in situations drawn from real life, *multisensory communication*, adjustability of spaces for special sensory or kinesthetic needs, *safety* and *sustainability*, building learning ecosystem, *academic* and *professional* character, virtual expansion of classes, building hybrid environments ( traditional/virtual, university/company), etc.

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## INTEGRITY - THE CODE THAT DEFINES PERSONALITY IN THE EDUCATIONAL AND PROFESSIONAL ENVIRONMENT

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**Abstract:** Integrity is the code that defines the personality of an institutional manager, a university teacher, a student, an economic agent, etc. Not coincidentally, the authors Ludmila Roșca and Constantin Lazari emphasize that the purpose of universities is to „seek and transmit the truth under the sign of science and morality.” In the same vein, the authors Valentin Mureșan and Mihaela Constantinescu state that universities must also create a moral context, which can be created through seven organizational virtues: 1- clarity in moral requirements; 2- consistency in the ethical regulations of the university (ethical policies and strategies); 3- feasibility (feasibility) in implementing the moral requirements of behavior; 4- motivating university members in supporting the adoption of ethical behavior; 5- visibility in monitoring immoral behaviors; 6- evaluation of the formal and informal means through which the members can openly discuss the ethical problems and dilemmas they face in the academic environment; 7- the sanctionability of immoral behaviors. The integrity of an educational organization can be created through the prism of an „organizational culture”, and the 360° Feedback can serve as a way to re-evaluate the behavior of an employee / manager, etc. The integrity of an organization can also be quantified. For this purpose, for example, the IntegrityMeter Test can be applied. Integrity in the educational and professional environment can be cultivated through morality, reasoning, fairness, honesty, respectful treatment of all parties involved in educational and organizational processes, but also through the „Six-element model that can ensure integrity”, namely: ethics organizational; corruption prevention and control; organizational and business skills; competitive effectiveness and efficiency; the possibility of external control; conflict resolution. An „Integrity Agreement” or „Voices of Academic Integrity” and „Voices of Corporate Integrity” can be a true philosophy of European integration.

**Key words:** integrity, promoting and cultivating the integrity of the moral organization, moral university, organizational virtues, voices of academic integrity, voices of corporate integrity.

**JEL Classification:** I25, M14, M53

### 1 Introduction

This article aims to bring to the attention of the university environment and the entrepreneurial environment the dimension of INTEGRITY - the code that defines the personality of an institutional manager, of a university teacher, of a student, of an economic agent etc. In order to affirm meritocracy, ethics and academic integrity, it is necessary to cultivate certain organizational virtues and to promote *morality, reasoning, fairness, honesty, respectful treatment of all parties involved in the educational and organizational processes, the power of example*. Or, in the educational and professional environment, *integrity* must be conceived as a set of individual and organizational virtues without discrepancies between statements and actions. In this sense, the statement of James E. Faus is eloquent: „Integrity is the light that shines out of a disciplined consciousness” posted on the website of the *National Integrity Authority* [1]

The authors Ludmila Roșca and Constantin Lazari, in the monograph „Ethics and university integrity: experiences, achievements, problems”, emphasize: „*University integrity* aims at uniting education with research, with production. As has been established historically, universities remain selective in their work today, and young people who go through a university experience remain profoundly transformed throughout their lives. The research recruits people exclusively through university training, which means that the license becomes only the basis for future selection for higher levels of personal training. And the wider the recruitment base, the greater the chances of discovering better and more endowed human resources. Today, elites, exceptionally gifted individuals, are not only trained in higher education institutions, they are trained more in masters and doctorates. And yet, the purpose of the universities remains the one established initially, from its appearance to seek and transmit the truth under the sign of science and morality. Universities should, like large companies, educate the demand, offer study programs of the future. In the 21st century, the university remains to be considered a stable institution of the future with the following characteristics: multidisciplinary, presupposes permanent education, integrates science, teaching and production, treats information appropriately and has a special work rhythm.” [2, p.74]

## **2 Content and methods**

In elaborating this article, the following methods were applied: *bibliographic documentation; question method 5W1H: Who? What? When? Where? How? Why? the method of analysis and synthesis of the literature in the approached problematics.*

### ***How can be created the integrity of an educational institution?***

Authors Valentin Mureșan and Mihaela Constantinescu state: „*A moral university is one that creates a moral context for its members by developing organizational moral virtues.*” [4, p.44]

And the authors also emphasize that this moral context can be created through the prism of *seven organizational virtues* necessary for a moral university, and namely:

- ***Clarity in moral requirements*** (Code of Ethics / Code of Honor / Academic Integrity Guide);
- ***Consistency in the ethical regulations of the university - ethical policies and strategies*** - (the model of conduct of teachers towards students, hierarchical superiors towards its staff must be one in accordance with the moral, ethical requirements of the university);
- ***Feasibility in implementing the moral requirements of behavior that can be realistically achieved by its members***, taking into account the availability of the necessary resources of time, knowledge, equipment, budget or authority (exaggerated requirements of research results should not lead to a possible violation of the moral rules, to the fabrication of the data of a study);
- ***Motivating university members in supporting the adoption of ethical behavior*** (encouraging members of the academic community to report the immoral actions of members of the academic community);
- ***Visibility in monitoring immoral behaviors*** (how the academic community evaluates / monitors the violation of moral rules and what measures are taken to identify and sanction);
- ***Evaluate the formal and informal means by which members can openly discuss the ethical issues and dilemmas they face in academia*** (for example, in the Ethics Committee, with the involvement of an ethics advisor, organizing ethics trainings etc.)

- **Sanctionability of immoral behaviors** (we evaluate the way in which moral rules are violated and sanctioning copying / cheating on exam / plagiarism / falsification of data / deviations, etc.) and rewarding the moral behaviors of members of the academic community. [4, p.47]

In support of *the first two organizational virtues - clarity in moral requirements and consistency in the ethical regulations of the university* - we also exemplify the position of authors Ludmila Roşca and Constantin Lazari who state: „The codes of ethics in higher education institutions must contain clear, explicit formulations of the values, ideals, principles and moral norms that the members of the university community agree and undertake to respect.” They contain positive principles and norms that show the moral standards that need to be observed, and in case of their violation, the punitive norms apply. Among the essential values and principles that need to be promoted by higher education institutions are: *justice and fairness, professionalism, merit, honesty and intellectual fairness, respect and tolerance, responsibility, academic freedom, personal autonomy, goodwill and care.*” [2, pp.57-58]

Regarding *the third organizational virtue - feasibility in implementing the moral requirements of behavior* - the authors Ludmila Roşca and Constantin Lazari state: „It is necessary for them to possess not only the knowledge and skills required by employers, but also to manifest proactive behaviors and attitudes, able to generate as much added value for the customer as possible for employers. It is necessary to know and agree on the concepts of functional market economy, the role of the university as the main external client of the economic environment, provider of intangible products (competence, knowledge), services (training, research, consulting, training, design, etc.). (...) The process of customer satisfaction, the requirements of the customers in the process of selecting the product, service, manufacturer, provider, are increasingly directed not only to their meaning and identity, but to respect moral values and ethical norms. Under these conditions, the university must know completely and correctly the requirements / needs of the society and the economic environment, so that later, after providing the products / services, it can collect the reactions of satisfaction or dissatisfaction. If a university, for various reasons, does not accept these requirements, it will simply be overtaken by other universities that agree to enter this game, which will consequently have more and more customers willing to pay because they will be sure - after graduating from university they will be hired faster. The lack of such a practice in higher education also leads to the fact that, currently, more and more graduates cannot work or are forced to work in other fields, or to continue their studies in other fields, last but not least, to emigrate. In the member states of the European Union, the university has an important role in achieving **benchmarking** (the standard based on which something can be measured or assessed) not only in academia, but also economically. This technique of evaluating the performance of an organization in terms of its quality consists of an in-depth evaluation and detailed analysis of the practices, processes and results of a particular university (organization) considered as a reference leader, a strong competitor recognized in the market. The goal is to compare their own performances, practices, processes, services, products, etc. with those of the leader and to identify certain practical, viable solutions that would allow, consequently, to increase one's own competitiveness. Thus, there is an exchange of experience, the principle is applied „*If they could, we can too! If they succeed, we will succeed*”

**too!”**, and the university establishes new objectives, plans and action programs that allow it to gain the desired competitive advantages.” [2, pp.89-90]

Regarding the *fifth organizational virtue - visibility in monitoring immoral behaviors* - the authors Ludmila Roşca and Constantin Lazari emphasize: „A necessary condition for the proper functioning of all activities in the university environment is the achievement of the principle of transparency. Thus, honest information is provided, meant to stimulate well-founded and constructive criticism. At the same time, the misinformation, falsification or distortion of the information to which the members of the university community, the general public, as well as any form of concealment or manipulation of the relevant information and facts are entitled, shall be prohibited.” [2, p.85]

In regards to the *sixth organizational virtue - the evaluation of formal and informal means by which members can openly discuss the ethical issues and dilemmas they face in academia* - authors Ludmila Roşca and Constantin Lazari state: „For a Code of Ethics to be applicable, there must be a mechanism for its implementation, which involves the existence of a body (of people) responsible for supervising and controlling compliance with the code, creating and operating a system of complaints about code violations, familiarizing members of the university community about the provisions of the code, applying sanctions in case of code deviations, publicity of information about non-compliance with the code. The Commission of university ethics is the body that must supervise the practical application of the Code of Ethics. It includes persons with professional prestige and moral authority, representing teachers, students and administrative staff of the institution. The Commission must examine violations of the code, protect members of the university community from abuse, denigration, slander, and apply, as appropriate, sanctions to persons who violate the provisions of the code. The Commission operates on the basis of a statute (regulation) which is an integral part of the Code of University Ethics.” [2, p.58]

Regarding the *seventh organizational virtue - the sanction of immoral behaviors* - the authors Ludmila Roşca and Constantin Lazari emphasize: „In the university environment, honesty and intellectual correctness are mandatory both for teachers and researchers, as well as for students and administrative staff. (...) Lack of academic honesty can be manifested by deception, facilitating deception, fabricating data, obtaining undue advantages, etc. The right to intellectual property needs to be defended, and the benefits and rewards to be granted strictly professionally and only to those who have proven and recognized merits. Intellectual property includes inventions and copyrights for different categories of works.” [2, p.84]

#### ***So how can the integrity of an organization be created?***

***Integrity is essential for the organizational environment just as man needs air.*** Or, practitioners are right when they notice that it is unlikely that a customer will agree to work with a company that does not have an ethical, moral behavior toward him (when misleading him) and, unlikely, that employee’s pleasure to go to work in an environment where deviations from integrity (through inappropriate management and motivation practices) is the norm.

Here is an example quoted by the *HR Passion Blog*: „When the employee is subjected to pressure (especially verbal), without written coverage from the manager, in which he is asked to violate certain rules with more or less legal impact, to have inappropriate behavior is a „bullying game.” How can the truth of what the employee said be proven without supporting documents and

what is the connection with what we call the „organizational culture” of that company? The situation can be reversed, but it will be a little easier for the manager, having more ways of coercion. In such a context, the truth is confused with the game of manipulation and no matter how right the person would be, in the absence of written evidence, his „truths” are null. He helplessly witnesses a real process, in which everyone is involved and few are those who do it in depth, in which to re-evaluate both the employee's skills, his integrity and the integrity of the manager, the criteria based on which he was elected manager. The connection with the dimension of *organizational culture* is obvious - the promoted people have or should have those values on which the organizational culture was built (for example, integrity, respect, decision-making regardless of their nature). *The 360 feedback* as a way to re-evaluate the two parties involved is obviously useful, but it is also subjective, each of us knows the other only in a certain situation and relates not to the case itself, but to their own experience with that person” [3]

***How can the integrity of an organization be quantified?***

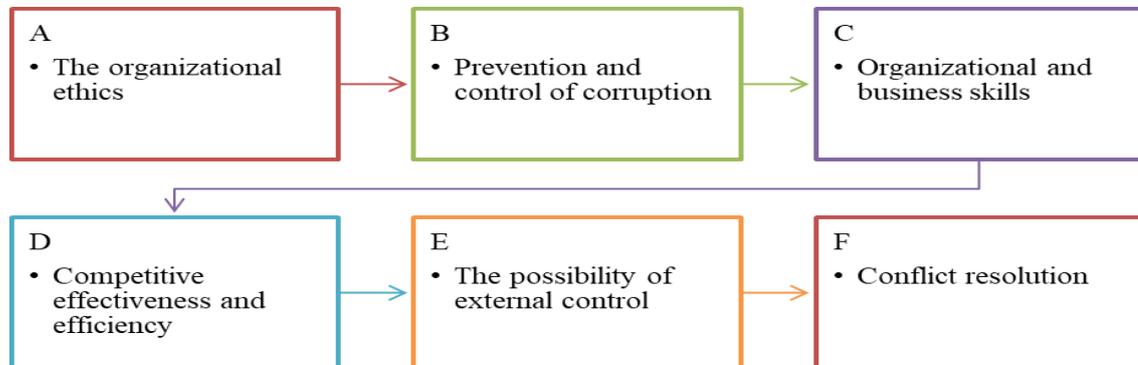
Undoubtedly, behaviors are the only ones that can be measured. Thus, in a collection interview with Daniela Corciova, one of the key managers of „Integrity Meter” (Romania) mentions: „Experience in the field of human resources and security has helped to immediately understand the benefits that the test can bring. I noticed a need of Romanian organizations to verify not only the skills and professionalism of a candidate, but also his integrity. In the past, the only way to do such a check was a background check or a polygraph test. The same need was identified 12 years ago in Israel by Menachem Gozlan, an expert in polygraph investigations and testing, and Dotan Shavit, an expert in software development. Together they created the „***Integrity Meter Test.***” [3] According to Daniela Corciova, *the Integrity Meter Test* can be applied and can have significant results regardless of the field of activity and the position tested. It is assumed that most candidates are honest, but a single inappropriate employee can unbalance an organization.

***So how can integrity be cultivated in the educational and professional environment?***

Of course, ***cultivating integrity*** in the educational and professional environment requires ***morality, reasoning, fairness, honesty*** and ***treating with respect all parties involved in the educational and organizational processes.*** One of the best ways leaders can promote this type of behavior in teams is by *the power of example*. An honest leader will make his team act and behave similarly, thus ensuring a working style.

Given the fact that companies are diversifying and employees are people with different backgrounds and values, it is recommended to reach an *agreement of conduct, an integrity contract*, especially when there is a risk of conflicts (similar to the *integrity pact* - objective and responsible monitoring of public money spending, being essential in ensuring transparency and, in the long run, democracy).

Oscar Daniel Franco Conforti, professor of *Legal argumentation and negotiation* (Universidad Oberta, Cataluña) proposes a *model of six elements that can ensure integrity*: [5]



**Figure 1** The six key elements of integrity

Source: based on Daniel Franco Conforti (2018)

### 3 Conclusions

Therefore, **integrity** motivates us towards mutual respect, ethical educational environment, secure employment, fair wages, intellectual property rights, compliance with certain privacy policies, social media and the media, correct decisions and coherent actions in promoting innovation, diversity and inclusion, improving the quality of life, serving the community. The elaboration and weekly publication of a *Journal of Academic Integrity* (intended for the university environment) and a *Bulletin of organizational integrity* (intended for employees) - would be a good premise for promoting and cultivating an „*Integrity agreement*” with a generic as valuable, so promising: „*Voices of academic integrity*”, respectively „*Voices of corporate integrity*”. [6] Or, the philosophy of European integration is also reflected in the principle: „*If they could, we can too! If they succeed, we will succeed too!*”

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## CORRESPONDENCE OF NATIONAL LEGISLATION WITH ILO/EU STANDARDS REGARDING NON-DISCRIMINATION AND GENDER EQUALITY AT WORK

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***Abstract.** Currently, ensuring and continuously promoting equal opportunities between women and men in the field of labor relations is becoming more and more visible, both at the international and at the national level. This fact is confirmed by the multiple initiatives in the field, undertaken by international organizations, by the approval of various national normative acts and strategic documents. Republic of Moldova also has a developed legal framework that ensures equal opportunities for women and men, including in the field of labor relations. Several strategic documents aimed at addressing the issues related to ensuring equal opportunities between women and men in labor relations were approved. However, despite all the efforts undertaken by the public authorities of the Republic of Moldova, it can be observed that the situation on the labor market cannot be characterized as a successful situation in terms of overcoming gender inequalities.*

**Keywords:** Gender equality, work legislation, labor relations, CEDAW Convention.

**JEL Classification:** J8

### **Introduction**

Equality of opportunities between women and men is a concept that involves ensuring equality of rights and opportunities for women and men in the multitude of existing social relations, including within labor relations, by eliminating all social barriers that affect their achievement. The very content of the concept of human development advocates equal opportunities for women and men in all areas of life – economic, social, cultural and political. It opposes discrimination against women, the violation of their rights and their specific dangers, such as personal safety, domestic violence or sexual abuse, etc.

Not in vain, since the launch of the Universal Declaration of Human Rights, on December 10, 1948, through which human rights and freedoms were proclaimed "without any distinction (distinction of race, color, sex, language, religion, political opinion or any other opinion, of national

or social origin, wealth, birth or any other circumstances"<sup>18</sup>, ensuring and promoting equal opportunities between women and men becomes a new philosophy, a human value that registers an accelerated development over the years and, therefore, new contents, an objective that is present, practically, in all the development strategies of the countries of the world in recent years.

It should be mentioned that, at the moment, the Republic of Moldova has a developed legal framework that ensures equal opportunities for women and men, including in the field of labor relations. The specific national framework of the Republic of Moldova is based on the Constitution of the Republic of Moldova (art. 16)<sup>19</sup>, the Labor Code (art. 8, art. 10)<sup>20</sup>, Law no. 121 regarding ensuring equality<sup>21</sup>, etc. In 2006, Law no. 5 "On ensuring equal opportunities between women and men"<sup>22</sup> which aims to ensure the exercise of equal rights between women and men in the political, economic, social, cultural sphere, in other areas of social life, in order to eliminate all forms of discrimination according to the criterion of sex.

Several strategic documents aimed at addressing the issue of ensuring equal opportunities between women and men in labor relations were approved, including the Strategy for Ensuring Equal Opportunities between Women and Men<sup>23</sup>, the National Employment Strategy<sup>24</sup>, the Development Strategy "Moldova 2030"<sup>25</sup>.

However, despite all the efforts undertaken by the public authorities of the Republic of Moldova, it can be observed that the situation on the labor market cannot be characterized as a successful situation in terms of overcoming gender inequalities. Various research and analytical studies<sup>26</sup> show major discrepancies between women and men in the labor market that cause negative effects on well-being and financial independence, especially among women. It is about cases of discrimination, harassment or gender differences in the field of employment relations, in particular, in the field of employment, training and professional career or remuneration for work.

The purpose of this article is to highlight some deficiencies of the legislative framework in the field of labor relations in the Republic of Moldova regarding the provision of equal opportunities between women and men in relation to the new provisions of the international normative acts, as well as the causes, why the provisions international agreements inserted in the legislation of the Republic of Moldova regarding the provision of equal opportunities between women and men are not respected. The article provides a gender analysis of the current normative framework in the Republic of Moldova in the field of equal opportunities and treatment between women and men on the labor market. The article ends with the formulation of some recommendations that would contribute to overcoming the shortcomings of the legislative

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<sup>18</sup> UNIVERSAL DECLARATION OF HUMAN RIGHTS of December 10, 1948, (ohchr.org)

<sup>19</sup> The Constitution of the Republic of Moldova, adopted on July 29, 1994 [Constitutia\\_RM\\_RO.pdf \(presedinte.md\)](#)

<sup>20</sup> Labor Code of the Republic of Moldova, COD No. CM154/2003 of 28.03.2003 [CM154/2003 \(legis.md\)](#)

<sup>21</sup> Law no. 121 of 25.05.2012 "On ensuring equality  
[https://www.legis.md/cautare/getResults?doc\\_id=106454&lang=ro](https://www.legis.md/cautare/getResults?doc_id=106454&lang=ro)

<sup>22</sup> Law no. 5 of 02/09/2006 "On ensuring equal opportunities between women and men" [LP5/2006 \(legis.md\)](#)

<sup>23</sup> Strategy on Ensuring Equal Opportunities between women and men 2017-2021, [intr16\\_85.pdf \(gov.md\)](#)

<sup>24</sup> National Strategy for Employment [156 \(Hotărâre cu privire la aprobarea Strategiei naționale privind ocuparea forței de muncă pentru anii 2017–2021\).pdf \(usmf.md\)](#)

<sup>25</sup> "Moldova 2030" Development Strategy [strategia\\_nationale\\_de\\_dezvoltare\\_moldova\\_2030-t.pdf \(gov.md\)](#)

<sup>26</sup> UNEQUAL WORK! An analysis of gender gaps in the labor market from the perspective of employers, employed people, and the unemployed [MUNCA INEGALĂ! O analiză a decalajelor de gen pe piața muncii din perspectiva angajatorilor, persoanelor angajate și ale celor neangajate - Centrul Parteneriat pentru Dezvoltare \(progen.md\)](#)

framework and to the achievement of equal opportunities and equal treatment between women and men in the field of labor relations.

### **International legislative framework on non-discrimination and gender equality at work**

The harmonization of national legislation in relation to the provisions of current international norms in the field of gender equality, as well as ensuring the adequate implementation of this legislation is an objective assumed by the Republic of Moldova as a member of the UN, the Council of Europe, other international organizations, for which equal opportunities between women and men is a key value in their goals. Currently, the Republic of Moldova has a specific legal framework that addresses equal opportunities between women and men, including in the field of labor relations. In this context, the Republic of Moldova has undertaken a series of commitments to international partners to implement policies aimed at reducing gender inequalities in the field of labor relations. Starting from 2016, the Country Program on Decent Work is being implemented in Moldova, which comes to support initiatives at the national level to facilitate equal access of women and men to the labor market. It is, in particular, about the EU-Moldova association agreement, signed in June 2014 and then ratified in 2016<sup>27</sup>, by which the Republic of Moldova undertook to progressively bring its national legislation closer to the EU legislation in the field of employment, social policy and equality of chances.

Since the launch of the Universal Declaration of Human Rights, on December 10, 1948, through which human rights and freedoms were proclaimed "without any kind of distinction, such as, for example, race, color, sex, language, religion, political opinion or any other opinion, of national or social origin, wealth, birth or any other circumstances"<sup>28</sup>, ensuring and promoting equal opportunities between women and men becomes a new philosophy, a human value that registers an accelerated development and spread over the years and , therefore, new contents, an objective that is present in practically all the development strategies of the countries of the world in recent years.

Ensuring and promoting equal opportunities between women and men has become even more relevant since December 18, 1979, when the "Convention on the Elimination of All Forms of Discrimination against Women" (CEDAW)<sup>29</sup> was adopted in New York by the United Nations General Assembly, UN convention that reaffirms trust in fundamental human rights, in the dignity and value of the human person, in the equality of rights between men and women. Through this convention, a series of rights and freedoms reflected in the Universal Declaration of the Rights of Man and Citizen are reaffirmed which affirms the principle of non-discrimination and proclaims that all beings are born free and equal in dignity and rights. The Republic of Moldova joined the Convention on July 31, 1994, having been ratified by Parliament Decision no. 87-XIII of 28.04.1994, and inserted into the national legislation.

The CEDAW Convention is one of the most ratified conventions in the world (187 member states), surpassed only by the Declaration of the Rights of the Child. Based on this convention, a

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<sup>27</sup> [ACORD DE ASOCIERE între Uniunea Europeană și Comunitatea Europeană a Energiei Atomice și statele membre ale acestora, pe de o parte, și Republica Moldova, pe de altă parte \(europa.eu\)](#)

<sup>28</sup> [DECLARATIA UNIVERSALA A DREPTURILOR OMULUI \(ohchr.org\)](#)

<sup>29</sup> Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), adopted on 18 December 1979, [CEDAW romana 1 \(gov.ro\)](#)

series of general recommendations were launched, aiming to clarify those aspects of women's rights that need special attention.

On May 11, 2011, the Council of Europe adopted the **Istanbul Convention on preventing and combating violence against women and domestic violence**<sup>30</sup> (ratified by the Republic of Moldova on January 31, 2022), which aims to prevent violence, protect victims and prosecute offenders. The Istanbul Convention or the International Convention on Combating Violence against Women and Domestic Violence states that the tolerance and non-punishment of acts of violence against women such as rape, domestic violence, sexual harassment, forced marriage or forced sterilization constitute violations of human rights and forms of discrimination on the basis of gender.

The International Labor Organization (ILO) also plays a rather important role in ensuring equal opportunities between women and men in the field of labor relations. The ILO is a subdivision of the United Nations, which is particularly concerned with labor relations issues. Having been established in 1919, together with the League of Nations, it was in line with the aspirations of the countries of the world for social transformation.

Today, the main objective of the International Labor Organization (ILO) is to empower women and men to obtain decent and productive jobs that are free, fair, stable and based on respect for human rights. In the context of the global economic crisis, the ILO puts the issue of employment promotion at the center of economic policies. The ILO mandates the use of macroeconomic tools to prevent further increases in unemployment, creating more opportunities to obtain work and decent incomes. The main instruments of intervention of the International Labor Organization are the Conventions and Recommendations, international normative acts which, being ratified by the governments of the countries, have a binding character, being inserted into the national legislation. In this context, the ILO is doing everything to enable states to extend social protection to all levels of society and improve working conditions. Among the most important Conventions relevant to the promotion of equal opportunities between women and men in the field of labor relations can be named:

**ILO Convention no. 100, regarding equal pay for male workers and female workers for work of equal value**<sup>31</sup>, adopted on June 29, 1951 (ratified by the Parliament of the Republic of Moldova through Law no. 610-XIV of 01.10.1999).

**ILO Convention no. 111, regarding discrimination in the field of employment and the exercise of the profession**<sup>32</sup>, adopted on June 25, 1958 (ratified by the Parliament of the Republic of Moldova through Law no. 593-XIII of 26.09.1995).

**ILO Convention no. 189, on decent work performed by domestic workers**<sup>33</sup>, adopted on June 16, 2011. It entered into force on September 5, 2013. The given instrument aims to guarantee domestic workers the right to a fair wage, social security, equal treatment, the right to organize

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<sup>30</sup> EU Convention (Istanbul) on preventing and combating violence against women and domestic violence [Convention 210 Romanian \(coe.int\)](#)

<sup>31</sup> ILO Convention no. 100, regarding equal pay for male and female workers for work of equal value [Microsoft Word - 100.doc \(gov.ro\)](#)

<sup>32</sup> ILO Convention no. 111, regarding discrimination in the field of employment and the exercise of the profession, [Microsoft Word - 111.doc \(gov.ro\)](#)

<sup>33</sup> [Convention C189 - Domestic Workers Convention, 2011 \(No. 189\) \(ilo.org\)](#)

and to negotiate collectively and the right to a dignified life. The Convention will be an important tool that signatory states can use to align their national laws with international standards for the protection of domestic workers, including migrant domestic workers. For the Republic of Moldova Convention no. 189 is relevant in the context where a large part of migrant women workers are employed specifically in the field of domestic work. At the moment IOM Convention no. 189 is not ratified by the Parliament of the Republic of Moldova.

Convention no. 189 is accompanied by IOM Recommendation of Domestic Workers no. 201, which establishes much more specific measures to ensure compliance with the provisions of the Convention.

**ILO Convention No. 190 on violence and harassment at work**<sup>34</sup>, adopted on 21 June 2019. This new Convention protects all workers, regardless of their contractual status; trainees, apprentices, licensed workers, volunteers and job seekers. It places a strong emphasis on gender-based violence. Women are disproportionately affected by workplace violence and harassment. It applies to all sectors, public or private, in urban or rural areas, of the formal or informal economy. Its field of activity is the world of work, which encompasses much more than just the workplace. It is the first international standard to end violence and harassment in the world of work. It believes that everyone has the right to develop in the world of work without violence and harassment. The Convention will fill in the existing gaps in national legislation. At the moment IOM Convention no. 190 is not ratified by the Parliament of the Republic of Moldova.

Ensuring equal opportunities between women and men is one of the fundamental values of the European Union, a fact enshrined in Article 2 and Article 3 paragraph (3) of the Treaty on European Union which stipulates that equality between women and men is a constitutive principle of the EU. It is an essential requirement for a stable democracy.

The European Union aims to integrate this principle in all its activities. At the same time, equal treatment between women and men is a fundamental right, reflected in art. 23 of the Charter of Fundamental Rights of the European Union, but also a precondition for respecting other fundamental rights and freedoms. In addition, it is a factor of economic growth, necessary for a sustainable, equitable and inclusive development.

Currently, through the Strategic Commitment for Gender Equality 2016-2019, the European Commission has determined that it will continue to give importance to the five priority thematic areas previously identified and defined in the Commission's Gender Equality Strategy 2010-2015:

- increasing women's participation in the labor market and equal economic independence for women and men;
- reducing the difference in remuneration, earnings and pensions between women and men and therefore combating poverty among women;
- promoting equality between women and men in the decision-making process;
- combating gender-based violence and supporting and protecting victims;
- promoting gender equality and women's rights worldwide.

Ensuring equal opportunities between women and men occupies a rather important place in various strategic documents, including the Sustainable Development Goals, launched by the UN in

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<sup>34</sup> [Convention C190 - Violence and Harassment Convention, 2019 \(No. 190\) \(ilo.org\)](https://www.ilo.org/convention/C190)

2015. Thus, Goal 5 Gender equality promptly stipulates the elimination of all forms of discrimination against women and girls; preventing and eliminating violence against girls and women, including human trafficking; eliminating early and forced marriages with children, etc., targets that are also present in the strategic documents of the Republic of Moldova (Moldova 2030)<sup>35</sup>. And Goal 10. Reduced inequalities, advocate for real equality between women and men by empowering and promoting the social, economic and political inclusion of all, regardless of age, gender, disability, race, ethnicity, origin, religion or economic or other status the nature; ensuring equal opportunities and reducing inequality of outcomes, including by eliminating discriminatory laws, policies and practices, and promoting appropriate legislation, policies and actions in this regard; the adoption of policies, especially fiscal, wage and social protection, and the progressive achievement of greater equality; ensuring a legal, fair, well-informed hiring process for migrants.

#### **Correspondence of the national legislative framework with international norms regarding non-discrimination and gender equality at work**

Since the declaration of independence, for the Republic of Moldova the problem of eradicating discrimination against women and ensuring equal opportunities between women and men has become a major task of practically all governments. This fact is confirmed by the adoption over time of multiple laws that contained provisions related to the issue in question. At the same time, by joining several international organizations for which gender equality is a key value, by ratifying several international agreements and normative acts, including the UN Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) (ratified on 28.04 .1994) The Republic of Moldova was motivated to adjust, gradually, its legislative framework and policies with international norms advocating for the elimination of all forms of discrimination and ensuring equal opportunities between women and men that were periodically launched by international organizations. Since the issue of gender refers to practically all areas of social life, the normative acts of the Republic of Moldova in terms of ensuring equal opportunities between women and men have covered practically all these areas of social life: the labor market, the balance between professional life and family, gender and domestic violence, access to justice, education, health, balanced participation in public life and access to leadership positions, etc.

The national legislative framework of the Republic of Moldova specific to the issue of gender equality is based on the Constitution of the Republic of Moldova, in which Article 16, Equality stipulates:

- (1) Respecting and protecting the person is a primary duty of the state.
- (2) All citizens of the Republic of Moldova are equal before the law and public authorities, regardless of race, nationality, ethnic origin, language, religion, sex, opinion, political affiliation, wealth or social origin.

With regard to ensuring equal opportunities between women and men in the field of employment relations, the equality clauses of the Constitution of the Republic of Moldova are supplemented with the following provisions of the Labor Code (No. 154 approved on 28.03.2003):

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<sup>35</sup> [strategia nationale de dezvoltare moldova 2030-t.pdf\(gov.md\)](#)

#### Article 8 Prohibition of discrimination in the field of work

On February 9, 2006, the Parliament of the Republic of Moldova adopted Law no. 5 regarding ensuring equal opportunities between women and men. The purpose of this law is to ensure the exercise of their equal rights by women and men in the political, economic, social, cultural and other spheres of life, rights guaranteed by the Constitution of the Republic of Moldova, in order to prevent and eliminate all forms of discrimination according to the criterion of sex. In a way, this law completes the legislative framework of the Republic of Moldova with provisions of the UN Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), which was ratified on April 28, 1994. The given law had a more complex character and aimed to ensure equality of opportunities between women and men in all areas of social life. Regarding labor relations, law no. 5 comes with Article 9. Access to employment; Article 10. Cooperation of the employer with the employees and with the union representatives; Article 11. Discriminatory actions of the employer; which, in a way, completes the provisions of the Labor Code.

In fact, the given law was followed by another law – Law no. 121 of May 25, 2012 Regarding ensuring equality which included a much wider spectrum than equal opportunities between women and men. The need for the adoption of this law consisted in creating the necessary framework for Directive 2000/43/EC of the Council of Europe of June 29, 2000, implementing the principle of equal treatment between persons, regardless of race or ethnic origin, and Directive 2000/ 78/CE of the Council of Europe of November 27, 2000 creating a general framework in favor of equal treatment in terms of employment and employment.

The adoption of Law no. 121 "On ensuring equality" was conditional on compliance with commitments to international partners, especially to the European Union, to implement policies aimed at reducing gender inequalities. It is, in particular, about the signing of the EU-Moldova association agreement, signed in June 2014 and then ratified in 2016, through which the Republic of Moldova undertook to progressively bring its national legislation closer to the EU legislation in the field of employment, social policy and equality of chances. Starting from 2016, the Country Program on Decent Work is being implemented in Moldova, which comes to support initiatives at the national level to facilitate equal access of women and men to the labor market.

There are other normative acts that contain relevant provisions, express or with indirect impact for the implementation of the principle of gender equality. Such laws from the Republic of Moldova concerning labor relations, such as: Law No. 847 of 14.02.2002 on salary; Law No. 105 of 14.06.2018 regarding employment promotion and unemployment insurance; Law No. 180 of 10.07.2008 regarding labor migration, although it does not expressly stipulate the issue of ensuring equal opportunities between women and men, however they are supplemented with the provisions of special laws oriented towards the given issue (Law no. 5 and Law no. . 121).

Therefore, it can be concluded that the Republic of Moldova has a normative framework adapted to the new rigors related to the policy of ensuring gender equality. However, the existence of a developed normative framework does not yet mean that it is fully applied. There are a number of problems related to compliance with the normative framework related to ensuring equal opportunities between women and men in the field of labor relations, including the functionality of competent institutions in applying the existing national legislation and overcoming the problem

in question. The duties and competences of the institutions empowered to ensure equal opportunities between women and men on the labor market and the application of national legislation in the field, as well as the existing challenges and impediments in achieving these duties, are described below.

### **Intervention methods of the State Labor Inspectorate in ensuring non-discrimination and gender equality in the field of labor relations**

The normative framework of the Republic of Moldova regarding ensuring equal opportunities between women and men in the field of labor relations clearly stipulates who are the public or private actors who have the ability to intervene in overcoming gender inequalities at work. Thus, according to law no. 121, of May 25, 2012 "On ensuring equality", Article 10, the subjects with powers in the field of preventing and combating discrimination and ensuring equality are:

- a) Council for preventing and eliminating discrimination and ensuring equality;
- b) Public authorities;
- c) Courts.

Civil society representatives can also intervene in combating gender inequalities: Trade unions within companies or branches and NGOs specialized in promoting equal opportunities between women and men. However, their intervention measures in overcoming gender inequalities and any forms of discrimination are primarily public opinion awareness, persuasion, advocacy, the effectiveness of which is not that great.

In this context, it is considered that the most appropriate institution to intervene in combating gender discrimination is the public institution State Labor Inspectorate (ISM). According to Law No. 140 of 10.05.2001 regarding the State Labor Inspectorate, it exercises state control over compliance with legislative acts and other normative acts in the field of work, safety and health at work, at enterprises, institutions and organizations, with any type of ownership and form legal organization for natural persons who employ employees, as well as in central and local public administration authorities. According to the law, the purpose of the State Labor Inspectorate is as follows:

- ensuring the application of the provisions of legislative acts and other normative acts regarding working conditions and the protection of employees in the exercise of their duties;
- disseminating information about the most effective means of complying with labor legislation, safety and health at work.

Based on these goals, ISM has the following attributions: a) controls compliance with labor legislation, safety and health at work; b) investigates, in the manner established by the Government, work accidents; c) offers, upon request, methodological assistance in the process of training, training and informing employers and employees, as well as other persons interested in the application of legislation in the field of labor relations, safety and health at work; d) grants, upon request, free consultation to employers and employees in the field of competence; e) exercise other duties provided by law. State control over compliance with normative acts in the field of work, safety and health at work consists of all the actions organized and carried out by the State Labor Inspectorate in the form of on-site verification, assessment and/or analysis and/or by direct request of to employers by mail, including electronic mail, or by telephone to present the

documentation and other information that they, by virtue of the law, are required to possess. In order to carry out their duties, ISM representatives visit companies subject to state control using the following checklists approved by the Ministry of Labor and Social Protection: Checklist in the field of labor relations; Occupational health and safety checklists; Checklist for the state control of the activity related to the employment abroad of the citizens of the Republic of Moldova.

The questions included in these checklists, in particular the Checklist in the field of labor relations, refer to labor legislation, primarily the Labor Code. It should be noted that among the questions in the checklist there is only one question related to combating gender discrimination and ensuring equal opportunities between women and men at work: "The employer ensures compliance with the principle of equal rights for all employees, compliance with the principle of dignity in work, equal opportunities and the elimination of any form of sexual harassment?" with the legal reference to the Labor Code art.1, art.5, art.8. At the same time, it should be mentioned that the checklists do not refer to other laws directly related to ensuring equal opportunities between women and men (Law no. 5 of 02.9.2006 "On ensuring equal opportunities between women and men" and Law No. 121 of 25.05.2012 "On ensuring equality").

### **Recommendation**

1. Ratification of ILO conventions no. 189 on decent work performed by domestic workers and 190 on violence and harassment at work, as well as associated recommendations and the insertion of their provisions into national legislation;
2. Drafting of Law no. 131 of June 8, 2012 "Regarding state control over the activity of an entrepreneur" in order to increase the efficiency of the State Labor Inspectorate's activity in overcoming deficiencies in the field of labor relations, including those related to combating any form of gender discrimination, harassment and workplace violence;
3. Adjustment of the legal framework regarding wages with clauses related to ensuring transparency, in order to ensure the principle of "equal pay for work of equal value".
4. Empowerment of the Council for the Prevention and Elimination of Discrimination and Ensuring Equality, the trade union organizations of the Ombudsman of local public authorities with real powers regarding the investigation of cases of gender inequality, discrimination, violence and harassment at work.
5. Development of instructions, regulations that provide for the conduct of the gender audit within the economic units.
6. Development of effective measures to combat sexual harassment in the workplace
7. The annual organization of training for State Labor Inspectorate workers in terms of combating the phenomenon of gender discrimination, sexual harassment, violence at work.
8. Streamlining the access mechanism for women in management positions in the economic sectors.

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## PRACTICAL ASPECTS OF PATRIMONY FUNCTIONS

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**Abstract:** *The institution of civil law functions with notions from which it itself is formed. Among the main notions of civil law that need to be regulated is that of patrimony. Patrimony is a distinct legal institution that represents the totality or universality of patrimonial rights and patrimonial obligations that belong to a person.*

*Heritage is a legal concept that expresses the set of rights and obligations of a person as a universality, as a totality independent of the goods that the heritage includes at a given moment; whether we regard it as an entity closely related to the person of the subject or whether a universality of rights necessarily exists for any subject of law (even when the passive exceeds the active); it can never be alienated but can be transmitted to the death of the subject at the moment when its will, which gives it the character of unity, is extinguished. The patrimony includes tangible and intangible assets, consumable or fungible, movable or immovable, principal and accessory assets, etc. That is, everything that represents the powers, faculties,*

*The patrimony fulfills three functions, essential in their importance: the patrimony constitutes the general pledge of the creditors, realizes the real subrogation with universal title and makes possible the universal and universal transmission of rights and obligations.*

**Keywords:** *patrimony, pledge, unsecured creditor, subrogation, guarantee, creditor.*

**JEL Classification:** K 11, K 15.

### **Introduction.**

Patrimony is also a bridge between its owner and other legal subjects. The patrimonial rights and obligations are included in the content of legal relations born or to be born between the holders of different patrimonies. The functions of the patrimony are the generalized expression of these legal ties that are created between the holders of different patrimony. In the absence of the legal notion of patrimony, universal real subrogation and with universal title, joint guarantee of creditors and universal transmission with universal title would not be possible and would not be explained. Therefore, the functions of patrimony cannot be understood only by referring to a single patrimony, but only from the perspective of interpatrimonial relations (Stoica, 2017).

The functions of the patrimony, in addition to its legal characteristics, are of particular importance for the analysis of the patrimony. Starting from the legal provisions and taking into account the content of the patrimony, we can affirm that the main functions of the patrimony consist in the fact that it: is the general pledge of unsecured creditors; explains and makes possible real subrogation with universal title; makes universal transmission possible and with universal title.

**General pledge of unsecured creditors.** The one who is obliged is personally liable with all his movable and immovable assets, present and future. They serve as a joint guarantee of his creditors. If the debtor does not fulfill his debts voluntarily when due, the unsecured creditors have the possibility to demand forced execution on the assets of the debtor's patrimony. This possibility was based

precisely on the idea that the debtor's patrimony constituted the object of the general pledge of the unsecured creditors. These are the creditors whose claims do not enjoy a real guarantee.

According to art. 42 of the Insolvency Law, unsecured creditors are unsecured creditors who have a patrimonial claim against the debtor. They do not have a real guarantee, a pledge to secure their debt. The legislation of the Republic of Moldova does not distinguish between a pledge and a mortgage, stipulating in the Civil Code of the Republic of Moldova that the pledge is of two types: the registered pledge (the pledge without dispossession, which also includes the mortgage) and the pawn shop (the pledge with dispossession). We consider in this context that the pledge and the mortgage are two distinct real rights.

The object of the general lien is the entire patrimony of the debtor and not the concrete, individualized assets that make it up. The changes that take place in the content of the patrimony do not affect the existence of the general pledge. Since unsecured creditors do not have a fixed guarantee on a certain individualized asset, the debtor is free to dispose of his assets, concluding legal documents regarding them, reducing his assets and increasing his liabilities, i.e. acquiring new assets or contracting new debts. The acts of disposition concluded by the debtor are opposable to unsecured creditors, they cannot intervene in the management of the debtor's patrimony.

Thus, the patrimony ensures the unsecured creditors the possibility to satisfy their claims, reached maturity, from the assets of the debtor, existing at this moment, regardless of whether they existed or not at the time of the appearance of the claim. If the debtor damages the interests of the unsecured creditors by concluding fraudulent documents, the latter have at their disposal the Paulian action to defend their rights.

We could conclude that this category of creditors is in a privileged position compared to other categories of creditors. The advantage becomes evident when the asset under pledge disappears or is destroyed, the pledge creditor not acquiring the quality of unsecured at this moment, and the unsecured do not have the respective risk.

Another opinion is addressed by the Romanian authors IR Urs, PE Ispas "Although in appearance, unsecured creditors appear to be advantaged (the debtor is responsible for paying the debt with all present and future assets), in reality they have an inferior situation compared to creditors with real guarantees (pledge, mortgagee, privileged creditors), their general pledge on the debtor's patrimony being more of a hope of guarantee." Unsecured creditors, after satisfying the creditors with real guarantees, come into competition with other unsecured creditors, with the possibility of not realizing their claim.

We mention the fact that unsecured creditors are all equal to each other. This position is definitive regardless of when the claim of one or another creditor was born. Determinant in this sense is the quality of the unsecured and by no means the moment of the appearance of the claim and the birth of the right to claim.

Romanian legislation, in art. 2324 of the Civil Code, provides for the joint guarantee of creditors, and not the general pledge of unsecured creditors. The legislator's preference for terminology is justified from two points of view.

First, the term pledge could be misleading. He refers to a real guarantee, the general pledge of unsecured creditors is not really a guarantee, much less a real guarantee. The term pledge is used in

a metaphorical sense, to evoke the power of the unsecured creditor over the debtor's patrimony. Therefore, not only the power of its owner is exercised over the patrimony, but also the power of unsecured creditors in the form of a general pledge. It is highlighted, once again, the idea that patrimony expresses not only the indissoluble connection with the person who is its holder, but also the connection with other legal subjects, both in the form of particular legal relationships, and in a more general form: the general pledge of unsecured creditors. To clear up any confusion, the legislator preferred the phrase joint guarantee, instead of the phrase general pledge. (Stoica, 2017).

Secondly, the patrimony is a common guarantee not only for unsecured creditors, but for all creditors, including privileged ones and those who have real guarantees. Indeed, the patrimony is a common guarantee for privileged creditors and for those who have real guarantees. It is true that in the case of the latter, as in the case of those who have special privileges, the goods are pursued not by virtue of their belonging to a certain patrimony, but based on the connection they have with a certain debt and with a certain right of debt. But, if they cannot satisfy their claim by pursuing the property that forms the object of the real guarantee or the special privilege, these creditors have the right to pursue the entire patrimony of the debtor precisely because it is also their common guarantee. In a complementary way,

To understand this idea, further explanation is necessary. Although there are several creditors, the concept that designates this function of the patrimony is expressed by a term used in the singular: the joint guarantee of creditors. In other words, there are not as many joint guarantee rights as there are creditors. On the contrary, the right of joint guarantee expresses the joint power that the creditors have over the debtor's patrimony. Such a common power could not exist if the debts did not form a unit in the debtor's patrimony, namely the patrimonial liability, and if this liability were not inextricably linked to the asset within the universality that is patrimony as an attribute of personality.

Intangible goods come out of the scope of the general pledge of unsecured creditors, with the specification that if the intangibility is the consequence of a voluntary clause of inalienability, the legal formalities of publicity must be respected, according to the legal norms.

In conclusion, the option of the Romanian legislator in the sense that the patrimony is the common guarantee of all creditors, and not only of unsecured ones, is justified. It is important, however, that, in the absence of the legal notion of patrimony, the notion of joint guarantee of creditors would not be conceivable either.

***Real subrogation with universal title.*** According to the universal dictionary of the Romanian language, to subrogate means to replace someone in the exercise of certain rights or obligations, with the result that the rights and obligations of the replaced person fall to the surrogate. Subrogation is a legal operation under which a person takes the place of another in a legal relationship or an asset takes the place, therefore, of the legal regime of another asset, within an estate or another legal universality.

Subrogation can be: personal, when one person is replaced by another as the holder of a right. For example, if a person pays the entire debt that a debtor had to his creditor, he substitutes himself, "subrogates" himself in the rights of the paid creditor, being able to pursue the debtor for the debt owed to him; real, when a good is replaced by another good or a value by another value. For example, if an asset owned by one of the spouses is sold, the price received for the asset is

included in the category of own assets, and if a common asset is sold, its replacement value is part of the mass of common assets.

The legal nature of the patrimony requires us to study real subrogation. In the specialized literature, it is revealed that real subrogation can be universal, with universal title or with private title. Universal, when it concerns the entire heritage; with a universal title, when looking at a patrimonial mass, a division, a fraction of patrimony, disregarding the individuality of each good that leaves and of the one that enters its place; with particular title, when the replacement of an individual asset, viewed in isolation (*ut singuli*) takes place with another determined individual asset (Urs, 2015).

Real universal subrogation and real subrogation with universal title constitute a function of the patrimony, because only in the case of these hypotheses is the subrogation considered within a universality, either at the level of the entire patrimony or at the level of a patrimonial mass (Bîrsan, 2015).

Real subrogation with private title will operate only in the cases expressly provided by law. For example, a legal provision from which real subrogation with a private title arises is found in art. 613 CC of the Republic of Moldova, which establishes that "if the usufruct also includes consumable goods, the usufructuary has the right to dispose of them, but with the obligation to return goods of the same quality, quantity and value or, if it is impossible, to return their value to the date of termination of the usufruct".

There is a close correlation between the notions of patrimony, real subrogation, general pledge of unsecured creditors: patrimony explains and allows the realization of real subrogation, and real subrogation grounds the general pledge of creditors (Boroi, 2013). We would also add here the notion of patrimonial liability, since real subrogation allows the institution of legal patrimonial liability to ensure or restore the integrity of the patrimony. In other words, patrimonial liability is a way of defending the patrimony and it is achieved due to the existence of the institution of real subrogation.

The criteria for distinguishing between general real subrogation (universal or with universal title) and real subrogation with private title result from the above.

First, in terms of the framework in which it operates, general real subrogation occurs in the context of the universality that is patrimony or within a certain patrimonial mass. The real subrogation with private title has as its object patrimonial elements considered *ut singuli*.

Then, under the aspect of the effects, universal real subrogation transfers the quality of the pecuniary elements that come out of the patrimony to be integrated in a universality on the pecuniary elements that enter the patrimony. When it is also a real subrogation with universal title, the pecuniary elements that enter the patrimony also acquire the common legal regime for a certain patrimonial mass. The real subrogation with private title transfers, in addition to this general legal regime, also the special legal regime of the asset that has left the patrimony on the one that enters the patrimony.

Thirdly, in terms of how it operates, general real subrogation occurs automatically, without the need for a provision of the law. Real subrogation with private title operates only if it is expressly provided by law and only to the extent that the law provides for it. As a result, among the features that form the particular legal regime of the property that has left the heritage, only

those that are expressly provided for in the legal provisions that establish, for the respective case, real subrogation with private title are transferred to the property that enters the heritage.

Always when the law provides for a case of real subrogation with a particular title, the replacement of patrimonial elements has, at the same time, the meaning of a general real subrogation. The consequence is that the pecuniary element that enters the patrimony receives not only the particular legal regime, proper to the pecuniary element that came out of the patrimony, but also becomes an element of the universality that is the patrimony and, if necessary, an element of a determined patrimonial mass, acquiring its legal regime.

Therefore, it can be said that the real subrogation with private title always also implies a general real subrogation. However, the reciprocal is not verified: not every general real subrogation also implies a real subrogation with a particular title (Stoica, 2017).

In the legal literature, it is specified that the real subrogation with universal title allows and explains both the possibility of restitution of a patrimony and the possibility of dividing the successional patrimony (Bîrsan, 2015). In reality, there are only two particular cases in which the real subrogation operates with the universal title as a result of the division of the patrimony. In the two hypotheses, it is not about the restitution or sharing of a patrimony, but of a patrimonial mass.

Thus, as a result of the annulment of the judicial decision declaring death, the issue of the so-called restitution of the patrimony of the one considered, erroneously, as deceased was raised. As we have seen, the succession table is not a separate patrimony, but a patrimonial table in the successor's patrimony. The annulment of the judicial decision declaring death has the effect of reviving the legal unit of the estate in the heir's patrimony. The integrity of this patrimonial mass is preserved, in cases where acts of alienation have been concluded with onerous title to third parties in good faith (Duțu, 2018), precisely through real subrogation with universal title. What is being returned is precisely this patrimonial mass. But, once it has been returned to the author, it melts into the universality of his heritage.

Real subrogation with universal title works in a similar way when it comes to the inheritance petition, which has as its object the restitution of a patrimonial mass, and not of a patrimony (Deak, 2002).

We have also seen that indivision is not only a legal way of patrimony, but also a hypothesis for dividing the patrimony of the successors. That is why, in this case too, we are in the presence of a simple particular application of the more general idea according to which real subrogation with universal title operates, distinctly, within each patrimonial mass. On this basis, if the division in kind is not possible or advantageous for co-divisions, the tangible goods can be sold or exchanged, and the sums of money or other goods that thus enter the inheritance table are divided according to the inheritance quotas (Stoica, 2017).

***Universal transmission and with universal title.*** The transmission takes place in case of the death of the natural person and the reorganization of the legal person (absorption, merger, division) according to art. 207, 207 CC of the Republic of Moldova. Heritage, as legal universality, explains and allows universal transmission and transmission with universal title.

Transmission is: universal, when the entire patrimony is transmitted; with universal title, when fractions of the patrimony (active and passive) are transferred; with private title, when one or more individualized goods are the subject of the transmission (Dogaru, 2003).

Universal transmission intervenes: in the case of a person's death when the entire estate is collected by the sole legal heir or by a single testamentary heir; in the case of the reorganization of the legal entity through absorption and merger when the patrimony of the absorbed legal entity is taken over by the absorbing legal entity, respectively the patrimony of the merging legal entities are transferred to the thus established legal entity.

Universal title transmission takes place: in case of death of a natural person, when the deceased's patrimony is divided between two or more legal or testamentary heirs; in the case of reorganization of a legal entity through total or partial division.

The transmission with a private title concerns a specific, determined good, or several goods, but each one individualized by its attributes, a transmission that can be explained without resorting to the concept of heritage (Stahi, 2016).

Although we talk about the transmission of the heritage or the transmission of a fraction of the patrimony, in reality it is the transmission of the universality or a fraction of the universality of the elements that are found in the patrimony of the natural person at the time of death or in the patrimony of the legal person at the time of reorganization or termination.

The distinction is not just one of nuance. If the patrimony is an attribute of the personality, it lasts only as long as the natural or legal person lasts. What is transmitted is the content of the heritage, but also as universality or as a fraction of universality. The legal unity of these patrimonial elements is no longer given by the person of the author, but by the person of the successor in the patrimony to whom these elements are transmitted. In cases where these patrimonial elements form a distinct mass in the successor's patrimony, their legal unity will also be determined by the affectation and legal regime of that patrimonial mass (Stoica, 2017).

The transmission of the heritage and the transmission of the universality of the elements of the heritage mean the same thing. In reality, the first wording leads to the idea that the successor has two or more estates, which is inadmissible. On the contrary, the second formulation results from the idea of the uniqueness of the successor's patrimony with the idea of transmitting the universality or a fraction of the universality of the elements of the author's patrimony. What exists in the patrimony of the natural person at the time of death or in the patrimony of the legal person at the time of reorganization or termination represents only a sequence, a stop-frame from the film of the existence of the patrimony.

Even if one accepts the idea that the person of the successor continues the person of the author, this idea only has the function of justifying the transmission of the universality or a fraction of the universality of the elements of the author's heritage. Continuity is symbolic, not strictly legal. It is the reason why the rights and obligations born from *iniuitu personae* contracts are not transmitted from the author to the successor in a universal transmission or with universal title. From a legal point of view, however, there is no identity between the person of the successor and the person of the author, nor between the patrimony of the successor and the patrimony of the author. This is the reason why it is preferable, from a strictly legal point of view, to affirm the continuity of rights and obligations that do not have an *intuitu personae* character, and not the continuity of the author or the author's estate beyond his death. This last continuity can only be considered from a symbolic point of view. Therefore, universal transmission or with universal title implies the idea of universality only in its spatial dimension, in the sense that it covers all the

rights and obligations existing at a given moment in a person's patrimony or a fraction thereof, but not in its temporal dimension, of permanence and continuity, since the patrimony ceases to exist with the person.

It is important, however, that between the universal transmission and the transmission with universal title there is no qualitative difference, but only a quantitative one. In both cases, both assets and liabilities are transmitted. Whether it is universality or a fraction of universality, the proportion between active and passive is preserved. The quantitative difference consists precisely in the fact that, in the case of universal transmission, the successor acquires the entire asset and liability from the author's patrimony, and in the case of transmission with universal title, the successor acquires the same fraction of both the asset and the patrimonial liability (Stoica, 2017) .

Therefore, we could mention that the practical importance of the content and functions of patrimony consists in the fact that it allows and explains the production of some legal consequences imposed by economic and legal life.

In conclusion, we state that heritage is one of the most important specific concepts in the field of property law, with the widest applicability. Thus, imposing itself since the "beginnings of law", more precisely during the period when, within the ancient Roman state, legal relations were considered to have a sacred nature, the concept of heritage crossed history to be placed at the foundation of the system modern private legal. In its modern form, heritage finds its basis in the legislation of all states, which was the source of inspiration for the vast majority of normative acts of this kind in the states of the continental law system.

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## **SESSION V**

# **ECONOMETRICS AND ECONOMIC STATISTICS**

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## COURSE UNIT ECONOMIC MATHEMATICS – FULL-TIME VERSUS DISTANCE LEARNING

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**Abstract:** *The emergence of a new form of education, apart from full-time and part-time education, seems to be inevitable. Obviously it is about distance education. The Republic of Moldova was forced to switch to online education due to the pandemic, so we already have some skills in organizing this form of education. But are students ready to follow this form of education or, more importantly, are universities ready to offer students the organization of the educational process in the form of distance education. This paper attempts to answer the question of how prepared are students for distance learning, based on the results of the questionnaire that ASEM first-year students participated in.*

**Keywords:** distance education, questionnaire, survey

**JEL Classification:** A2, C8

### 1. Introduction

We live in an information society and it is hard to imagine any process that does not take place without the involvement of information technologies. Obviously, these technologies have penetrated the educational process as well.

If until the COVID-19 pandemic, some information technologies were used and implemented in education slowly and gradually, including by teachers, on their own initiative, interest or desire to use something new, then during the pandemic there was a “massive and rapid invasion” of information technologies in the educational process. This phenomenon also refers to Republic of Moldova, while in some countries information technologies have long been used in the educational process, including online education. For example, at the Academy of Economic Studies in Bucharest, the initiation of study programs offered through distance learning took place in the academic year 1998-1999.

In these almost three years of the pandemic, in higher education in Moldova, including the Academy of Economic Studies (ASEM), the form of distance education was used. During this period, both supporters of distance education and opponents of this form of education appeared both among students and among teachers.

Although the Ministry of Education of the Republic of Moldova approved the Framework Regulation on the organization and conduct of higher education at a distance since 2016 (Ministry of Education of the Republic of Moldova, 2016), at least in the Academy of Economic Studies of Moldova, admission to distance learning studies has not been organized until now. Some universities in Moldova have internal regulations for distance learning, but so far they have not implemented this form of study organization.

A research of the necessity of this form of education, in the context of its attractiveness for local students would be welcome.

## **2. The premises and purpose of the research**

The aim of the study is to investigate the opinion of students regarding the form of distance education, as well as the extent to which they are prepared for the form of online education, consider it attractive and see its advantages. For the purpose of the research, a survey was conducted in which the first-year students took part, participants of the Economic Mathematics course unit, in charge of the course - university lecturer Chicu Olga. Survey participants were first-year students, the form of education full-time, the language of instruction Romanian, the specialties of marketing and logistics and general economics. 52% of students from the respective academic groups participated in the questionnaires, students who actively participated in the course and seminar lessons. It should be noted that the students who participated in the questionnaires, in the first semester of the first year of study, were physically present in classes for a month after which they switched to online education due to the pandemic situation in the country. Thus, they were able to draw conclusions regarding the advantages and disadvantages of the two forms of education: regular and online.

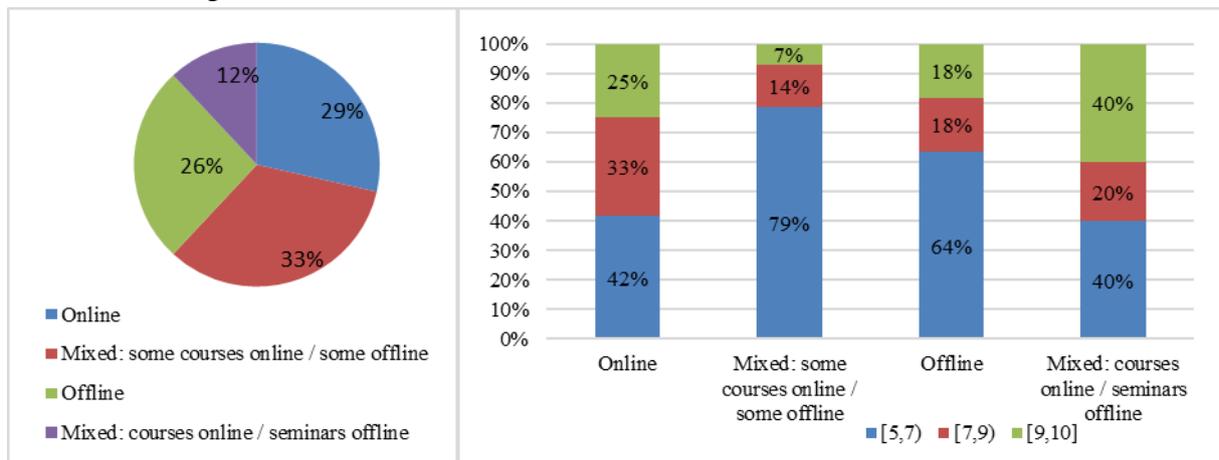
## **3. Survey results**

The questionnaire was not anonymous and took place after the students took the exam so that the results did not influence their answers in any way. One of the reasons for opting for a non-anonymous questionnaire was the fact that we wanted to verify the existence of the dependence between the students' answers and the average grades they obtained in the Economic Mathematics course. It was also important to verify if there is a difference between the marks obtained on mathematics discipline by students in high school, on the baccalaureate for the compulsory mathematics discipline for the real profile and the grade obtained in the economic mathematics course at the university. The results showed that, for the most part, these three grades are the same, varying in some cases by 1 point in either direction.

Another reason for opting for a non-anonymous questionnaire was the fact that in the last question the students' opinion was requested on how the course in offline and online format was organized.

The processing of this information was only possible with the help of additional information such as: class attendance, participation in online and offline seminars, the number of accesses to the teaching materials on the course page on the MOODLE e-learning platform, but also which particular teaching materials were accessed by the respective student. This information is available on the MOODLE platform and can be accessed by the course creator (teacher).

According to the results, the majority of respondents chose online or mixed studies in favour of those with physical presence. More precisely, 29% of respondents chose online (distance) studies as the best form of education organization (figure 1). Among them, 42% obtained a grade in the economic mathematics discipline from the range [5,7), 33% obtained a grade from the range [7,9) and 25% obtained a grade higher than 9. The mixed form of studies, with some subjects taught entirely online and some entirely face-to-face, was selected by 33% of respondents. The type of studies in mixed format, which provides for courses in online format and seminars in offline format, was selected by 12% of the respondents, and 26% of the participants selected the classic form of organization of studies - in offline format.



**Figure 1. The form of studies that students opt for**

**Source:** Developed by the author based on survey results

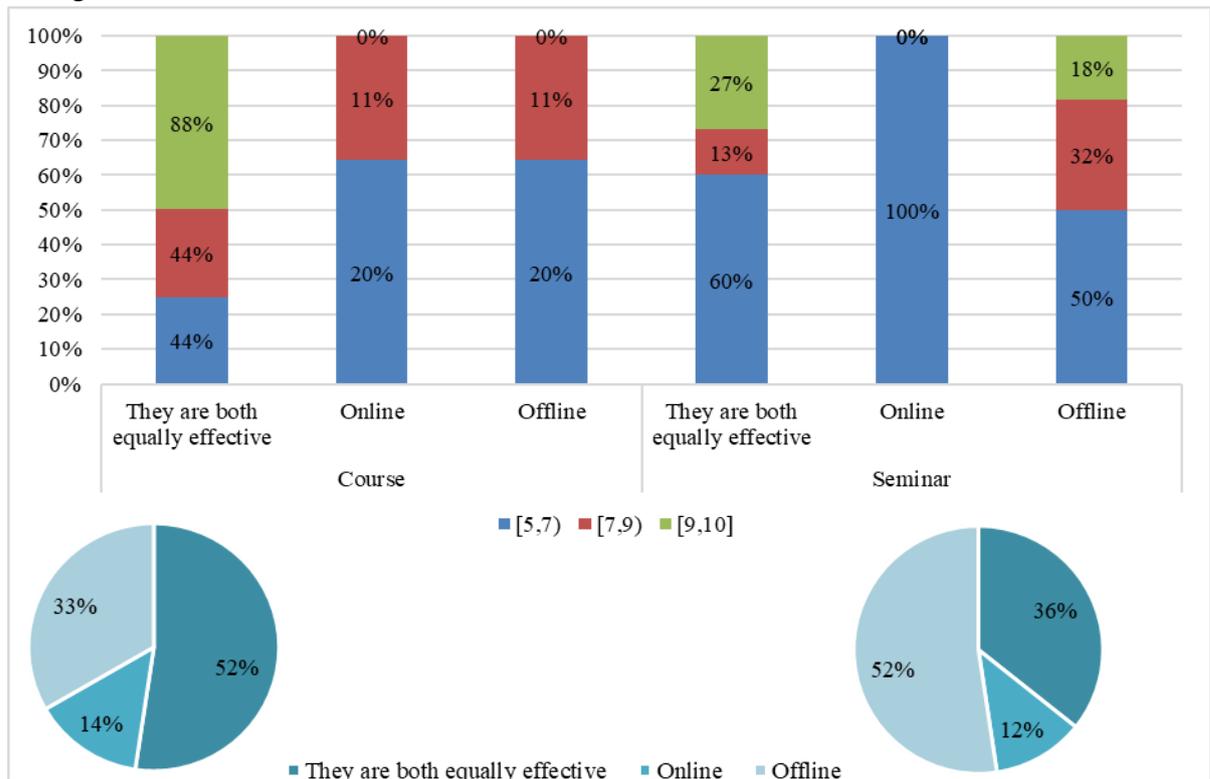
A similar study carried out a year before shows that 13.4% of study participants opt for online studies, 46.3% for physical presence studies and 40.2% for mixed format studies (Chicu O., Chicu V., 2021, p.59). Obviously, comparatively, the situation is changing, the biggest gap being in the option of online studies 13.4% versus 29%. Gradually, students are adjusting to the form of distance education. At the same time, it should be mentioned that the form of studies in mixed format was and is one of the most appreciated by students (40.2% in the academic year 2020-2021 and 12%+33%=45% in 2021-2022).

As far as the economic mathematics course is concerned, the students' choice regarding the form of studies is different from the form of studies in general. In the study, 14% of respondents indicated the online form as the most effective form of course organization and 12% indicated this form for organizing seminars. Regarding the offline form of organizing lessons, 33% of respondents consider it the most effective for the course and 52% for seminars. However, 52% of respondents consider both forms of course organization to be effective, and as for seminars – 36% consider both forms to be effective (figure 2). The following obtained result is of interest: 88% of the students who indicated that both forms of education are effective for the course are students who obtained grades higher than 9 in the exam.

Among the 52% respondents who indicated the offline format of organizing seminars as the most effective, 50% are students who obtained a grade between 5 and 7 in the exam.

Thus, the results of the study show that for students who have a good mathematical knowledge, the form of studies does not have a significant importance, in the sense that they

consider both forms of education effective for the Economic Mathematics course. While students who have a weaker mathematical knowledge opt, for the most part, for studies in offline format. 43% of students indicated that they do not understand everything in the course because they lack the mathematical knowledge, including because they are from the humanistic profile. 21% of students indicated that they have the required mathematical knowledge; however, they encounter difficulties in perceiving information in online classes. And 36% indicated that they have the required mathematical knowledge and do not encounter difficulties in terms of perceiving and assimilating information, both in offline and online classes.



**Figure 2. The most efficient form of organizing lessons in Economic Mathematics**

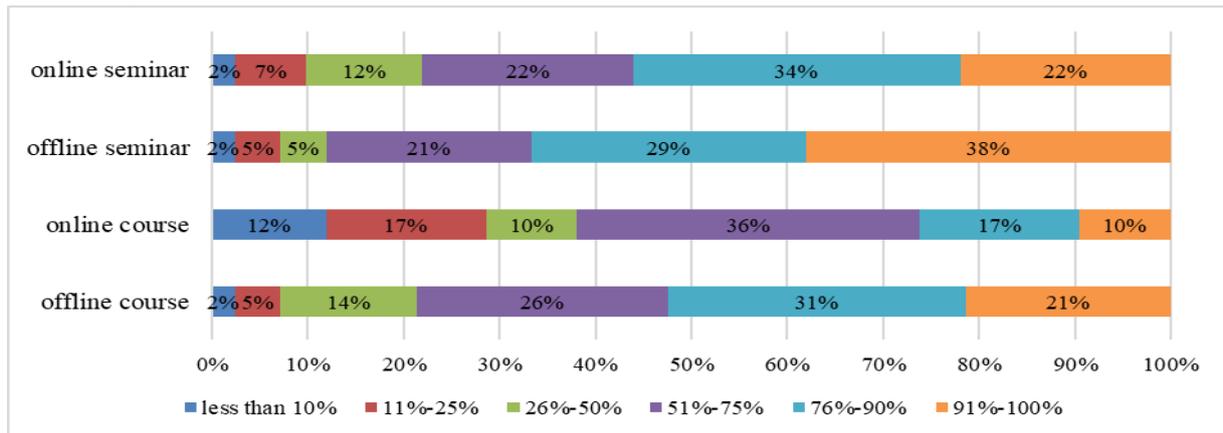
Source: Developed by the author based on survey results

According to the results of the study, the biggest difficulty the students face in online studies is that they cannot force themselves to pay attention in class (86%) or to work independently at the seminars (68%).

In addition, technical problems (45%) are one of the reasons why students opt for studies in offline format. A tiny percentage of students indicated that the reason they opt for offline studies is that they cannot ask questions during lectures and seminars. We consider this issue to be more psychological because the online course was conducted on the Teams platform where chat was available for written questions and there was an opportunity to connect the microphone and ask questions.

At the beginning of the semester, the students who would participate in the study were asked to monitor and note the approximate percentage of the lesson that they paid attention to in both the offline and online classes. The results of the analysis showed that, in general, students were more attentive at the seminars than at course and, as expected, in face-to-face classes students are more

attentive than in online classes (figure 3). The gap is not very big and was predictable, because in the Economic Mathematics course available on the MOODLE platform, students have access to both theoretical materials and solved examples available in video format, image files and .PDF files. Thus, students could access them at any time and study independently if they missed class, or were not paying attention, or did not understand the topic. The materials available on the course page were appreciated both by students who participated in the current survey and by students who participated in last year's survey (Chicu O., Chicu V., 2021, p.58).



**Figure 3. Attention in Economic Mathematics classes**

Source: Developed by the author based on survey results

For distance learning, technical means are of major importance. It is obvious that an adequate technical means facilitates the assimilation of the material and in general the access to the online classes. For the most part, the students who participated in the survey indicated that they use a computer (71% for lecture classes and 79% for seminar classes) or a phone (29% for the course and 19% for the seminar) and tablets are rarely used.

Also, an important factor when students participate in online classes is the conditions in which they work at the time. 95% of students indicated that during online classes they can create conditions where they are not disturbed by any external factors and can concentrate in class. However, 40% of the respondents indicated that there were cases when they connected to the online lessons but were de facto not present in the classes, including for trivial reasons (they fell asleep or were busy with something else), and 60% indicated that there were cases when they could not connect to classes due to technical problems or lack of internet connection, electricity, etc.

A problem in the case of exclusively distance learning is the appreciation of knowledge or more precisely the phenomenon of copying or plagiarism. In the case of online tests and exams, the teacher cannot be absolutely sure that the particular student passes the test, and is not helped by anyone, and does not copy, especially because, at least in the Republic of Moldova, this is a common phenomenon and is not perceived by society in general as a serious problem.

That is why, at least during the pandemic, when there could be no possibility of testing knowledge except in an online format, for teachers, this was a challenge. When creating online tests for students, they had to consider many factors. The tests had to be created in such a way that they were not too easy, not too complicated, excluded the possibility for students to communicate with each other (including through social networks) and help each other, and in the event of help from a third person to write the test for the student, to exclude the possibility of him getting the maximum score, etc.

There are disciplines where the formulation of examination tests is relatively simple, but there are also disciplines for which the formulation of tests in this context is difficult. Economic Mathematics is part of the subjects where formulating the tests for the distance exam, under the conditions of the Republic of Moldova, is a challenge. One obstacle in this regard is the multitude of free online platforms that allow solving examples/problems, some of which also offer step-by-step problem solving. In addition, in the case of solving mathematical examples and problems (we exclude here the problems that involve demonstrations) not only the answer is important, but also the steps in the solution, and in the case of the online test these steps are difficult to take into account. Thus, a simple accidentally missed sign can minimize the final mark to the maximum, although in the case of solving the example by hand, the teacher, most likely, will not charge the student to the maximum.

Obviously, it is possible to formulate problems and examples or questions in such a way as to minimize the possibility of using online platforms for solving, but this requires an increased effort on the part of the teacher, mostly in terms of the time required to formulate such examples. It is also necessary to formulate multiple variants for testing to minimize copying. But not all teachers agree to get involved in the preparation of such tests, and we assume that the main reason is the salary.

The students participating in the survey indicated that if the test were organized online (test on the MOODLE platform) and not in offline format (a few examples that should be solved by hand, not having access to anything other than pen and paper) they would get definitely (48%) or possibly (40%) a better grade and only 12% indicated that the grade would be the same (figure 4). It should be noted that among these 12% are students who obtained no more than 6.6 in the exam.

In the online test students would get a higher grade than in the one organized with physical presence			
Yes, thanks to		No, because of	
<b>Lack of stress</b>	<b>80%</b>	Stress	<b>60%</b>
<b>Using online platforms and applications that solve the examples</b>	<b>60%</b>	The impossibility of using online platforms and applications that solve the examples	<b>40%</b>
<b>Getting help from colleagues and people who know the subject</b>	<b>15%</b>	The impossibility of getting help from colleagues and people who know the subject	<b>40%</b>
<b>Other reasons</b>	<b>10%</b>	Lack of IT knowledge. Lack of computer skills	<b>40%</b>
		Other reasons	<b>20%</b>

**Figure 4. Results expected by students on the test organized in online versus offline format**

Source: Developed by the author based on survey results

#### **4. Conclusions and recommendations**

Speaking of studies, we must take into account that, at least for the discipline of Economic Mathematics, in order to have an understanding of the material studied in university and to have a chance to pass the exam, a minimum set of knowledge in the subject is required, which are formed during lyceum studies.

In the Republic of Moldova, however, there is a problem in this regard. First of all, learning outcomes per country are inequitable, so performance in rural schools is much lower than that in urban schools. Also, in Moldova, academic performance is largely defined by socio-economic status (UNICEF, 2022, p.56). According to the 2020 UN Moldova study, "online education is half as effective as offline education" (UNICEF, 2022, p.56).

Thus, not all first-year students, recent high school graduates, especially among those who had online studies at high school, have a required mathematical knowledge. This, however, is indispensable for the successful promotion of the Economic Mathematics course. Also, although the high school program in the humanitarian profile guarantees that high school students master the topics that are the basis of those in the curriculum of the Economic Mathematics course unit, *de facto*, in the vast majority of cases, this knowledge is minimal, which is why students encounter difficulties in mastering homework.

The results of the study show that young people in the Republic of Moldova are ready for online studies and can easily switch to it, especially if they have mathematical knowledge from high school. Thus, it is necessary to carry out a research on the extent to which teachers are also ready to be actively involved in the creation of interactive courses on educational platforms. Because both this study and previous studies carried out on samples of first-year students starting in the spring of 2020, showed that students who do well with IT technologies and had access to teaching materials on ASEM's e-learning platform in courses: either video files explaining problem solving or video recording of lessons, indicated that they opt for online studies to the detriment of offline ones. It should be mentioned that, even students who have lack the mathematical knowledge opt for online studies.

Because the students enrolled in the studies have different study profiles (humanist, realist, arts, sports) they also have a different preparation in terms of knowledge in mathematics. In order to ensure an optimal study process, it would be appropriate to restrict the admission of candidates to studies with an economic profile in the sense of admitting only those with a real profile, or to test a priori knowledge in mathematics and oblige candidates who do not have it to pass a minimum math course.

Distance learning involves not only the creation of the legal framework, but also the creation of the corresponding teaching materials, which definitely include at least video recordings of the courses. It is obvious that, in the case of distance learning, universities are oriented not only towards local students, but also towards foreign students. Thus, online courses should at least be in English. All this generates expenses that include not only the appropriate remuneration of teaching staff, but also the procurement of the appropriate technical equipment, as well as expenses for its maintenance and the development and maintenance of the necessary software and much more. Although all the mentioned expenses are considerable, they will certainly pay off in time with proper management.

Inevitably, distance learning belongs to the immediate future in education and will increasingly infiltrate the educational process gradually becoming the norm.

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## **SESSION VI**

# **INNOVATION AND COMPETITIVENESS IN ENTITY ACCOUNTING AND AUDITING**

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## THE IMPORTANCE OF THE INTERNAL AUDIT IN ENSURING THE COMPETITIVENESS OF THE ENTITY

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*In this article are exposed the importance of internal auditing in organizations, regulated by the stipulations of the Internal Auditing Standards. Internal Auditing ensures the competitiveness of entities, which will lead to the providing of truthful and objective information to information users. Internal Auditing services are used by company leaders, who have understood the benefits of the internal audit to find out the real situation of the company, to obtain advice and recommendations for improving its economic situation. The internal audit as an independent and objective activity, provides the entity with a degree of control over the operations, improves the operations and contributes to adding more value to them, helps the entity to achieve its objectives, systematically and methodically evaluates the risk management, control and governance of the institution, and finally brings proposals to strengthen their effectiveness.*

**Keywords:** *internal auditing, competitiveness of entities, consultancy, risks.*

**JEL Classification:** M-41

The audit was initially practiced for external users, called external audit. Later, the audit services began to be used by internal users, especially by the managers of the company, who understood the benefits of the internal audit to find out the real situation of the entity and to obtain advice and recommendations to improve its economic situation. Internal audit activities are carried out in various legal and cultural environments, within organizations, which vary according to the purpose, size, complexity and structure of the entity. Although differences may affect internal audit procedures in each environment, compliance with International Standards for Professional Internal Audit Procedures is essential as internal auditors' responsibilities overlap. Considering the requirements of the European Regulations issued by the European Commission, regarding the management and internal control system applicable to institutions involved in the management of structural funds, a detailed exposition of the internal audit activity is necessary.

Internal audit is an independent and objective assurance and advisory activity, intended to add value and improve the activity of a public entity. Internal audit activities help the entity to achieve its objectives through a systematic and methodical approach. The governance process of the public entity is evaluated by the internal audit, providing adequate assurances and recommendations for its improvement. The internal audit is based on the effectiveness of the risk management process and excludes the possibility of fraud and corruption. The internal audit verifies the way in which the public entity manages the risks related to the activities carried out. The efficiency and effectiveness of the companies' activities is ensured by the control activities of the internal audit.

The internal audit is carried out by employed persons, who are subordinate to the entity's administration. The auditor's independence is regulated by legislative and normative acts. The internal audit is carried out in the interest of management by one or more persons employed under individual employment contracts. Internal auditors do not have the decision-making power, which remains and belongs to the entity's administration.

In its activity, internal auditors are based on the following regulatory acts specific to the field: Internal Audit Standards, Code of Ethics of Internal Auditors, Internal Audit Charter, Methodological Norms on Internal Audit Activity, other normative acts in the field of internal audit, own application instructions of the methodological norms regarding the internal audit activity, taking into account the specifics of the institutions.

The Ministry of Finance has completely revised and redesigned the Internal Audit Standards and Internal Audit Norms in the public sector in order to streamline and simplify them, and update them according to the latest trends and developments in the given field. The internal audit rules regulate the obligations of the persons carrying out internal audit activity and impose minimum requirements for the activity in the field.

Internal auditing standards are part of the conceptual framework for professional practices. The Board for Internal Auditing Standards is engaged in extensive consultations and discussions, with a priority for issuing standards and their development. This includes an international request for public comments in the project exposure process. The internal audit standards delineate the basic principles that represent the practice of internal auditing and provide the rules for carrying out and promoting a wide range of activities that bring added value to internal auditing. Internal audit standards establish the basis for evaluating internal audit performance and are concerned with improving organizational processes and operations.

The internal audit norms applied by public entities ensure the internal audit activity through one of the following forms:

- internal audit subdivision established in its own organizational structure,
- internal audit by association,
- internal audit based on contract.

Internal audit is an independent and objective activity that gives an entity assurance regarding the degree of control over its operations, guides it to improve its operations and contributes to the addition of added value. Internal audit helps organizations achieve their goals by evaluating, through a systematic and methodical approach, its processes of risk management, control, and governance of the organization and making proposals to strengthen their effectiveness.

The internal audit activity is independent, so the internal auditors carry out the activity with objectivity. The head of the internal audit department reports within the entity to a higher hierarchical level, which allows him to fulfill his responsibilities within the internal audit activity. The internal audit activity must not be subject to any interference in terms of defining its area of applicability, carrying out the activity and communicating the results.

Internal auditors have an impartial and uninfluenced attitude, thus avoiding conflicts of interest, that is why the declaration of interests is completed. If the objectivity or independence of the internal auditors is affected in fact or in appearance, the interested parties must be informed

about the details of the situations that create these damages. The form of this communication will depend on the nature of the damage. The objectivity of an internal auditor is affected, when he performs an assurance mission for an activity for which he was responsible during the previous year.

The assurance missions aimed at the functions for which the head of the internal audit activity is responsible must be supervised by a person who is not part of the internal audit structure. While internal auditors can offer consulting services in relation to the implementation of the operations for which they were responsible in the past. If the independence or objectivity of the internal auditors could be affected in connection with the proposed consulting services, they must inform the client, who requested the assignment, about this before accepting it.

Internal auditors must have the knowledge and skills necessary to exercise their individual responsibilities. The internal audit department must possess or acquire collectively the knowledge and other skills necessary to exercise their responsibilities. Missions must be performed with competence and professional conscientiousness. The leader of the internal audit activity must obtain expert advice and assistance from other people if the staff in the Internal Audit Department does not have the knowledge or other skills necessary to partially or fully carry out the mission.

Internal auditors determine the main risks within the activities carried out by the entity. The leader of the internal audit activity must refuse a consulting mission or obtain specialized assistance from other people if the staff in the internal audit department does not have the necessary knowledge or skills to carry out the mission.

The internal auditor pays the necessary attention to the professional practice of the audited entity, taking into account the following elements:

- the scope of activity necessary to achieve the objectives of the mission;
- the relative complexity, the threshold of significance or the significant nature of the problems to which the procedures of the missions are applied;
- the adequacy and effectiveness of the risk management, control and governance processes of the organization;
- the probability of the existence of significant errors, irregularities or non-conformities;
- the cost of applying the missions in relation to the potential advantages.

In the conscientious exercise of the activity, the internal auditor must consider the use of computer-assisted audit tools and other data analysis techniques.

The internal auditor shows special vigilance regarding the significant risks that could affect the objectives, operations or resources of the organization. However, the application of internal audit procedures, even if carried out with the necessary professional conscientiousness, does not guarantee the identification of all significant risks.

The internal auditor, when carrying out a consulting mission with professional conscientiousness, will take into account the needs and expectations of the clients, including regarding the nature, planning and communication of the results of the mission, the relative complexity of the mission to achieve the objectives established at the entity.

The leader of the internal audit activity develops quality assurance and improvement programs to cover all aspects related to the internal audit activity and permanently monitors its effectiveness. The program includes internal and external evaluations of the quality of the entity's activity and permanent monitoring. The developed program helps the internal audit activity to

bring added value and improve the organization's activities and provides an assurance that the internal audit activity is carried out in accordance with the Internal Audit Standards and the Code of Ethics. Thus, internal auditors improve their knowledge and skills through continuous professional training. The internal audit activity must adopt a process that allows monitoring and evaluating the overall effectiveness of the organization's quality control program.

The internal audit unit has access to all the institution's activities to assess whether the risk management, internal control and governance processes organized by the entity's management are adequate and operate in a way that ensures:

- adequate application of the legal framework, achievement of the objectives of the public institution;
- identification and appropriate management of risks;
- the appropriate interaction with and between the managers of the public institution;
- correctness, safety and timeliness of information;
- compliance of the employees' activity with the policies, procedures, regulations of the institution and directives of the management;
- the economy, efficiency and safety of resources;
- realization of programs, plans and objectives;
- improving the entity's internal control processes.

Internal audit, initially focused on accounting issues, has today become a powerful tool for detecting the main risks of organizations. The audit has specific functions for this activity, which consists in offering consultations to the head of the entity and providing assistance to personnel with managerial tasks.

The internal auditor provides advice to the manager regarding the administration of the activities for which he is responsible. That is why the internal auditor considers himself an adviser, who helps the management to solve the problems related to the economic-financial activity, so that the decision approved by the manager ensures a more effective control in the future. As an advisor, the internal auditor acts professionally and with the application of certain tools and techniques.

The internal auditor provides assistance not only to the management, but also to the entity's staff. The interest in the internal audit is manifested by any employee of the entity, more particularly the staff is interested in minimizing the risks related to compliance with the basic regulations or related to the effectiveness of the entity's activities. The need for assistance is more obvious in the case of risks related to misappropriation of funds, fraud or disappearance of assets. The internal audit is an activity within the entity aimed at providing solutions for improving the risk management and internal control system.

The internal auditor works both in the private and in the public sector, contributing to the improvement of internal control related to all activities carried out within the entity, including those of a financial and accounting nature. Internal audit helps managers to better control the activity of the entity. To achieve this goal, the internal audit must have the possibility to audit every activity within the entity. Therefore, the internal audit activity is carried out by specialists from various professional fields. If the entity cannot afford to hire the necessary specialists, it will resort to contracting external experts.

Internal auditors are hired by the entity to control its activity. They report directly to the entity's board of directors. Their responsibilities are different and depend on the employee's requirements, from a routine check of record compliance to the audit or control of financial statements. The internal auditors are subordinated to the higher management bodies of the unit. External users of information do not really accept their information and do not rely on the data verified only by internal auditors, due to their lack of independence.

Internal audit exists and operates permanently within the entity, but certain objects are audited more frequently or less often depending on the problems and risks they face. The audit schedule of the structures, activities and operations within the entity is established in the strategic plan, the annual plan and the internal audit program.

Currently, the term audit is associated with the activity of financial control, especially the activity of auditing financial statements. Due to the high costs characteristic of external audit, some entities created internal audit structures, which operated with lower costs. These costs, even if they were accompanied by additional payments for certification of the financial statements by the external auditor, added up did not exceed the price of a complex external audit service. In this case, the external auditor did not start the work from scratch, but relied on the results of the internal audit. Currently, units with internal audit services are visited by external auditors in order to make comparisons and various analyses, but not for detailed checks of operations and processes.

The internal auditor is engaged to provide consultations and proposals for the manager of the entity regarding the minimization of risks related to the economical use of means or to identify weak points in their management. The internal audit activity consists in the permanent performance of checks, inspections and analyzes of the internal control system in order to objectively assess the extent to which it ensures the fulfillment of the entity's objectives and the use of resources in an economic, effective and efficient manner, in order to report the findings to management, identified weaknesses and proposed measures to improve the entity's performance.

The internal auditor examines whether the internal control is applied to each activity and operation carried out by the entity and whether the existing internal control is working effectively. And based on the assessments related to the efficiency of the internal control, the internal audit formulates solutions to improve the internal control in the form of recommendations.

From what has been reported, we find that the internal audit is a new function with singular particularities. The internal audit has functions of analysis, consultation and recommendation, it presents internal audit reports that reflect the real situation of an institution under all aspects of activity and that include proposals for solving the gaps detected in its activity. Thus, the internal audit applies to all types of enterprises and all activities within it, which inevitably leads to the provision of objective and truthful information to information users, necessary for decision-making within the entity's activity.

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## PRELIMINARY PROCEDURES AND CHARACTERISTICS UNDERLYING THE APPLICATION OF CONSOLIDATION TECHNIQUES

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***Abstract:** The need to form financial and industrial groups in the Republic of Moldova was determined by the development of market relations, large-scale privatization, structural changes in production, the predominance of international trade over domestic production, etc.*

*Consolidation is a technique that allows the presentation of unified information for groups of organizations that are legally independent but financially connected or dependent on a common decision-making center. This procedure allows you to present the financial statements, overall results, economic benefits of these economic units, as for a single entity.*

***Key words:** consolidated financial statements, consolidation techniques, set of indicators of controlled companies, investors, economic globalization tool, industrial financial group, intergroup economic transactions.*

**JEL Classification: M41**

### **Introduction**

Globalisation implies and has been at the root of the means of integration and interdependence, which have led to changes in economic, political, social and technological processes, ensuring a more interconnected society.

Globalisation is a process that has promoted the integration of societies through various activities, which are driving forces behind a significant proportion of human development. Also, the international mobility of factors of production, and especially capital, has led to the need for the existence of globalisation of activities, if we are to speak of the aim of companies to obtain large profits, bearing smaller accounts, compared to the internal growth of entities at national and international level.

The evolution of accounting systems at national and international level are also influenced by the phenomena of interconnected economies and globalisation of financial markets.

The need for the formation of financial-industrial groups in the Republic of Moldova is linked to the development of market relations, structural mutilation in production, predominance of international trade over domestic production, etc.

If we talk about the accounting systems used at the level of groups of companies, which have a physical presence in different countries and are subject to the regulatory basis applied in the countries of residence of the groups of entities, then we can see that there are permanent problematic issues regarding the preparation and preparation of consolidated financial statements.

In the following table we have presented the basic definitions of the accounting of consolidated accounts at the level of groups of companies, found in various normative acts and scientific works on the subject.

**Table 1. Addressing basic definitions related to the consolidation of accounts in different legislation / scientific papers**

Normative act / Scientific papers	Definitions on the theme
Accounting and Financial Reporting Law No 287 of 15.12.2017, Art. 3 para. (1)	<i>Entity-daughter</i> (Subsidiary entity) - an entity controlled in whole or in part by the parent entity; <i>Parent entity</i> - an entity that controls one or more child entities; <i>Affiliated entities</i> - entities within a group.
National Accounting Standard "Presentation of Consolidated Financial Statements", approved by Order of the Ministry of Finance no. 93 of 07.06.2019, art. 5	The parent entity is required to prepare consolidated financial statements if it has control over subsidiaries that are characterised by: - a majority of the voting rights of shareholders or associates in another entity; - the right to appoint or remove a majority of the members of the board, executive body or supervisory body, as the case may be, of another entity and is simultaneously a shareholder or associate of that other entity; - the right to exercise significant influence over an entity of which it is a shareholder or member by virtue of a contract entered into with that entity or a provision in the instrument of incorporation or statutes of that entity; - being a shareholder or associate of an entity and alone controlling a majority of the voting rights of the shareholders or associates of that entity as a result of an agreement with other shareholders or associates of the entity.
Grigori, L., etc. 2021. <i>Enterprise accounting</i> . Manual, page 194	<i>Equity interests</i> are rights in the form of shares or other interests held by the entity in the share capital of other entities.
National Accounting Standard "Equity and Debts"	<i>Share capital</i> is the total value of the shares of the owners of the entity.
IFRS 10 „Consolidated financial statements”	There is a <i>controlling relationship</i> if an investor has: - power over the entity in which it has invested; - exposure or rights to variable returns from his involvement in the investee; and • - the ability to use its power over the investee to affect the value of those returns.
Săcărin, M., 2014. <i>Account consolidation practices and regulations</i> . Manual, page 16-17	<i>Consolidated financial statements</i> have the basic objective of providing useful information for decision-making and are considered indispensable for both internal and external reporting. The consolidated financial statements provide the parent company's managers with uniform information for assessing the management of subsidiaries, irrespective of their location (domestic or foreign), national regulations or sector of activity.

**Source:** Adapted by the authors [1, 3, 4, 5, 6, 7]

From the legal provisions analysed above, it follows that the parent entity is obliged to prepare consolidated financial statements if it has control over its subsidiaries.

The *aim of this article* is to research and examine the problematic aspects related to the preliminary procedures underlying the application of consolidation techniques, and the objective is to investigate and elucidate the key moments underlying the resolution of questions related to the subject of consolidated accounts, and directly the preliminary procedures underlying the application of consolidation techniques, proposed for development and analysis by the author.

Therefore, the provisions of national and international accounting regulations, as well as the works, researches and opinions of local and foreign economists and scholars have been studied in order to formulate conclusions and recommendations on the issues addressed.

### **Methods applied**

The research method is based on the analysis of theoretical and practical material on problematic issues related to the preliminary procedures underlying the application of consolidation techniques. The theoretical foundation was based on analysis, synthesis, deduction and the inductive method used for a clear and representative interpretation. The importance of the present article's research lies in achieving the nominated aim and objective by examining the provisions of national and international accounting regulations, as well as the works, researches and opinions of local and non-resident authors, scholars and researchers, in order to solve the concerned issue.

### **Results and discussion**

The participants of the Financial Industrial Group shall be deemed to be the legal entities, which have signed the agreement on the establishment of the Financial Industrial Group and the establishment by them of the parent company and the subsidiaries, which form the Financial Industrial Group.

According to Article 4 of the Law on Financial-Industrial Groups No. 1418 of 14.12.2000 "*Financial-industrial group* means a group of legal entities, registered by the authorized state authority, which, on the basis of the contract, have associated, in whole or in part, their tangible and intangible assets and operate as subjects with equal rights of entrepreneurial activity for the purpose of carrying out investment projects and programs, aimed at increasing the competitiveness of local production and expanding markets for the sale of goods and services". [2]

The members of the financial-industrial group are legal entities - commercial or non-commercial organisations, with the exception of public and religious organisations, which have joined together on the basis of the contract establishing the financial-industrial group.

Transnational financial-industrial group means a financial-industrial group whose members are legal entities under the jurisdiction of other States.

Inter-State financial-industrial group means the existence of a financial-industrial group, which is formed on the initiative of the governments of the participating countries on the basis of an intergovernmental agreement.

The contract of establishment of the financial-industrial group is an agreement between legal entities, which determines the manner and conditions of establishment of the financial-industrial group.

The central company of the financial-industrial group is a legal entity established by all participants in the agreement on the establishment of the financial-industrial group in the legal form of a joint-stock company, which represents the interests of the members of the group and is empowered to manage its affairs.

The draft organization of the financial-industrial group consists of a package of documents, prepared by the members of the financial-industrial group, containing necessary information on the aims and tasks, investment projects and programmes, expected economic and social results of the financial-industrial group's activity;

State register of financial-industrial groups is a single database containing information on established, reorganised and liquidated financial-industrial groups. [2]

The registration of consolidation procedures contributes to the creation of an information circuit that allows the parent entity to:

- set objectives for each group entity;
- assess the performance of group entities and compare them;
- carry out sub-consolidations by business lines, etc.

The requirements for the content of financial reporting have changed fundamentally under the influence of the changing labour and capital market situation: the increase in the number of entities at national and international level has led to the fact that some entities have attracted additional resources from outside to maintain or expand their business, while other entities have been able to provide their own available resources in order to obtain greater economic benefits.

Consolidation of accounts may be carried out by listed or unlisted economic agents, as well as autonomous enterprises, public institutions, carrying out industrial or commercial activities, if they control one or more entities or exercise significant influence over them, and the group established exceeds during two successive accounting periods a certain size of financial result, balance sheet value, or number of employees, etc.

In contemporary economic literature, the role of groups of entities in the internationalisation of economic relations is examined primarily from the point of view of technology transfer.

At the same time, the countries that receive groups of entities on their territory must know in advance their potential and what lies in the combination of fundamental knowledge - generally accessible - with the unencrypted, highly specific technologies that represent the know-how of the given transnational company and that are formed over several years of its evolution.

According to Article 5 of the National Accounting Standard "Presentation of Consolidated Financial Statements", approved according to the Order of the Ministry of Finance No. 93 of 07.06.2019 "The parent entity is obliged to prepare Consolidated Financial Statements if it has control over the subsidiaries", the characteristics of which are exposed to analysis by the matter reflected in Table 1, including preliminary procedures and characteristics underlying the application of consolidation techniques on enterprises can be achieved through different ways, which are determined, including legal circumstances, tax conditions, etc. [3].

That is, in addition to the individual financial statements, the parent entity prepares consolidated financial statements in accordance with the provisions of the Law on Accounting and Financial Reporting and accounting standards, which provision is established according to Article 27 of the Law on Accounting and Financial Reporting No. 287 of 15.12.2017. [1]

In international practice for complex group structures, two consolidation techniques can be used:

- Direct;
- Indirect or tiering.

*The direct consolidation technique* involves the consolidation by the parent entity of all the companies within the group, regardless of whether the parent entity holds, directly or indirectly, participating interests in their capital. The use of this consolidation technique requires prior determination of the parent entity's share of the equity of the consolidated companies. This technique provides direct financial information at the level of the whole group and makes it possible to determine the contribution of each company to the reserves and results of the group of entities.

*The indirect or tier consolidation technique* involves the successive consolidation of each company within the group by the entity that owns its securities. This technique involves consolidation at each level of vertical integration. This results in financial information for different segments within the group (sub-groups). Compared to direct consolidation, level consolidation is more labour-intensive and difficult to carry out when the ownership links between group entities are complex.

For each entity that may be included in the scope of consolidation, the process that led to the decision to be consolidated or not and then the applicable consolidation method must be examined. The voting rights held by the parent company should then be determined as the basis for the consolidation process for entities that are neither under common control nor under contractual control.

The percentage of control (percentage of voting rights) held by the consolidating entity in the general meeting of the consolidated entities is the main element on the basis of which control and significant influence is determined. Thus, although control and significant influence can sometimes be determined independently of the percentage of control, in consolidation it is taken into account that:

- a percentage of control greater than 50% allows control to be enforced unless proven otherwise;
- a percentage of control between 20% and 50% allows significant influence to be exercised unless proven otherwise.

Percentage of control should not be confused with financial involvement, which is determined by the percentage of interest.

For each company that may be subject to consolidation, the following steps are considered: first, those entities that are under common or contractual control of the parent entity are identified, then - for other undertakings - it is determined which of them are considered to be under the sole control or significant influence of the parent entity.

To determine whether an entity is considered to be under the sole control of the parent entity (with full integration) or under its significant influence (with equity method), one must:

As a first step, determine the percentage of voting rights held by the parent entity and taking into account indirect holdings determine one of the following:

Voting rights:

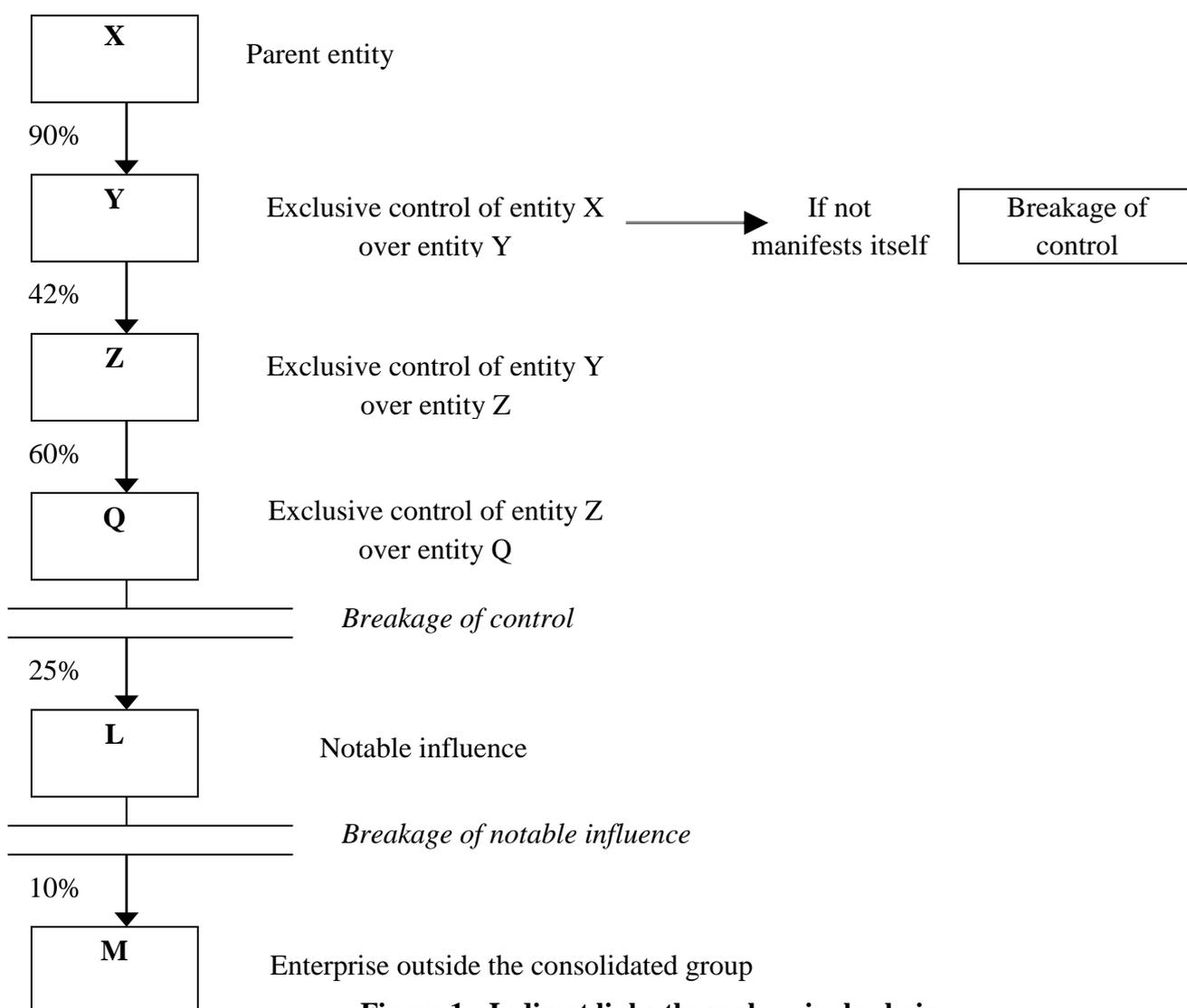
- between 100 % and more than 50 % -exclusive control;
- between 50 % and more than 40 % - presumption of sole control;
- between 40 % and 20 % - presumption of significant influence;
- below 20% - exclusion from consolidation.

In the second stage, any justifiable exceptions to the previous situations of establishing links between entities in a group of entities are made.

Finally, the companies under sole control which should be accounted for by the equity method due to the structure of their individual accounts and incompatible with that of the individual accounts of the parent entity are determined.

Determining the parent's links with other entities requires the existence of sole control, significant influence or neither and distinguishing different types of financial links with the parent.

When a break in control occurs, it must be determined whether the next entity in the chain can be regarded as an entity subject to significant influence.



**Figure 1 - Indirect links through a single chain**

Source: Authors' own study, based on [7]

When the entity causing the breakdown of control is under significant influence and is itself the head of the consolidated group, exercising control or significant influence over other

undertakings, the question arises whether its individual or consolidated accounts should be retained.

For some, the consolidated group is limited to the entities controlled and under significant influence, with all accounts being kept in their individual form.

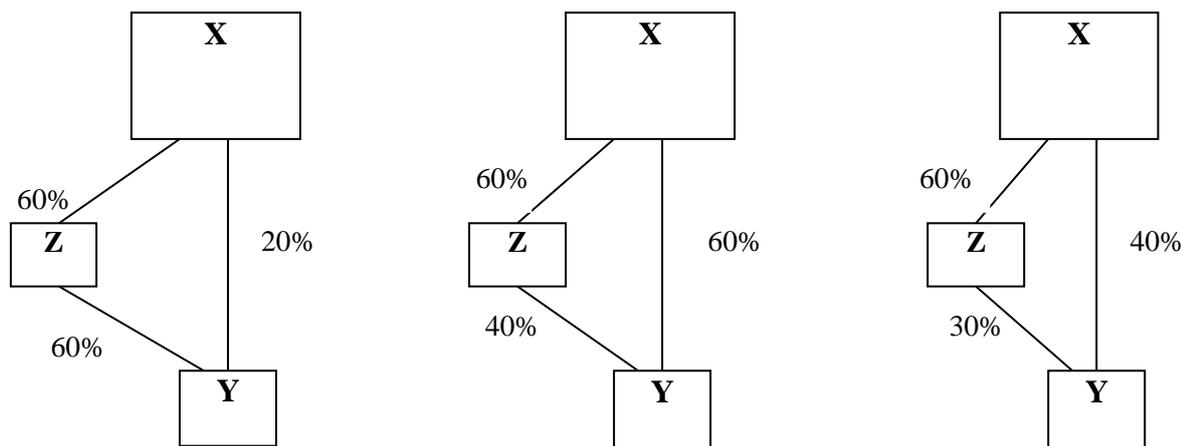
For others, controlled undertakings and undertakings under significant influence, being part of the consolidated whole, the accounts are kept in their consolidated form.

In the case of direct or indirect links through several chains, the problems arise as follows:

- If an entity is under the sole control of an enterprise at the end of a chain that does not include enterprises under sole control, it is itself under the sole control of the parent enterprise (if it has direct control); it cannot concern itself with other linking chains;

- If an entity is subject to the significant influence of its predecessor at the end of a chain of sole control, it is itself subject to the significant influence of the parent (if the parent directly exercises significant influence).

The following cases can serve as examples of direct and indirect links through several chains:



**Figure 2 - Exclusive control of entity X over entity Y**

Source: Authors' own study

Groups of entities can also be characterised according to the activity carried out. Thus, some groups carry out a single activity, while others, on the contrary, are active in several sectors of activity between which there is no connection. Groups in the latter category are called conglomerate groups.

Parent entities, which hold shares in subsidiaries, are sometimes also called holding companies. These entities whose sole function is to hold equity interests and which do not have an operational activity are referred to as pure holding companies. The contents of the balance sheet (individual accounts) of the pure holding company are, on the assets side, equity securities and loans granted to subsidiaries and, on the liabilities side, equity and long-term and short-term liabilities. The profit and loss statement includes dividend and interest income, interest expense and, possibly, reserves for impairment of investment securities.

## Conclusions

After examining the material, the following conclusions can be drawn. As it appears from the above, capital ties between companies are the basis for the existence of groups of entities. But groups of entities can also exist in the absence of capital ties. In this situation, cohesion between companies belonging to the same group is due to the fact that:

- The main shareholder of each entity is the same natural person or the main shareholders are several natural persons belonging to the same family;
- The group entities are placed under common management, even if there is a multiplicity of owners or shareholders;
- Entities have very close contractual relationships that result in the behaviour of integral enterprises;
- Entities are linked by profit-sharing agreements, etc.

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## PROBLEMATIC ASPECTS RELATED TO LOGISTICS AND SHIPPING COSTS IN ONLINE STORES

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**Abstract:** *As could be seen after the outbreak of the pandemic, the food industry moved its activity to the digital world. In addition to the need to consider whether this is a viable move due to high operational costs, retailers of products (especially food) should also take into account the fact that there are some characteristics to the logistics of an online supermarket and their transportation, which affects the whole activity. Successful food chains, whose operations were digitized before or during the pandemic, achieved colossal results but also had to overcome logistical obstacles (the appearance of new customers). Indeed, there is no way to avoid these complexities. In this article, we will highlight the main peculiarities of the logistics and transport of an online supermarket: both the sensitive points and the opportunities for food retailers.*

**Keywords:** logistics, cost, distribution chain, accounting, small and medium enterprises, online store.

**JEL Classification:** M20, M41

The domestic sphere of commodity circulation is characterized by a high rate of institutional transformations of market formats, which entail large-scale organizational and economic changes in its functioning. The arrival of foreign retail chains that implement industrialization technologies in trade stimulated the expansion of network forms of retail organization in the consumer market. The active development of supply chains within the direct sales system has led to the abolition of the traditional wholesale trade model, especially in food retail, the transition from an open market format to civilized store sales forms [4].

At present, the domestic retail industry is characterized by the development of a multi-channel sales model, which is rapidly transforming the business models of modern trade. The emergence of a multi-channel sales model creates a fundamentally new role for logistics, which in the current phase of online retail development not only provides an opportunity to differentiate the product and service offer, but also creates an additional barrier to entry into the market, increasing retail monetization in digital distribution channels.

Currently, e-commerce is gaining more and more ground, at the expense of the traditional one. More and more citizens are doing their shopping online, and interest in entering eCommerce is growing among many entrepreneurs who have had no previous experience in this market, so the first thought turns to costs.

As professional accountants, it is very important to be prepared in this field, to know what the conditions are to operate legally in this sector of activity, so that we can face all the challenges.

Among the advantages of e-commerce can be listed:

- 1) for SMEs - it is an excellent possibility to start a business with a lower initial investment;
- 2) there is no rent for commercial premises;
- 3) no need for expensive shop repairs;
- 4) no need for a salesperson, no training for them;
- 5) at the same time, due to the main characteristics of e-commerce (transparency, speed, real-time feedback), the trader should invest more time and financial resources in the following three areas: accounting, taxation, and other legal implications [9].

The main normative acts that regulate electronic commerce in the Republic of Moldova are:

- 1) Law on internal trade no. 231/2010
- 2) Law on entrepreneurship and enterprises no. 845/1992
- 3) Law on electronic commerce no. 284/2004
- 4) Law regarding the exercise of unqualified activities of an occasional nature carried out by day laborers no. 22/2018
- 5) Law on the manner of introduction and removal of goods from the territory of the Republic of Moldova by natural persons no. 1569/2002
- 6) Law on consumer protection no. 105/2003
- 7) Labor Code of the Republic of Moldova no. 154/2003
- 8) Law on the protection of personal data no. 133/2011

As could be seen after the outbreak of the COVID-19 pandemic, the food industry has moved its activity into the digital world. In addition to the need to consider whether this is a viable move due to high operational costs, grocers should also take into account that there are some characteristics of the logistics of an online supermarket that affect their entire business.

Next, we will highlight the main particularities of the logistics of an online supermarket with the characteristics of their sensitive points and the opportunities that may exist in their removal.

Ensuring profitability throughout the supply chain is one of the main challenges facing the online supermarket logistics industry, mainly as a result of last-mile pickup and delivery. Another difficulty lies in inventory management, which we'll talk about eventually.

When a person places an order online, regardless of the fulfillment option they choose, someone must pick up the selected products and prepare them for shipping or pickup. At first, it may not seem like a difficult part of the operation, but this is one of the most difficult tasks - with a high cost:

- It involves labor costs for those who will actually do the picking: it draws attention to the fact that 70% of the costs of warehouse operations are related to labor costs, and 70% of the work time is used for picking orders [10];

- A pick-up order to follow: fresh and frozen products should be last to ensure they are still good to eat when delivered;
- The efficiency of picking can vary depending on where it takes place: in regular stores, there are customers buying products, and the aisles are designed to make them walk around, which affects their direct picking;
- The availability of the products must be foreseen to guarantee the correct takeover; otherwise, customers should be offered an option to replace the unavailable product;
- Customer preference for fresh products: Picking up these specific products will not always satisfy the end customer and they may ask for a refund in certain situations [11].

### **Last mile delivery**

The final stage of the delivery process, also known as final delivery, which occurs from the moment the order leaves the distribution center until it reaches the end customer. It is considered the most expensive part of the entire online grocery operation since most of its costs are variable (ie time spent in city traffic). According to studies, this represents 41% of total supply chain costs.

Although not exclusive to the food industry, there is once again a need for this to be as fast as possible, as fresh and frozen products are among the products being shipped. They are also required to have the lowest (or no) delivery charge to the end customer as per customer expectations. And of course with the lower cost to the company – that's the challenge.

There are innovations in last-mile delivery. However, there is difficulty in identifying a business model that not only works for grocery stores but also lives up to customer expectations.

So far, the solutions that food retailers have found to approach this scenario are the ones mentioned above: they will not only operate in virtual stores in urban areas, where orders are concentrated but also, will offer different shipping options for customers as a way to dilute last-mile delivery costs.

### **Stock management**

Managing the inventory of a regular store can be easy because customers can clearly see which products are out of stock and compare the labels and prices on the shelves. When it comes to online grocery shopping, however, this can become a challenge: How can we keep inventory numbers accurate while avoiding stockouts and not frustrating our customers?

To respond to this scenario, there is a need to create a process similar to the physical experience of color browsing where replacement options are provided (either through product recommendations, easy-to-navigate websites, or pickup policy) and also to predict order volumes, which is something feasible in an online operation, which provides companies with customer behavior data [1].

Once again, technology is a possible solution here: investing in tools and features that will guarantee as much inventory accuracy as possible and allow customers to buy, perhaps not the main option of the out-of-stock product, but a second option, and not to ask for a refund if the chosen product is not available.

These are measures that will not only ensure cost-effectiveness for grocers but also customer satisfaction.

Among the existing opportunities for food retailers can be described the following:

1) **First of all, the creation of virtual stores.** As a result of the growing volume of online orders, many grocers have opted to turn part of their brick-and-mortar stores into local warehouses where customers cannot go shopping. Instead, these stores are only used to fulfill online orders, and only if necessary, these units could also be converted into brick-and-mortar stores. The concept of "virtual store" is relatively new, it developed with the pandemic when online orders suddenly became normal, and it is considered a long-term trend by specialists. There are several reasons why it has become so popular for food retailers:

- It reduces delivery times, as the pick-up operation can be carried out easily and faster;
- Facilities inventory management, namely order management and more accurate pickup; in physical stores open to customers, it is much more difficult to accurately track stocks in real-time;
- It enables automation – whether it's picking or inventory management – leading to faster delivery.

It is not exclusive to the food industry: other segments with online activity also have virtual stores, or so-called "semi-virtual stores", which allow customers to pick up orders. However, there is a perfect fit for the food industry due to the challenges when it comes to managing online orders (ie, the quantity of items per order is much higher, from about 20 to 50, and with fresh items in between). We're not saying that running a virtual store isn't another food logistics challenge to consider, but it does show us that they're becoming more and more essential to online operations and can even be the solution to some common logistics problems like last-minute delivery. Kilometer [5].

2) **Order fulfillment options: in-store shipping, in-store pickup, and home delivery.** At this stage, customers expect different fulfillment options when shopping online. As has been shown, for example, younger customers prefer to shop online and pick up the order in-store instead of opting for home delivery. To keep up with trends and maintain customer satisfaction, then, it's important to offer all the transportation alternatives they want.

The main ones are home delivery and store pickup.

For businesses, another option that can bring many benefits to the fulfillment operation is in-store shipping. The order is delivered to the customer's home, but not from warehouses or virtual stores, but from a real store.

Managing such different operations may seem complex, but at the same time, it is important to say that it not only keeps customers loyal but can also reduce costs. When shipping from a brick-and-mortar store, inventory dedicated to digital channels will not depend on, for example, a virtual store or warehouse. When in store pickup is offered, delivery costs are reduced and problematic last-mile logistics are avoided.

Managing such different operations may seem complex, but at the same time, it is important to say that it not only keeps customers loyal but can also reduce costs. When shipping from a brick-and-mortar store, inventory dedicated to digital channels will not depend on, for example, a virtual store or warehouse. When in store pickup is offered, delivery costs are reduced and problematic last-mile logistics are avoided [5].

Experts argue that decentralized fulfillment operations are the best option for retailers (and therefore grocers). A centralized model has a higher distribution cost and longer delivery times, the exact opposite of a grocery order.

Last but not least, technology is seen as the main ally of fulfillment efforts. It allows automation and therefore more orders to be completed in less time, all with more accuracy and lower costs. Everything is connected: Virtual stores are often considered to be the best fulfillment model for grocery retailers, for all the reasons mentioned above, and also a more efficient way to offer home delivery or any other option. In the case of an automated virtual store, these efforts show even more results.

**2.1. Speed of fulfillment.** Nowadays, speed is more important than ever. Even more so when it comes to fulfillment and delivery: currently, according to studies, 75% of customers prefer online shopping for safety, convenience and speed.

Optimizing delivery options to guarantee faster fulfillment is the ideal scenario, and brands have found a way to do this: creating delivery slots by having micro-fulfillment centers in urban locations to reduce last-mile delivery time and investments in technology that enable faster fulfillment of orders [7].

**2.2. Scheduled delivery.** Scheduled delivery for recurring orders is a standard for regular orders, an opportunity for the food industry regarding digital operations. Since online supermarkets are a permanent service and people need to shop for food and other household items constantly, there is an opportunity to offer customers the opportunity to place recurring orders with scheduled delivery. This means that once a week, twice a month, or any frequency they want, they will receive the selected items in their homes without having to go through the purchase process every time.

Providing these services is not only a way to prepare for future order deliveries, but also to build customer loyalty, increase sales and highlight the convenience of services.

**2.3. Partnerships with third-party services.** A solution identified by grocers to deal with the logistics costs of an online supermarket, especially those with last-mile pickup and delivery, is to outsource these services through partnerships with other companies that offer this service.

While there is a fee for both the third-party company and the person taking and delivering the order, they tend to be less than the costs of actually owning these services.

This trend is growing for grocery stores, restaurants, and pharmacies – businesses that these delivery services are focused on. As these businesses become facilitators, nothing changes for the end customer. Studies have shown that 64% of consumers are indifferent to whether the delivery is made by store employees, individuals, or third-party couriers [5].

The food industry, when it comes to business transformation, is just like any other: there are ups and downs, generally. When we look at the logistics of this transformation, however, that's when we realize how difficult it can be, but also what opportunities retailers have to reinvent the market and maintain sustainable operations. The truth is, there's no one-size-fits-all answer when it comes to bringing your grocery business online: it will always depend on your willingness to overcome challenges and make the most of opportunities.

**Conclusion.** During the analysis of the constraints facing the development of electronic commerce, a number of constraints caused by the evolution of this type of economic activity were identified, which require easy adjustment and clarification of the legislative treatment, such as:

- interaction with the tax authorities online (submission of declarations, electronic applications, information presented to the authorities, certificates, copies, etc.);
- standardizing requirements for residents and **non-residents in the e-commerce process.**

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## RETURN OF THE ASSOCIATE’S CONTRIBUTION TO THE ENTITY: ACCOUNTING AND TAX ISSUES

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***Abstract.** The evolution of events in everyday life can often lead us to receive some decisions contrary to our initial intentions. Thus, in entrepreneurial activity there are situations in which the owners (partners) of an entity may request from the entities in which they have invested the return of material assets which they had previously transferred to these entities as a contribution in kind to the share capital. This article examines some problematic issues relating to the return of contribution in kind. Using research methods, such as analysis and inference, the opinions of local scholars have also been studied, which has allowed the formulation of more solid conclusions and recommendations on the solution of the problem under investigation.*

***Key words (terms):** share capital, withdrawn capital, contribution in kind to share capital, redemption of share, associate.*

**JEL Classification: M41**

### **Introduction**

One of the essential conditions for the establishment and functioning of the entity as a legal person is to endow it with certain patrimonial values, which allows the legal entity to manifest itself in the civil circuit. The foundation of the patrimony, in the narrow sense, is constituted by the rights with which the founders of the entity endow it, the group of which forms the social capital upon incorporation.

The following table presents the definition of the registered capital in different normative acts.

**Table 1. Comparison of the definition of social capital in different normative acts**

Normative act	Definition
CC art. 251 paragraph (2)	The registered capital of the trading company is formed from the contributions of the founders expressed in lei.
Law on joint-stock companies no. 1134 of 02.04.1997, art. 38, paragraph (3)	The registered capital is constituted by the value of the contributions received on account from the payment of shares and will be equal to the nominal (fixed) value of the shares exposed, if this has been established.
Law on Limited liability companies no. 135 of 14.06.2007 art. 21, paragraph (1)	The registered capital of the company is constituted by the contributions of the associates and represents the minimum value of the assets expressed in lei, that the company must own.
NAS "Equity capital and liabilities"	The registered capital represents the total value of the social shares of the entity's owners`.

**Source:** developed by the authors based on [1, 4, 5]

From the legal provisions analyzed above, it follows that the associate's contribution to the registered capital of the company (Llc), as a rule, is made in cash or in non-monetary form (goods), if the partnership agreement provides for this fact.

*The purpose of this article* consists in the research and examination of the accounting and fiscal aspects related to the reduction of the company's share capital with the aim of returning to the associates some parts of the contributions made by them in the share capital , and the objective lies in the investigation and elucidation of the problems listed above .

Therefore, the provisions of the national accounting regulations were studied, as well as the works, researches and opinions of local economists and scholars in order to formulate the conclusions and recommendations on the issues addressed.

### **Applied methods**

The research method emerges from the analysis of the theoretical and practical materials regarding problematic issues related to the return of the contribution of the associate to the entity . The basis of the theoretical foundation was the analysis, synthesis, deduction and inductive method used for a clear and representative interpretation. The importance of the research of this article consists in achieving the nominated goal and objective, by examining the provisions of the national accounting regulations, as well as the works, researches and opinions of local authors, scholars and researchers, in order to solve the problem in question.

### **Results obtained and discussion**

According to point 15 of the National Accounting Standard "Equity and liabilities", the reduction of the share capital is accounted for as a reduction of it simultaneously with:

- 1) the reduction of the unpaid capital, if the owners have not fully submitted the subscribed contributions within the terms established by the legislation in force;
- 2) the reduction of the entity's losses from the previous years when covering them;

- 3) the reduction of the capital withdrawn upon the cancellation of the acquired, redeemed or previously acquired company shares;
- 4) the increase of the debts towards the owners upon their restitution of some fractions of the company shares.

In accordance with paragraph (4) art. 22 of [the Law on limited liability companies no. 135 of 14.06.2007](#), "*During the period of activity of the company, the associates cannot ask for the restitution of their contribution paid in the social capital*". However, this rule is not mandatory. If there is a decision made by the company's associates to reduce the share capital with the aim of returning to the associates a part of their contributions to the share capital made by them, subject to compliance with other provisions of the law that restrict the decrease of the share capital (depending on the level of the net assets), the law allows the restitution of associates' capital contributions.

Thus, there are situations in which the associates of the company decide to reduce the share capital in order to reimburse the associates' part of their contributions to the share capital. This opportunity is provided for in paragraph (3) art. 34 of Law no. 135 of 14.06.2007: "*If the reduction of the share capital is not motivated by losses, **the restitution of some fractions of the contributions to the associates is carried out by the company only after the state registration of the changes made in the documents of association, changes determined by the reduction of the registered capital, ...***".

Thus, we further propose to analyze the accounting and fiscal aspects related to this situation depending on the form of the contributions to the social capital, the date and the conditions of the restitution of the contributions.

In accordance with paragraph (1) art. 23 of [the Law](#) on limited liability companies no. 135 of 14.06.2007 "*The object of the contribution in kind can be any asset in the civil circuit. The good that is the object of the contribution in kind will be indicated in the deed of association*".

At the same time, according to paragraph (4) art. 23 of Law no. 135/2017 "*The goods that are the object of the contribution in kind become the property of the company, if the act of association does not provide otherwise*".

Thus, from the moment when the partner made an in-kind contribution to the capital of the company, he/she (the associate) cannot request the return (reimbursement) of their contribution, the asset transferred becoming the property of the company. The contribution in kind can become the property of the former owner (associate) again only on the basis of a new transaction between the associate and the entity in which he invested. For example, based on an agreement whereby the company buys back the partner's share in the share capital in exchange for the transfer of the contribution in kind (the building).

In this case, the following distinct operations are to be analyzed both from the accounting and fiscal points of view:

- 1) redemption of the share held by the partner in the company's capital;
- 2) sale to the partner of the asset that previously constituted a contribution in kind to the social capital;
- 3) exoneration of mutual obligations.

In this case, the accounting records regarding the return of contributions from the social capital will be as follows:

- the decision of the entity’s associates to buy back the share owned by the natural person X in the registered capital:

Dt 315 "Capital withdrawn"

Ct 536 "Debts to owners"

- the sale (transfer) of the building to the associate in exchange for the share held in the capital:

Dt 234 "Other current claims"

Ct 621 "Income from operations with fixed assets"

- VAT related to the delivery of the building transmitted to the associate:

Dt 234 "Other current claims"

Ct 534 "Debts to the budget"

- writing off the accumulated depreciation of the building on the date of transmission:

Dt 124 "Depreciation of fixed assets"

Ct 123 "Fixed assets"

- settlement of the accounting value of the building transmitted to the associate:

Dt 721 "Expenses with fixed assets"

Ct 123 "Fixed assets"

- compensation of the obligation towards the partner regarding the redemption of the part of the account receivable regarding the delivery of the building:

Dt 536 "Debts to owners"

Ct 234 "Other current claims"

- reduction of the share capital on account of the share in the share capital redeemed by the Company:

Dt 311 "Share capital"

Ct 315 "Withdrawn capital"

- losses obtained from the redemption operation of the share held by X in the share capital:

Dt 332 "Undistributed profit (uncovered loss) from previous years"

Ct 315 "Withdrawn capital"

- the income tax withheld at the source of payment from the associate's income obtained from the share redemption transaction in the share capital:

Dt 536 "Debts to owners"

Ct 534 "Debts to the budget"

- compensation of the tax withheld at the source of payment by the associate from other sources:

Dt 241 "Cash-desk", 242 "Current accounts in national currency"

Ct 536 "Debts to owners"

For tax purposes, the company's income from the transaction of the transfer of the building in exchange for the share held in the capital is to be applied the provisions of art. 56 of the Fiscal Code according to which " *If the economic agent makes in-kind payments to its shareholders (associates) according to their share of participation (dividends, payments in case of liquidation or in another form), then this property is considered to have been sold to the shareholder (associate ) by the economic agent at its market price. The value basis of the property obtained by individual shareholders is the respective market price .*

Accordingly, in the tax records the entity is to recognize the income from this transaction at its market price. Thus, the corresponding adjustment will be included in annex 1D of the VEN12 income tax declaration for the fiscal period A/2022.

We are going to answer the following question whether the entity has the obligation to withhold the income tax at the source of payment from the income obtained by the associate from the transaction of redemption of the share in the entity's share capital in exchange for the return of the contribution in kind to its share capital (art. 90 of the FC). Thus, it is important to see if the analyzed situation falls under the exceptions to the withholding tax at the source of payment contained in paragraph (4) art. 90 of the FC, where in point c) it is mentioned the "... *alienation of securities* ".

According to its economic content, the analyzed transaction falls perfectly within the scope of this rule. Thus, transactions with assets that represent rights in the social capital do not fall under the withholding of income tax at the source of payment (art. 90 of the CF).

However, in specialized periodicals some authors, referring to some definitions from a number specialized laws, are of the opinion that the transactions with shares in the capital of an entity (Llc) do not fall under this rule and, accordingly, the entity has the obligation to withholds tax at the source of payment from the capital increase registered by the natural person - the associate. [2]

Therefore, the competent state bodies are to shed light on the analyzed situation and present explanations related to the uncertainties described above.

In the situation where the entity, in order to reduce the fiscal risks, decides to withhold income tax at the source of payment from the associate's income obtained from the analyzed transaction, the amount of withheld tax will be determined by the following relationship: (the market value of the share that is equal to the market value of the building received in exchange for the share – the value basis of the share held by the founder in the capital of the entity) x 50% (the taxable share of the capital increase for natural persons) x 12% (the income tax share).

In the situation when the entity does not have a source of income of the associate from which it could withhold the income tax at the source of payment, it does do it. However, this fact does not release it from the obligation to calculate, declare and pay the tax amount in the budget. In this case, the associate would pay the entity from other sources the amount of income tax withheld at the source of payment. [2]

### **Conclusions**

After examining the material, the following conclusions can be drawn. The associate's contribution in kind to the company capital of an entity (Llc) becomes its property, and the associate cannot request the return (reimbursement) of their contribution. The contribution in kind can become the property of the former owner (associate) again only on the basis of a new

transaction between the associate and the entity in which he invested. For example, based on an agreement whereby the company buys back its partner's share in its share capital in exchange for the transmission of the contribution in kind (the building).

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## OPPORTUNITIES FOR MODERNIZING THE FINANCIAL AUDIT QUALITY MANAGEMENT SYSTEM IN THE REPUBLIC OF MOLDOVA

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**Abstract.** *Replacing the concept of quality control with that of quality management will not be a formality in the modernization of the quality assessment process of audit missions, as long as the management of the audit entity will assume this responsibility. And the linear approach traditionally used until now can no longer cope with the tasks of a flexible internal control system within an audit firm.*

*The research in question is an empirical investigation to establish whether the new reforms in the field of auditing determine the performance of the audit mission in the context of the current requirements of professional quality standards. At the same time, the aim of the study is to express the opinion regarding the advantages and disadvantages of these developments at the stage of harmonizing the auditor profession with international practices. As part of the research theme, the normative acts in the field were investigated, the international good practices in the exercise of the auditor profession, aiming to highlight the role of reforms in ensuring the quality of services in this field.*

*The research carried out on this subject aims to highlight the issue of the stability of the entire audit quality management system, consistently addressed in most of the approaches of the International Auditing and Assurance Standards Board (IAASB). The scientific investigations carried out on this research topic aim to identify and propose solutions regarding the improvement of the audit quality management system in the context of the review of international standards regarding quality assurance.*

**Key words:** *audit monitoring, quality management system, policy monitoring, international auditing standards.*

**JEL Classification:** M42

### Introduction

The current audit ecosystem faces increasing expectations of modern society in high-performance quality management systems that are proactive and adaptable to the needs of users of financial information. The new obscure elements of the realities determined the development of the concept for evaluating the quality of audit engagements completed by replacing the International Standard on Quality Control (ISQC) 1 “Quality Control for Firms that Perform Audits and Reviews of Financial Statements, and Other Assurance and Related Services Engagements” with the International Standard on Quality Management (ISQM) 1 “Quality Management for Firms that Perform Audits or Reviews of Financial Statements, or Other Assurance or Related Services Engagements”. The modernization of the audit quality management system in the Republic of Moldova to international requirements will contribute to increasing the prestige and recognition of audit professionalism worldwide.

Replacing the concept of quality control with that of quality management will not be a formality in the modernization of the quality assessment process of audit missions, as long as the management of the audit entity will assume this responsibility. And the linear approach

traditionally used until now can no longer cope with the tasks of a flexible internal control system within an audit firm. The research carried out on this subject aims to highlight the issue of the stability of the entire audit quality management system, consistently addressed in most of the approaches of the International Auditing and Assurance Standards Board (IAASB). The scientific investigations carried out on this topic aim to identify and propose solutions regarding the improvement of the audit quality management system in the context of the review of international standards regarding quality assurance.

### **I. Analysis of the normative framework regarding the internal audit quality control**

The internal control of the audit quality is ensured by the development by the audit entity of its own internal control policies and procedures. Law 271/15.12.2017 on the audit of financial statements, as well as the audit standards, contains specific provisions regarding the assurance of audit quality, set out in table 1.

**Table 1. The current reference framework for the exercise of internal audit quality control**

<i>Normative act</i>	<i>Legal provision</i>	<i>News</i>
<b>Law 271/15.12.2017</b>	Article 24. Internal quality control within the audit entity	Application of audit quality control policies and procedures in accordance with auditing standards, quality control standards and the Code of Ethics
	Article 31(2), c). The audit entity is required to comply with the audit quality control requirements	The audit entity applies internal quality control procedures, effective risk assessment and audit procedures in accordance with auditing standards
<b>ISQC 1/ IAASB Handbook</b>	Quality control for firms performing audits and reviews of financial statements, as well as other assurance engagements and related services	The role of engagement quality control is to provide an objective assessment, on or before the date of the report, regarding the significant judgments made by the engagement team and the conclusions reached by it
<b>ISA 220/ IAASB Handbook</b>	Engagement teams are responsible for implementing quality control procedures that are applicable to the audit engagement	Quality control at the engagement level must provide the auditor with reasonable assurance regarding compliance with professional standards and applicable legal and regulatory provisions
<b>Code of ethics / IAASB Handbook</b>	Non-acceptance of threats to the independence of the auditor	Obtaining written confirmations from staff regarding compliance with independence policies and procedures

*Source: developed by the author based on the provisions of the legislation of the Republic of Moldova [1, Law 271/15.12.2017; 2, IAASB Handbook]*

All audit entities, in order to ensure audit quality, are obliged to develop, approve and apply audit quality control policies and procedures in accordance with Law 271/15.12.2017, audit standards, quality control standards and the code of ethics.

Article 31(2) of Law 271/15.12.2017 on the audit of financial statements provides the audit entity to comply with the requirements regarding audit quality control. Under the conditions of the nominated law, the audit entity uses internal quality control procedures, effective risk assessment procedures, protection measures and control of information processing systems. At the same time, it is obliged to carry out the audit in accordance with the auditing standards and to be guided by rules that provide that the founders, board members and those of the executive or supervisory body of the audit entity do not influence the conduct of the audit and do not endanger the independence and the auditor's objectivity.

The International Standard on Quality Control (ISQC) 1 "Quality Control for Firms that Perform Audits and Reviews of Financial Statements, and Other Assurance and Related Services Engagements" is applied by the audit entities of the Republic of Moldova in accordance with the provisions of Law 271/15.12.2017. According to article 2 of the nominated law, the notion of "quality control standards" means "international quality control standards, issued by the Council for International Auditing and Assurance Standards, which are intended for internal quality control, accepted for to be applied on the territory of the Republic of Moldova" [1, Law 271/15.12.2017].

Quality control standards, as well as audit standards, are accepted to be applied in the Republic of Moldova based on the Agreement on the right to reproduce Audit Standards and the Code of Ethics in the Republic of Moldova, signed by the Ministry of Finance on April 2, 2012 and the Council for Standards International Audit and Assurance Standards of the International Federation of Accountants on April 4, 2012. The standards are published and placed on the website of the Ministry of Finance.

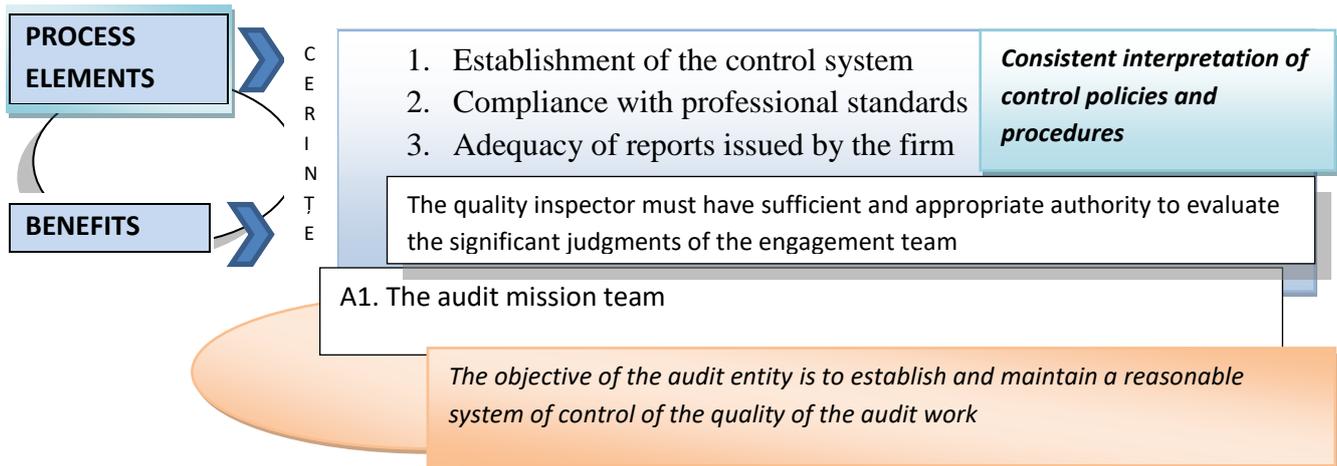
The International Auditing Standards issued by IFAC in 2018 are placed on the official website of the Ministry of Finance [2, IAASB Manual]. Currently, internal quality control procedures are covered by the following quality control standards:

- International Standard on Quality Control (ISQC) 1 "Quality Control for Firms that Perform Audits and Reviews of Financial Statements, and Other Assurance and Related Services Engagements";
- International Standard on Auditing (ISA) 220 "Quality Control for an Audit of Financial Statements".

From December 15, 2022, ISQC 1 is expected to be replaced by the International Standard on Quality Management (ISQM) 1 "Quality Management for Firms that Perform Audits or Reviews of Financial Statements, or Other Assurance or Related Services Engagements" [3]. At the same time, a new International Standard on Quality Management (ISQM) 2 "Engagement Quality Reviews" will come into force, which will also be a standard for audit quality management [4]. Along with the development of the new quality standards, ISA 220 was revised, which is the only audit standard with direct tangents related to the modernization of the audit quality system. In the new version, this standard will be found under the name of ISA 220 (Revised) "Quality Management for an Audit of Financial Statements" [5].

## II. Current Status of Internal Quality Control for Entities Performing Audits and Reviews of Financial Statements

Currently domestic audit entities develop, comply with and apply internal quality control procedures in accordance with the provisions of ISQC 1, ISA 220 and the Code of Ethics. The legal framework prescribes a set of requirements, presented in figure 1, which must be respected in order to design and implement an internal audit quality control system.



**Fig. 1. Features of an internal quality control system in accordance with ISQC 1, ISA 220 and the Code of Ethics**

Source: developed by the author based on the provisions of the Manual of International Auditing, Assurance and Ethics Regulations [2]

Taking into account the existing legal framework, we consider that any audit entity, authorized to practice audit activity, must independently develop a manual of audit quality control policies and procedures and issue an approval and notification provision his employees. There is already a practice in this regard within large audit entities, which consists of appointing an auditor who will be responsible for the internal audit quality control, as well as for the preparation of the report on compliance with the quality control procedures presented to the Public Supervisory Board of the audit within 4 months from the end of each management period.

According to article 24 (5) of Law 271/15.12.2017, the quality control of the audit mission is exercised at public interest entities and at large entities established according to the Accounting and Financial Reporting Law 287/2017. The control in question is carried out until the auditor's report or the additional report addressed to the audit committee is issued.

It is important to mention the condition of non-admission of quality control by an auditor who participated in the exercise of the audit. In the event of the existence of such a problem, the legal framework allows, on a contractual basis, the employment of an external auditor to carry out quality control while maintaining confidentiality and professional secrecy.

In the context of ISQC 1, the mission quality control process is permanently subject to monitoring, which involves not only the development of mission inspection guidelines and methodologies, but also their evaluation, including a periodic examination of a selection of

completed missions, the purpose of which is to provide reasonable assurance that its quality control system is operating effectively.

The legal framework provides for the determination of the effectiveness of the audit quality control within the audit entity, which usually takes place through annual evaluations, but they can be performed even more frequently. In order to avoid subjectivism, it is recommended to evaluate the audit quality control policies and procedures from the point of view of their effectiveness, the best evidence in this sense is the record of the evaluations and the measures proposed for their efficiency.

At the same time, we consider it appropriate to take into account the provisions of Law no. 271/15.12.2017 regarding audit quality control, which must be started starting from the audit documentation archived in the mission file, including: audit contract; documents certifying the availability of the mission team to perform the audit; statements of the participants in the audit regarding compliance with the principles of independence and objectivity; documents and information that form the basis of the auditor's report; auditor's report; additional report addressed to the audit committee; auditor's opinion regarding the consistency between the management report and the financial statements; statements regarding material misstatements presented in the management report.

It is necessary to note that, objective assessment is the main purpose of the mission quality control process. This assessment must fulfill the role of providing an objective assessment of the significant judgments made by the engagement team and the conclusions reached in formulating the audit report. This process must cover not only the audits of the financial statements of the listed entities, but also the other missions for which the audit entity considers a quality control review of the mission necessary.

Currently, small audit entities face a shortage of qualified personnel. Therefore, it is important that these entities provide themselves with sufficient staff and resources when they intend to audit the financial statements of large companies. The audit entity must have as employee's no less than two auditors for the audit of public interest entities and large entities, established according to the Accounting and Financial Reporting Law 287/2017, or at other state-owned enterprises and joint-stock companies in which the state's share exceeds 50% of the share capital.

Often, the long-term relationships between the client and the audit entity, but also due to a narrower labor market in this field, can cause the emergence of circumstances that threaten the independence of the auditor. Professional ethics do not admit such threats, they must be eliminated or reduced to an acceptable level, and otherwise the issue of withdrawal from the mission arises. As the impact on independence provisions is central to the objectivity of an audit engagement, to control such issues it is recommended that:

- examination of information regarding the scope of customer services;
- encouraging the staff to promptly notify the audit entity of the circumstances and relationships that constitute a threat to independence;
- creating conditions that allow both the audit entity and its staff to promptly determine whether the independence provisions are met;
- maintaining, updating the records related to independence and undertaking the appropriate measures to eliminate the identified threats to independence that are not at an acceptable level.

As a rule, compliance with the independence provisions requires the presentation of a written confirmation. The audit entity shall, at least once a year, obtain written confirmation from staff of compliance with independence policies and procedures. This requirement refers to the audit entity's staff who are required to be independent by the ethics provisions.

For convenience as well as from the point of view of the rational use of time and other resources, it may be practiced to draw up and present the confirmation not only on paper but also in electronic format. At the same time, in order to ensure the effectiveness of this procedure, the confirmations must be examined with caution and action taken regarding the information indicating non-conformities. Thus, by obtaining confirmation and adopting appropriate measures regarding information that indicates non-conformities, the audit entity demonstrates the importance of independence and brings this aspect to the attention of the staff.

### **III. The quality of the audit through the lens of professional management standards**

The topics that have generated the most public interest attention in recent years include fraud, going concern, audit evidence and the desire to reduce audit risk to an acceptable level. In these circumstances, the IAASB at its meeting in December 2018, approved the draft ISQM 1 for public exposure together with the version of a new standard for audit quality management ISQM 2, as well as the revised version ISA 220.

The relevant international standards are considered to be relevant to public sector engagements. When appropriate, additional considerations specific to public sector entities are included, without exceeding the ethical standards that require the auditor to comply with the relevant ethical requirements, including those relating to independence, relating to financial statement audit engagements.

ISQM 1 deals with the responsibilities of an audit entity to design, implement and operate a quality management system for audits or reviews of financial statements or other assurance engagements or related services. ISQM 2 contains requirements intended to enable the audit entity and the engagement quality assessor to meet the stated objectives for the proper functioning of the quality management system.

These standards treat the quality management system in an interactive manner that is responsive to changes in the nature and circumstances of the audit entity and its engagements. However, in the context of the stated standards, a quality management system addresses the following eight elements:

***Table 2. Key elements of a modern audit quality management system***

<i>System elements</i>	<i>Concept</i>	<i>Approach</i>
<b>Risk evaluation</b>	The audit entity's risk assessment process	The audit entity must identify and assess quality risks to provide a basis for designing and implementing responses
<b>Administration</b>	Governance and leadership	The audit entity must demonstrate a commitment to quality through a culture that exists throughout the firm

<b>Ethics</b>	Relevant ethical requirements	The audit entity must establish quality objectives that address the performance of responsibilities in accordance with relevant ethical requirements, including those related to independence
<b>Engagement</b>	Acceptance and continuation of customer relationships and specific engagements	The audit entity shall establish the following quality objectives that address the acceptance and continuation of customer relationships and specific engagements
<b>Assessment</b>	Engagement performance	Mission teams understand and fulfill their responsibilities in relation to the missions being exercised
<b>Resources</b>	Personnel resources	The audit entity must establish quality objectives that address the acquisition, development, use, maintenance, allocation and timely allocation of resources
<b>Information</b>	Information and communication	The information system identifies, captures, processes and maintains relevant and reliable information that supports the quality management system
<b>Monitoring</b>	Monitoring and remediation process	The audit entity must design and perform monitoring activities to provide a basis for identifying deficiencies

*Source: developed by the author based on the provisions of ISQM 1, ISQM 2, ISA220 [3; 4; 5]*

In order to proactively manage the quality of the assignments performed, according to the provisions of the audit quality management standards, an audit entity must apply a risk-based approach to the design, implementation and operation of the elements of the quality management system in an interconnected manner and coordinate. The risk-based approach involves:

- Establishing quality objectives;
- Identification and assessment of risks to the achievement of quality objectives;
- Designing and implementing responses to address quality risks.

In the sense of this concept, the audit entity must design, implement and operate a quality management system. It would appear to be a traditional approach, but nevertheless the standards for audit quality management draw attention to the exercise of professional judgment, taking into account the nature and circumstances and the engagements undertaken.

The key element supporting the design, implementation and operation of the quality management system is considered to be the governance and leadership of the quality management system. The current concept of audit quality management expressly states that the executive director of the audit entity has the final responsibility for the quality management system vis-à-vis the board of directors.

In the design of the new quality management system, the audit entity will appoint an engagement quality assessor qualified to perform an objective assessment of the significant judgments made by the engagement team and the conclusions reached. To achieve this objective, the audit entity shall develop policies and procedures regarding the assignment of responsibility

for appointing engagement quality assessors to a person with the appropriate competence, capabilities and authority to fulfill their responsibility. Those policies or procedures shall provide for such persons to appoint the engagement quality assessor, as well as establish the eligibility criteria for appointment:

- ✓ Such policies or procedures shall require that the quality assessor is not a member of the engagement team and shall comply with the following eligibility criteria:
- ✓ Has the competence and capabilities, including sufficient time and appropriate authority, to perform the engagement quality review;
- ✓ Complies with relevant ethical requirements, including threats to objectivity and independence;
- ✓ Comply with the provisions of the existing law and regulations.

**Conclusions:**

The study found the existence of an adequate legal framework that encourages audit entities to design a quality management system that is adapted to the nature of the missions they carry out. It was found necessary to accelerate efforts in the near future to serve the public interest in implementing a modern audit quality management system. The present research focused on topics of interest in audit oversight and quality assurance. In this context, the modernization of the audit work management process and the development of new skills are key factors in addressing the complexity of audit quality.

At the same time, it is worth noting the current role of the audit quality management concept as a fundamental competitive lever for improving corporate governance within an audit entity. And the importance of this concept is proven by various procedural initiatives and activities to modernize the audit process. Audit quality management standards should contribute to the development of the market and increase the reputation of the auditing profession.

In today's conditions, an audit entity must demonstrate continuous progress in reforming the strategic objectives related to quality management, which need to be formally translated into manuals and inspection procedures of audit missions. In this sense, it is proposed:

- increasing the focus on emerging issues to ensure that the quality control system modernization process remains relevant;
- improving interactions with stakeholders, such as quality partners and audit entity management to keep system risks and issues under control;

The practical significance of the obtained results lies in the possibility of using theoretical and methodological developments to improve quality control for firms that perform audits and reviews of financial statements, as well as other assurance missions and related services.

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## ANALYSIS OF CHANGES IN INTERNATIONAL FINANCIAL REPORTING STANDARD (IFRS) FOR SMALL AND MEDIUM-SIZED ENTITIES

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**Abstract:** *Since the publication of the IFRS for Small and Medium-sized enterprises in 2009, significant changes have taken place in the global economy, which contributed to the introduction of changes to this standard in 2015, 2018 and the International Accounting Standards Board opened consultations on the proposed modifications to IFRS for small and medium-sized enterprises. Proposals for the modification of this standard relate to 21 sections out of 35, which comprise IFRS for small and medium-sized enterprises. After analyzing the changes submitted by the International Accounting Standards Board to change this standard, the author suggests a number of modifications to improve this standard. These proposals relate primarily to the reflection of cryptocurrencies in accounting, since there is no official approach to solving this issue to date, the author, having analyzed world practice and theory on this issue, offers a number of solutions.*

**Keywords:** IFRS, small and medium-sized entity, International Accounting Standards Board (IASB), cryptocurrencies.

**JEL Classification:** M 41

### 1 Introduction

According to the IASB, as of 2018, in 89 global jurisdictions, IFRS for small and medium-sized enterprises is applied on a mandatory basis or has been approved for use. Thus, a fairly wide application of this standard, as well as current economic changes and modifications of the full version of IFRS, led to the need for changes by improving the "IFRS for SMEs." First of all, these changes relate to the need to bring the provisions of IFRS for small and medium-sized enterprises and the full version of IFRS into compliance. This is due to the fact that a number of important reporting standards have been published, including accounting for leases and insurance contracts. However, to date, there are different opinions about whether it is necessary to do this, or whether, nevertheless, IFRS for small and medium-sized enterprises should be a lightweight version.

In this regard, the IASB has submitted for consultation a Comprehensive Review of the IFRS for SMEs Standard (*Comprehensive Review of the IFRS for SMEs, 2020*), which consists of three main parts:

- *A - Strategic and general questions,*
- *B - Questions on aligning specific sections of the IFRS for SMEs Standard, and*
- *C - Questions on new topics and other matters related to the IFRS for SMEs Standard.*

Part A details the very approach to the revision of the standard that the IASB has decided to use this time. Part B is, in fact, questions on a number of sections that can be brought more in line with the full version of IFRS and their Interpretations. Finally, Part C is devoted to additional topics that are currently not covered by the “IFRS for SMEs” at all, but could potentially be.

Analyzing the proposed changes, it can be stated that they covered those issues that concern:

- *changes in International Financial Reporting Standards introduced after 2015,*
- *adjustments dictated by the practical experience of implementing "IFRS for SMEs" in practice, and the problems discovered in the process.*

It should be noted that the IASB has focused its attention on changes in International Financial Reporting Standards that came into force before January 1, 2019 or earlier, in order to be able to unify their requirements with IFRS for SMEs. (*IFRS for SMEs, 2021*) Therefore, according to later standards that came into force only this year or did not even come into force at all (even if early application is allowed for them), the International Accounting Standards Board (IASB) did not consider these changes.

## **2 Analysis and evaluation of proposed changes in IFRS for SME**

The main issue for consideration is: the definition of business and the new definition of materiality in connection with the amendments made by IFRS 3 “Business Combinations” and IAS 1 “Presentation of Financial Statements” and IAS 8 “Accounting Policies, Changes in Accounting Estimates and Errors”, which entered into force on January 1, 2020.

Considering the arguments of supporters of unification and bringing the provisions of “IFRS for SMEs” and the full version of IFRS into compliance, the following can be brought:

- *efficiency, which is that it allows elaborators to base on their own experience gained during the development of standards;*
- *unification of accounting principles, when both IFRS and "IFRS for SMEs" are based on the same principles;*
- *a necessity, because small and medium-sized enterprises themselves and users of their reports are looking for opportunities to compare the informations with larger organizations;*
- *the ability to quickly switch to the full version of IFRS, which sooner or later will happen for any small or medium-sized business conducted efficiently.*

At the same time, the main argument of the opponents of the idea is that SMEs represent a separate category of business with their own unique features, so it is necessary to develop requirements for it separately.

In this regard, the principles underlying the unification of the requirements of the two sets of IFRS standards should be considered:

1. *Relevance for SMEs (for example: changes in the full version of IFRS when it is compiled in accordance with “IFRS for SMEs” are timely and useful for users of financial statements);*
2. *Simplicity,*
3. *Truthful reflection of information (reliance on the economic essence of the phenomenon. If the previous criterion of simplicity leads to a violation of the criterion of truthful reflection, this may negatively affect the quality of information and its benefits, which is unacceptable).*

For example: the standards of IFRS 10 " Consolidated Financial Statements" and IFRS 11 " Joint Arrangements" meet the first two conditions, according to the standards of IFRS 3 "Business Combination" and IFRS 13 " Fair Value Measurement", efficiency assessments were carried out after their entry into force, and but IAS 19 "Employee Benefits" they do not plan to assess the effectiveness of practical application of it.

The IASB eventually settled on the need to make changes to the "IFRS for SMEs", which will affect nine sections of this standard:

- *S1—Section 2 Concepts and Pervasive Principles;*
- *S2—Section 9 Consolidated and Separate Financial Statements;*
- *S3—Section 11 Basic Financial Instruments and Section 12 Other Financial Instrument Issues;*
- *S4—Section 15 Investments in Joint Ventures;*
- *S5—Section 19 Business Combinations and Goodwill;*
- *S6—Section 20 Leases;*
- *S7—Section 23 Revenue;*
- *S8—Section 28 Employee Benefits;*
- *S9—Multiple sections: fair value; and*
- *S10—Multiple sections: amendments to IFRS Standards and IFRIC Interpretations.*

In addition, to bring in line with the amendments to IFRS Standards and IFRIC Interpretations. In this regard, modifications of the following tables of IFRS Standards and IFRIC Interpretations set out in Appendix A are necessary:

- *Table A1—Amendments to IFRS Standards—Board is seeking views on aligning the IFRS for SMEs Standard;*
- *Table A2—Amendments to IFRS Standards—Board is seeking views on leaving the IFRS for SMEs Standard unchanged;*
- *Table A3—Amendments to IFRS Standards and IFRIC Interpretations—Board is requesting further information on whether to align the IFRS for SMEs Standard;*
- *Table A4—Amendments to IFRS Standards—Board will consider along with the full IFRS Standards they amend; and*
- *Table A5—Amendments to IFRS Standards with which the IFRS for SMEs Standard is already aligned.*

Another of the most important points that needs to be reconsidered is the issue of fair value. You should also pay attention to the modifications that need to be made to the "IFRS for SMEs", taking into account the updated version of the "Conceptual Framework for Financial Reporting". This basic document for the IFRS system was updated, and the changes at that time turned out to be significant.

It should be emphasized that the "IFRS for SMEs" were developed on the basis of a much more "ancient" version of the "Framework for the Preparation and Presentation of Financial Statements", which date back - hard to believe - to 1989. Section 2 on concepts and fundamental principles is based on them. And one of the main points in the modification of "IFRS for SMEs"

is to correlate the provisions of this standard with the updated version of the "Conceptual Framework for Financial Reporting".

For example: such a concept as "undue cost or effort" is still in the "IFRS for SMEs", but this definition is not in the "Conceptual Framework for Financial Reporting". This does not necessarily mean that this concept will be excluded even in the case of a positive decision to bring "IFRS for SMEs" in line with the updated version "Conceptual Framework for Financial Reporting". Simply, it can also be implemented in different ways - for example, to change the previous definition of an asset to a new one, but at the same time retain the concept of "undue cost or effort".

Another important topic is the reflection of cryptocurrency transactions in accounting. It is relevant for larger companies and a full set of IFRS, where until recently it remained problematic due to confusion with what exactly crypto assets are - stocks, cash, intangible asset, financial asset or something else. A fairly detailed answer on this topic was given by the IFRS Interpretations Committee, which explained the approaches to accounting for cryptocurrencies from the standpoint of rational logic.

Nevertheless, there have been changes in the Interpretations of IFRS, so this new topic should also be added to the "IFRS for SMEs" standard, but only if it is relevant for small and medium-sized enterprises.

According to the author, in the digital economy, the number of transactions with cryptocurrency will increase. Therefore, information about the organization of cryptocurrency accounting for IFRS for SME must be entered into this standard

### **3 Conclusion**

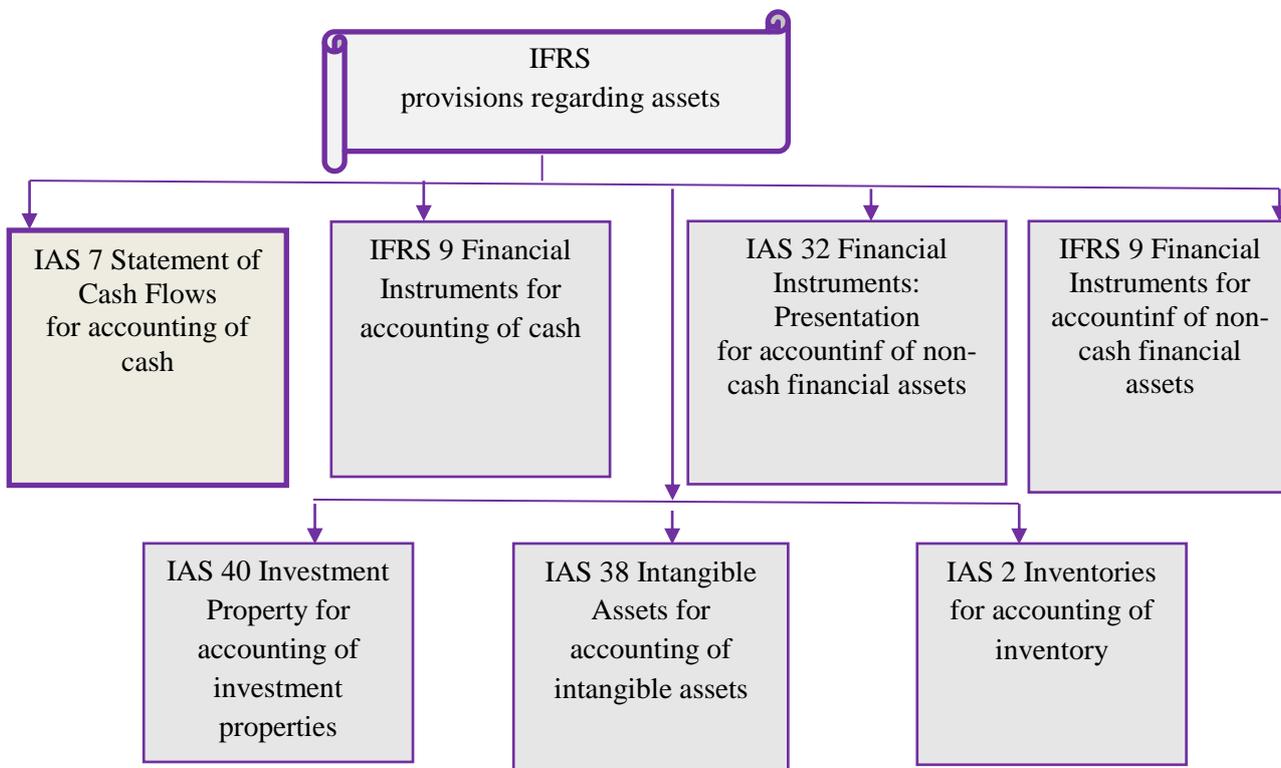
Analyzing the regulations regarding the organization of accounting of cryptocurrencies in the world, it should be noted that there are no unambiguous recommendations, for example, in such regulatory documents as International Financial Reporting Standards.

Let's consider from the point of view of the provisions of IFRS what are the options for reflecting cryptocurrencies in accounting. It should be noted that the definition of cryptocurrency, which is closest to its economic essence, is given by PwC in such document as: Cryptographic assets and related transactions: accounting considerations under IFRS, so as: «Cryptocurrencies are digital tokens or coins based on blockchain technology, such as Bitcoin. They currently operate independently of a central bank and are intended to function as a medium of exchange». (PwC, *Cryptographic assets and related transactions*, 2019)

International Financial Reporting Standards do not have any standard that strictly deals with the reflection in the accounting of any crypto-currency. In modern economy there are over 1,500 cryptocurrencies and more are being developed, such as: digital coins (Bitcoin, euro coin, etc.) and in some cases, it can be a token.

Different cryptocurrencies have various characteristics, and the reasons for obtaining them must be different, thus, the reflecting in the accounting of such transactions may have different results and consequences. As a result, some conditions for the recognition and evaluation of one type of crypto-currency, which are setting in the accounting policies of the enterprise may not be acceptable to others.

Since cryptocurrency is undoubtedly an asset, the figure below reflects those International Financial Reporting Standards that describe the rules for recording assets.



**Figure 1. International Financial Reporting Standards, which establish rules for the accounting of assets.**

Source: elaborated by author

Such a frame first of all, it is necessary to clarify which of them are relevant to the accounting of cryptocurrencies.

The quintessence of the cryptocurrency is not strictly applicable to the definition of currency, which is setting in IAS 32 “Financial Instruments: Presentation” such as “*currency (cash) is a financial asset because it represents the medium of exchange...* ” (IAS 32, 2001) For example, some cryptocurrencies can not be used as a medium of exchange, they have a limited as means of circulation compared to most traditional fiat currencies. In addition, there are a number of financial institutions that have banned the use of cryptocurrencies, as they represent an increased risk in financial operations.

Cryptocurrencies also do not match to the definition of the cash equivalent as which is “short-term, highly liquid investments that are readily convertible to known amounts of cash and which are subject to an insignificant risk of changes in value”. (IAS 32, 2001)

In most cases, the cryptocurrency is not hold for a short-term period and is aimed at the long-term period. As a conclusion: at the current time, cryptocurrencies can not be recorded as cash or a cash equivalent.

It should be mentioned, that one of the main characteristic of an financial asset is that it’s holder has the contractual right to get cash or another financial asset from another company or to

exchange financial assets or financial liabilities with another company under conditions that are potentially favourable to the holder. Mainly the holder of a cryptocurrency does not have any contractual right, however some contracts such as forward contracts or options to buy or sell cryptocurrencies in the future may meet the definition of a derivative and be subject to financial-instruments accounting.

We offer arguments that may be the basis for the fact that the cryptocurrency can be reflected as intangible assets. IAS 38 "Intangible Assets" defines "an intangible asset as an identifiable non-monetary asset without physical substance" (IAS 38, 2001). It can be stated that cryptocurrencies generally meet this definition and can be recognized as non-monetary assets and are therefore within the scope of IAS 38 "Intangible Assets".

According to the IAS 38's provisions the cryptocurrency can be measured at either cost or at fair value (the revaluation method). Thus, cryptocurrency can be defined as intangible assets with an indefinite service life as indefinite lived intangibles, if there are no factors to indicate a definite useful life.

If the entity will keep records of the cryptocurrency at cost, it must take into account the provisions of the IAS 36 "Impairment of Assets" and records the impairment in the statement of profit or loss. (IAS 36, 2001). To record the cryptocurrency at fair value, it is necessary to have an active market for it, to be able to measure it correctly. The recording under the revaluation method, is more complex: increases in fair value are reflected in other comprehensive income, while decreases are registered on profit or loss.

For the correct determination of the market value of the cryptocurrency, it is necessary to apply the provisions of IFRS 13 "Fair Value Measurement". However, the current application of IAS 38 and the measurement of cryptocurrencies at cost, does not correspond to the economic substance and does not provide relevant information to users of financial statements.

Another important standard that deals with accounting of asset is IAS 2 "Inventories", indeed, its application can be justified if the company holds a cryptocurrency for sale. In accordance with the provisions of IAS 2 "Inventories" cryptocurrencies would be measured at the lower of cost and net realizable value. So as, decreasing in net realizable value would be registered in the statement of profit or loss. (IAS 2, 2003)

This accounting is applicable to "commodity broker-traders those who buy or sell commodities for others or on their own account, for the purpose of selling in the near future and generating a profit from fluctuations in price." They measure inventories of commodities at fair value less costs to sell and changes in value. But this is reflected in the accounting of inventory transactions only for an broker-trader.

It should be noted that Accounting Standards Board of Japan in its issue Accounting for Virtual Currencies proposed to classify cryptocurrencies as a new independent category of assets, it gives the following arguments: *Virtual currencies did not fit into any of the existing categories (ASBJ, Accounting for Virtual Currencies, 2018):*

Characteristics of cryptocurrencies in relation to assets according to Accounting Standards Board of Japan:

- *Foreign currencies* generally refer to fiat currencies, and virtual currencies may have characteristics different from foreign currencies

- *Financial assets-* virtual currencies do not meet the definition of financial assets (other than cash),
- *Inventories held for trading-* virtual currencies are not always held for trading,
- *Intangible assets-* virtual currencies do not have physical substance but intangible assets generally are not intended to be held for trading.

Also, Accounting Standards Board of Japan in its issue Accounting for Virtual Currencies proposed to evaluate the cryptocurrency as follows (ASBJ, *Accounting for Virtual Currencies*, 2018):

- *Initial recognition:* Virtual currencies should be measured at market price at the date they were deposited by the customer,
- *Measurement at the balance sheet date:* Same as virtual currencies held by an entity on its own behalf.

Chartered professional accountants Canada in its issue An Introduction to Accounting for Cryptocurrencies notes that if any company disposes of cryptocurrencies, whether through a barter transaction or simply through trading, the company must determine whether gains or losses are on account of income or capital. (CPAC, *An Introduction to Accounting for Cryptocurrencies*, 2018)

The IFRS Interpretations Committee not long ago published a tentative agenda decision on holdings of cryptocurrencies. In this document for the purposes of its discussion, the Committee considered cryptocurrencies with all the following characteristics:

- *a cryptocurrency that is a digital or virtual currency recorded on a distributed ledger and uses cryptography for security.*
- *a cryptocurrency that is not issued by a jurisdictional authority or other party.*
- *a holding of a cryptocurrency that does not give rise to a contract between the holder and another party. (IFRS ,Holdings of Cryptocurrencies)*

The Committee concluded that IAS 2 *Inventories* applies to cryptocurrencies when they are held for sale in the ordinary course of business. If IAS 2 is not applicable, an entity applies IAS 38 *Intangible Assets* to holdings of cryptocurrencies.

For example: the Committee considers that an entity may hold cryptocurrencies for sale in the ordinary course of business. In that circumstance, a holding of cryptocurrency is inventory for the entity and, accordingly, IAS 2 applies to that holding. The Committee also observed that an entity may act as a broker-trader of cryptocurrencies. In that circumstance, the entity considers the requirements of IAS 2 for commodity broker-traders who measure their inventories at fair value less costs to sell.

In accordance with the author's opinion, cryptocurrency being a special kind of asset that is at the junction of long-term and current assets, so for its accounting it is necessary to conduct research and elaborate an International Financial Reporting Standard that would reflect the particularities of operations with cryptocurrency. After the elaboration of the International Financial Reporting Standard in terms of cryptocurrency, these provisions should be reflected in IFRS for Small and Medium-sized enterprises.

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***Abstract.** Actually, commercial entities apply in electronic/online commerce a diversity of forms of delivery of goods and ways of payment by buyers. As a rule, the sale of goods online requires payment in cash directly at the commercial entity's headquarters or through couriers such as cash on delivery. In the context of the aforementioned, in practice there are uncertainties regarding the conduct of transactions for the online sale of goods. In this article are examined the problematic accounting aspects of online goods deliveries with payment through different methods provided by the legislation in force.*

***Key words:** e-commerce/online, cash payment, courier, postal courier, cash on delivery, tax invoice.*

**JEL Classification: M41**

### **Introduction**

Nowadays, commercial entities apply a diversity of forms of delivering goods and ways of payment in e-commerce. As a rule, the act of selling goods online requires the payment in cash directly at the commercial entity's headquarters or through couriers such as cash on delivery.

Therefore, in practice there can appear uncertainties regarding the conduct of transactions for the online sale of goods, among which the following can be mentioned:

- how should the sale of goods be documented in electronic commerce?
- who must issue the tax receipt in case of goods delivery by courier: the seller or the courier who transports the goods to the buyer?
- what is the accounting treatment of goods delivery operations in electronic commerce?

In this article, the accounting aspects of online goods deliveries with payment through different methods provided by the legislation in force are examined.

The purpose of this article is to research and examine the accounting and fiscal aspects of operations regarding online sale of goods depending on the different forms of payment applied by buyers, and the objective lies in the investigation and elucidation of the issues listed above. In this context, the provisions of the national accounting regulations were studied, as well as the works, researches and opinions of contemporary economists and scientists in order to make conclusions and come up with recommendations regarding the issues addressed.

### **Applied methods**

The research method emerges from the analysis of the theoretical and practical material regarding the particularities of the accounting of online payment methods for goods. The basis of the theoretical foundation was the analysis, synthesis, deduction and the inductive method used for a clear and representative interpretation of the studied topic. The importance of this article's research lies in achieving the nominated goal and objective, by examining the provisions of national and international accounting regulations, as well as the works, researches and opinions of local and foreign authors, scientists and researchers, in order to solve the problem in question.

### **Results obtained and discussion**

The rapid development of technologies offers various payment methods for orders placed by buyers in online stores. Among these: payments with full payment in cash, by bank card, with the application of the refund when the goods are delivered by post, etc. All these payment methods present certain particularities in terms of the way of documentation and reflection in accounting.

In the context of the sale of goods via the Internet or online, the most applied method of payment is in cash. In such cases, payment of the value of the goods can be made in cash directly at the online store or through the courier.

In case of payment of the goods in cash, operations related to the online sale of goods are reflected in the accounting in the manner provided for cash sales in offline stores.

Cash settlements with consumers are carried out with the application of checkout and control equipment (ECC), according to the provisions of Government Decision no. 141 of February 27, 2019 "On the application of checkout and control equipment when making settlements". According to it, checkout and control equipment are in these case cash register and control machines with fiscal memory, other IT systems, with or without electronic devices (such as payment terminal, cash-in terminal, currency exchange machine, as well as others that have a dedicated and identifiable application program), with cash register and control machine functions intended for the registration of cash transactions (in cash and/or by other payment instrument), storage, printing, encryption and delivering to the Fiscal Service server of the State the managed financial information, which ensures the protection of work algorithms and recorded data from unauthorized modification.

When making monetary settlements in cash and/or by other means of payment for economic operations with payers, taxpayers are obliged to use the cash register and control equipment, issuing to the payers the cash receipts/tax documents issued by it, or to transmit in electronic form to the phone number or e-mail address indicated, in the case of presentation until the time of payment by the payer of the data regarding the phone number or e-mail address. This obligation extends to all structural units (office, shop, section, warehouse, commercial unit, automatic sales machine (called according to international customs vending machine), cash-in terminal, currency exchange machine, service provision unit, including transport-taxi etc.).

Cash register and control equipment are installed in each of the designated places (workplace of the cashier, cashier-operator, seller, service provider, etc.) for receiving and temporarily keeping money. If the tax-payer accepts, in the established manner, payment cards as a non-cash payment instrument or other payment method in the framework of monetary settlements, these settlements are also carried out by means of cash register and control equipment.

Thus, when carrying out the mentioned commercial transaction, the seller issues the receipt, which must correspond to the actual amount paid, and then hands it to the consumer. At the end of the day, the following are printed: the daily closing report (pasted in the ECC register), which is a record document of the daily management and contains the summary of fiscal data that is entered in the fiscal memory when it is printed, as well as the control strip - a confirmatory document containing a copy of the fiscal data printed on the receipts given to the consumers. So, the buyer is issued a receipt confirming that the goods have been paid for in cash.

It should be noted that the ECC voucher must be issued at the moment the courier receives the money from the customer, meaning the moment of purchase must match the real time. Thus, the issuance of cash vouchers to customers implies that the current calendar date and the time with a maximum deviation of 15 minutes from the real time are printed on the documents (with the exception of making the deviation by one hour during the transition period from summer/winter time to winter/summer, which will not exceed November 20/April 20 of the current year).

At present, it is increasingly common for the buyer to pay for goods using other payment instruments, i.e. payment using a credit card. Within this payment method, for servicing POS terminals, banks charge commissions that differ according to the specifics of the card used, the type of transaction, etc.

Amounts collected daily with payment by credit cards (terminal) are recorded in the register of the cashier-operator. Later, these amounts are contrasted with those received on the entity's current account (minus the bank commission, depending the case).

***Example 1.** A retail entity owns an online store through which cosmetic products are sold. The buyer ordered a set of cosmetic products worth 1,800 lei, including VAT (Value Added Tax). The accounting value of the goods is 950 lei, the related commercial allowance – 550 lei. The buyer chose to pay for the goods in cash upon receipt of the goods. The courier is an employee of the commercial entity.*

In accounting, the following accounting formulas are drawn up:

**Table 1. Accounting formulas related to the sales of goods with cash payment**

No.	The content of the operation	The amount, lei	Correspondent accounts	
			debit	credit
1.	Reflecting the accounting value of cosmetic products handed over to the courier	950,00	217	217
2.	Collection of cash from the buyer by the courier of the trading entity	1800,00	241	221 or 832
3.	Registration of income from the sale of cosmetic products (without VAT)	1 500,00	832 or 221	611
4.	Reflecting the VAT amount from the sales value of the goods sold to the buyer (1,500 lei × 20%)	300,00	832 or 221	534
5.	Settlement of the amount of VAT included in the sales price of the cosmetic products sold	300,00	837	217
6.	Settlement of the commercial addition related to the cosmetic products sold	550,00	831	217
7.	Settlement of the accounting value of the goods sold	950,00	711	217

The buyer can pay the value of the goods by applying the bank card via the Internet. In this case, the trade entity/shop concludes a contract with the bank where it is served to open a special current account in order to accumulate financial resources from the credit cards of the buyers. Subsequently, the accumulated amounts are transferred to the current account of the trading entity. At the same time, the bank sends the entity electronically a report on the amounts withdrawn from the buyers' cards and the bank commissions withheld on the day of each transaction. Based on the report, which serves as payment confirmation, the online store delivers goods to the customers.

Online payment by credit card at the address of the online store is usually carried out according to the following algorithm: the buyer selects the requested goods from the store's website and adds it to the "basket", then choosing the option "Pay" or "Place an order", he must select the payment method - "Credit card" and then enter the information requested by the system.

As a rule, money transfers from the buyers' credit cards are received in the company's current account minus the retained fees (such as monthly fee that is usually retained at the beginning of each month, the bank fee averaging between 2.0% and 4% which depends on the bank that issued the card). The bank also retains an insurance deposit of around 5% - 10% representing the amount that is retained by the bank and credited to a special insurance account for a period of up to half a year, later being returned to the company's current account. The bank independently determines possible risks based on the frequency of customer returns and determines the percentage of the guarantee deposit for each online store individually.

**Example 2.** *A retail business owns an online store selling food and non-food products. A buyer ordered household goods online on 29.09.202N worth 3,850 lei, including VAT. The*

accounting value of the goods is 2,420 lei, the related commercial allowance – 788.33 lei. The buyer paid for the goods by credit card, and on 02.10.202N the amount was registered in the current account of the commercial entity.

Bank commissions are 2% of the amount collected from the buyer, and the bank commission for payment authorization – 3.50 lei. The goods were delivered to the buyer on June 2. The security deposit is 5% and is kept for four months.

In accounting, the following accounting formulas are drawn up:

**Table 2. Accounting formulas related to online sales of goods with payment via bank cards**

No	The content of the operation	The amount, lei	Correspondent account	
			debit	credit
1.	Collection on 29.09.202N of the cash from the buyer's card to the special bank account of the commercial entity	3850,00	245	523
2.	Transfer of the guarantee deposit to a special bank account (3850 lei x 5%)	192,50	244	245
3.	Calculation of the VAT amount from the advance received from the buyer	641,67	225	534
4.	Cashing in to the store's checking account minus the security deposit	3657,50	242	245
5.	Reflecting the payment authorization fee by the financial institution	3,50	713	242
6.	Reflecting the accounting value of household goods delivered to the courier on 02.10.202N	2420,00	217	217
3.	Registration of income from the sale of household goods (without VAT)	3208,33	832 or 221	611
4.	Reflecting the amount of VAT from the sales value of the goods sold to the buyer	641,67	832 or 221	534
5.	Extinguishment of the buyer's claim from the account of the advance granted in advance	3850,00	523	832 or 221
6.	Cancellation of the VAT amount from the advance received from the buyer	(641,67)	225	534
7.	Settlement of the amount of VAT included in the sale price of the household goods sold	641,67	837	217
8.	Settlement of the commercial allowance related to the goods sold	788,33	831	217
9.	Settlement of the accounting value of the goods sold	2420,00	711	217

Another way of paying for goods in online stores is payment through postal couriers. In such transactions, the notion of refund applies.

The notion of "cash on delivery" is traditionally associated with sending/deliveries through postal service providers/payment companies, which is the status of ÎS "Poșta Moldovei". Thus, the cash on delivery service is a postal service whose particularity consists in the payment by the recipient to the sender, through the postal network, the value of the good that is the object of the

postal shipment. In other words, the given service involves the collection of money from the recipient (buyer) by the postal courier, at the time of delivery of the goods, and their subsequent remittance to the seller.

If the goods are delivered by postal courier, the cash on delivery service is included in the category of optional additional services. At the same time, cash on delivery submissions must clearly bear the heading "Reimbursement" followed by the amount of the refund. Although the notion in question is mainly applied by postal operators, it is also used by third-party legal entities that provide goods transportation services with the collection of payment from the buyer.

The notion of "reimbursement" is provided for in art. 1434 para. (2) lit. c) from the CC which stipulates the following indications that a waybill must contain:

- a) prohibition of transshipment;
- b) the expenses that the sender takes upon himself;
- c) the total of the reimbursement amounts to be collected upon release of the good;
- d) the declared value of the asset and the amount representing the special interest upon release;
- e) the sender's instructions to the carrier regarding the insurance of the good;
- f) the agreed term in which the transport must be carried out;
- g) list of documents handed over to the carrier.

It should be noted that when paying cash on delivery until the buyer pays for the goods, ownership of the goods remains with the seller. The money that the buyer pays at the post office cashier upon receipt of the goods is released as payment to the seller of the goods. For cash on delivery services, the buyer is usually charged a postage fee.

After the buyer pays for the ordered goods by mail, the money for the goods is recorded in the seller's bank account. At the same time, sales revenue is recognized at the commercial entity on the date of transfer of ownership of the goods, and the confirmation is the notification received electronically regarding their delivery. Therefore, in order to send goods by mail and receive payment for goods by cash on delivery, the seller company must conclude an agreement for the provision of postal services and register in a personal account on the website of the postal entity.

In these transactions, the online store receives a request for the goods, and the buyer selects cash on delivery. The online store transfers the goods to the postal courier on the basis of the internal goods transmission document, in which the list and price of the goods are indicated.

At the time of payment by the buyer for the goods, the representative of the postal service issues the ECC check, which separately indicates the cost of the goods and the cost of postal services if, according to the terms of delivery, postal services are paid by the buyer. The postal entity transfers to the seller's bank account the amounts received from the buyers for the goods.

If the goods are delivered at the expense of the seller, the postal organization provides the seller with a tax invoice and a service provision act, based on which the payment of postal services is made. The exception being the state enterprise "Poșta Moldovei" for which according to art. 117 paragraph (3) of the Fiscal Code, it is not necessary to issue a tax invoice for postal services.

In the accounting, the goods delivered by means of the carrier/postal courier that executes the delivery orders, must be reflected separately. For this purpose, for example, the analytical account 21711 "Goods sent to the carrier/courier" can be opened at the sub-account 2171 "Goods

at the warehouse". This is also important from the point of view of control over the location of the goods, when carrying out the inventory, etc.

With reference to the issuance of the tax invoice in the case of retail trade and the provision of services in specially arranged places, as well as in electronic commerce, we report that they are regulated by art. 117 para. (3) from Fiscal Code no. 1163 – XIII of 24.04.1997 of the Republic of Moldova. According to him, for the retail sale and the provision of services in specially arranged places and in the framework of electronic commerce, with payment in cash and/or through non-cash payment instruments, the issuance of the tax invoice is not mandatory (except in cases when it is requested by buyer, but not later than the last day of the month in which the delivery took place), if the following conditions are met:

a) the taxable subject keeps track of the amount received and paid in cash and/or by means of non-cash payment instruments at each commercial and service point with the use of checkout and control equipment, through the services of the banks, of the State Enterprise "Post Moldova", through other payment service providers. Registration through the checkout and control equipment is performed at the time of receiving the amount in cash and/or paying the amount with a non-cash payment instrument, except for amounts paid with a non-cash payment instrument in electronic commerce. At the end of each working day, the data of the daily closing report of the cash and control equipment is entered in the cash and control equipment register;

b) at the end of each working day, the total amount of VAT is entered in the record documentation. on the deliveries made, and the data from the tax invoices that were paid in cash and/or by means of non-cash payment instruments are entered in the record document of the purchased material values.

In the context of the aforementioned, in electronic commerce, when selling goods to individuals, the issuance of the tax invoice is not mandatory (it is issued if requested by the buyer), provided that the provisions stipulated in letter a) and b) from para. (3). Thus, if the tax invoice was not requested by the buyer, when delivering the goods to a natural person, the seller is entitled to use and issue primary documents developed independently, approved by the management of the entity in compliance with the provisions of art. 11 paragraph (7) and (8) of the Accounting and Financial Reporting Law no. 287/2017.

In the situation where the delivery of the goods is carried out by means of the courier, we consider that some specific internal documents must be completed. Postal couriers, for example, at ÎS "Poșta Moldovei" for cash-on-delivery deliveries fill out the TFP 3 cash-on-delivery mandate form, and other postal operators apply documents accepted in international practice as a document accompanying the delivery, such as the postal invoice express, which is an accompanying document for express postal items subject to postal services. The postal operator presents the form of this document for completion to the supplier of the goods, as a rule, offline or online through the personal cabinet opened in electronic form in favor of the commercial entity.

Thus, upon receipt of the goods, the buyer applies the signature in the document accompanying the goods:

a) on the tax invoice issued by the seller (if it was requested by the buyer) or on the primary document prepared independently by the seller. A copy of this document is given to the buyer together with the goods;

b) in the case of sending the goods through the transport entity - on the waybill, in addition to the document specified in letter a);

c) in the case of sending the goods by courier - in specific documents additionally applied or on the mobile phone screen if it is equipped with the application that allows confirmation of the receipt of the goods, in addition to the document specified in letter a).

**Conclusions.** As a result of the conducted research, the following conclusions can be drawn. According to art. 108 para. (2) of the Fiscal Code of the Republic of Moldova, for goods the date of delivery is considered the date of delivery (transmission) of the goods to the buyer (beneficiary) or, if the goods are transported, the date on which the transportation begins, with the exception of export goods for which the date of delivery is considered the date their removal from the territory of the Republic of Moldova. Thus, if VAT(Value Added Tax) is applied to the online delivery of goods and the delivery is carried out by the carrier, the VAT obligation arises on the date on which the transport of the goods begins indicated in the accompanying documents. If the carrier is a postal operator, in accordance with art. 103 para. (13) of the Fiscal Code, postal services are exempt from VAT without the right of deduction.

From the above it follows that, based on the tax invoice (if requested by the buyer) or the internal document drawn up by the entity, the sales revenue related to online deliveries will be recognized in the seller's accounting. At the same time, the information from the report presented by the carrier/courier serves as an additional confirmation that the deliveries were made within the terms stipulated in the contract.

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## **SESSION VII**

# **INFORMATION TECHNOLOGIES AND ECONOMIC CYBERNETICS**

## **METHODS OF ACCESSING LOCAL NETWORKS ENVIRONMENT**

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**Abstract:** *In modern society, computers can be used in any field of human activity. The level of use of computing depends on how developed a particular country is. The richest countries are the most developed in the IT (information technology) field. The countries with the greatest natural resources: gas, oil, metals, etc., are not always the richest. Likewise, among the richest companies are also those in the IT field. Of the top 10 companies in the world, more than half are from the IT domain, which means that mean that billions of dollars are spent annually on the IT field. This results in the efficient utilization of allocated resources, so that the use of IT tools allows accessing and transferring information as quickly and comfortably as possible. Information can be managed from home, work, on the go. When we use IT tools at home, at work, we are talking about data transfer in local networks. The larger the network is (number of users, number of computers), the more stringent the requirements are. An important factor in meeting these requirements is how efficiently the data transfer medium is used.*

**Keywords:** xEthernet, network performance, methods of accessing the environment, CSMA/CD, persistent and nonpersistent CSMA.

**JEL Classification:** D85

### **1. Introduction**

In modern society, computers can be used in any field of human activity. The level of use of the computing technique depends on how developed a particular country is, see Table 1, which lists the richest countries in the world by GDP. As you can see, the countries with the greatest natural resources: gas, oil, metals, etc., are not always the richest. For example, Russia, Iran, Iraq, Venezuela are the countries with the most natural resources but are not in the list of the richest countries (Please take a look at the following link for more details on <https://www.investopedia.com/articles/markets-economy/090516/10-countries-most-natural-resources.asp> accessed 08.08.2022).

Similarly, among the richest companies a lot of them are from the IT sector (Information Technology), see figure 1. As can be seen from this figure, there are 6 IT companies in the top 10 richest companies in the world: Apple, Microsoft, Alphabet, Amazon, Meta Platforms Inc (Facebook), Taiwan Semiconductor. The ones that mean that billions of dollars are spent annually on the IT field. This results in the efficient utilization of allocated resources, so that the use of IT tools allows accessing and transferring information as quickly and comfortably as possible. Information can be managed from home, work, transport, etc. When we use IT tools at home, at work, we are talking about data transfer in local networks. The larger the network is (number of users, number of computers), the more stringent the requirements are. An important factor in

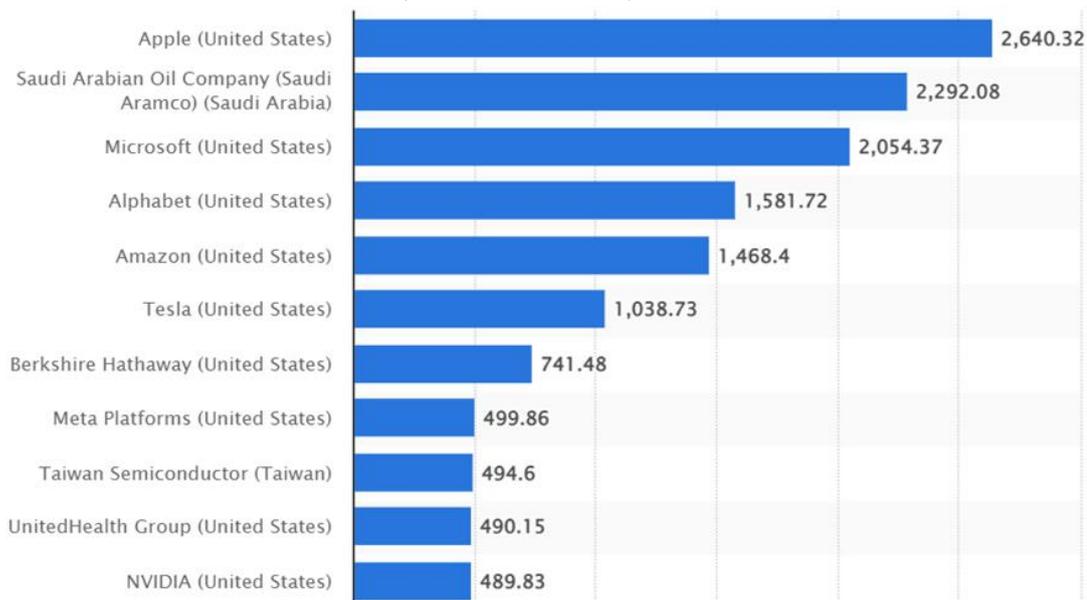
meeting these requirements is the method of connecting to the network. The connection method is chosen depending on how efficiently the data transfer medium is used.

In the 80s, when local area networks appeared, among the most popular we can mention Ethernet, Token Ring, Token Bus. Over time, other types of local networks appeared, but currently the most popular is Ethernet (Tanenbaum, et al., 2021). Token Ring, Token Bus are basically only used by the companies that developed them - IBM and General Motors respectively. As can be seen from table 2, current technologies are marked with an asterisk, those in decline - with a down arrow, those not used - with a cross. The standards that thrive are Ethernet, Wireless LANs, Personal Area Networks.

Table 1. List of the richest countries in the world 2022

	Country	Economy
1	United States	\$25.347 trillion
2	China	\$19.91 trillion
3	Japan	\$5.396 trillion
4	Germany	\$4.55 trillion
5	United Kingdom	\$3.19 trillion
6	India	\$3.18 trillion
7	France	\$ 3.06 trillion
8	Italy	\$3.18 trillion
9	Canada	\$1.99 trillion
10	South Korea	\$1.8 trillion

Source: <https://www.jagranjosh.com/general-knowledge/list-of-richest-countries-in-the-world-1637214709-1>  
 (accessed 08.08.2022)



**Figure 1. The largest companies in the world by market capitalization in 2022 (in billion U.S. dollars).**

Source: <https://www.statista.com/statistics/263264/top-companies-in-the-world-by-market-capitalization/>  
 (accessed 08.08.2022)

The popularity of xEthernet networks is due to the following factors:

- It is backwards compatible. This means that we don't have to throw away older network cards, network equipment, etc. In this case the network can be renewed step by step depending on the available resources. For large organizations with many computers these expenses are significant.
- It is cheap compared to other types.
- There is no need for new specialists, existing ones can be retrained.
- Easily adapts to new requirements, where the main factor is the increase in data transfer speed. Since 2018, work is being done on standards capable of operating at speeds of 100 Gbps and 200 Gbps. The most numerous are small and medium local networks, and here in most cases 1 Gbps and 10 Gbps networks are used.

Table 2. The 802 working groups. The important ones are marked with \*. The ones marked with † gave up and stopped.

Number	Topic
802.1	Overview and architecture of LANs
802.2	Logical link control
802.3 *	Ethernet
802.4 †	Token bus (was briefly used in manufacturing plants)
802.5 †	Token ring (IBM's entry into the LAN world)
802.6 †	DQDB (Distributed Queue Dual Bus), early metropolitan area network
802.7 †	Technical advisory group on broadband technologies
802.8 †	Technical advisory group on fiber-optic technologies
802.9 †	Isochronous LANs (for real-time applications)
802.10 ↓	Virtual LANs and security
802.11 *	Wireless LANs (WiFi)
802.12 †	Demand priority (Hewlett-Packard's AnyLAN)
802.13	Unlucky number, nobody wanted it
802.14 †	Cable modems (defunct: an industry consortium got there first)
802.15 *	Personal area networks (Bluetooth, Zigbee)
802.16 †	Broadband wireless (WiMAX)
802.17 †	Resilient packet ring
802.18	Technical advisory group on radio regulatory issues
802.19	Technical advisory group on coexistence of all these standards
802.20	Mobile broadband wireless (similar to 802.16e)
802.21	Media independent handoff (for roaming over technologies)
802.22	Wireless regional area network

*Source: Tanenbaum A.S., Wetherall D.J., Feamster N. Computer networks. 6th ed., p.73./*  
[https://ro.wikipedia.org/wiki/IEEE\\_802](https://ro.wikipedia.org/wiki/IEEE_802) (accessed 12.08.2022)

Although Token Ring and Token Bus networks are practically not used, in the beginning there was fierce competition between them and Ethernet networks. In Ethernet networks, the medium access method can be a variation of the CSMA/CD (Carrier Sense Multiple Access with Collision Detection) algorithm, where the station transmits at any time if the medium is free. Only, in this case, collisions may occur, at many stations this decreases the performance of the network. In Token Ring and Token Bus networks the station transmits when it is its turn, the station holding the token. On many computers, it ensures stable performance, according to the standard. But at low network load the performance (utilization) is low because the station must wait for its turn. So, in this case Ethernet networks are preferable. The medium access algorithms of next-generation Token Ring and Token Bus networks have been improved. But since they are too complex and considering the advantages of xEthernet networks, the latter have become the most popular (Hammond J., et al., 1986). Wireless LAN is another popular technology nowadays. This kind of networks use wireless access points (WAP or AP), where the WAP connects to the network, usually by cable, but the clients are connected wirelessly. Because wireless LANs connect to xEthernet LANs, they use an algorithm similar CSMA/CA (Carrier Sense Multiple Access with Collision Avoidance).

## **2. Medium access methods in xEthernet networks**

### **2.1. General characterization of CSMA/CD**

All types of xEthernet networks (including Fast Ethernet, Gigabit Ethernet, etc.) use one and the same medium access method for CSMA/CD data transfer. The computers of such a network have common access to the transmission medium and at each moment of time it can be used for data transfer only between two stations. The data transmitted by a station are received by all stations of the network (Nanda K., 1989).

The data required for the transfer are put in data packets of a certain format in which is also the address of the destination computer. To start transmitting data, the station must check if the medium is free. This is done by carrier sense (CS), which for Manchester coding is 5-10 MHz, depending on the string of 0 or 1 bits transmitted at the given time.

If the transfer medium is free, the station can start transmitting data. Suppose that node 1 (see figure 2) found that the medium is free and started transmitting data. Destination station 3, recognizing its address from the packet, copies the packet into its own memory. The data packet is always preceded by the header (preamble), consisting of 8 bits.

After the packet transfer, all stations are obliged to retain a technological break called IGP (Inter Packet Gap) which for Ethernet technology is equal to 9.6 mks [6]. It is necessary to bring the network adapter to the initial state and to avoid monopoly use of the environment by a single station. Due to delays in signal transmission, obviously, not all stations simultaneously fix the end of the transfer.

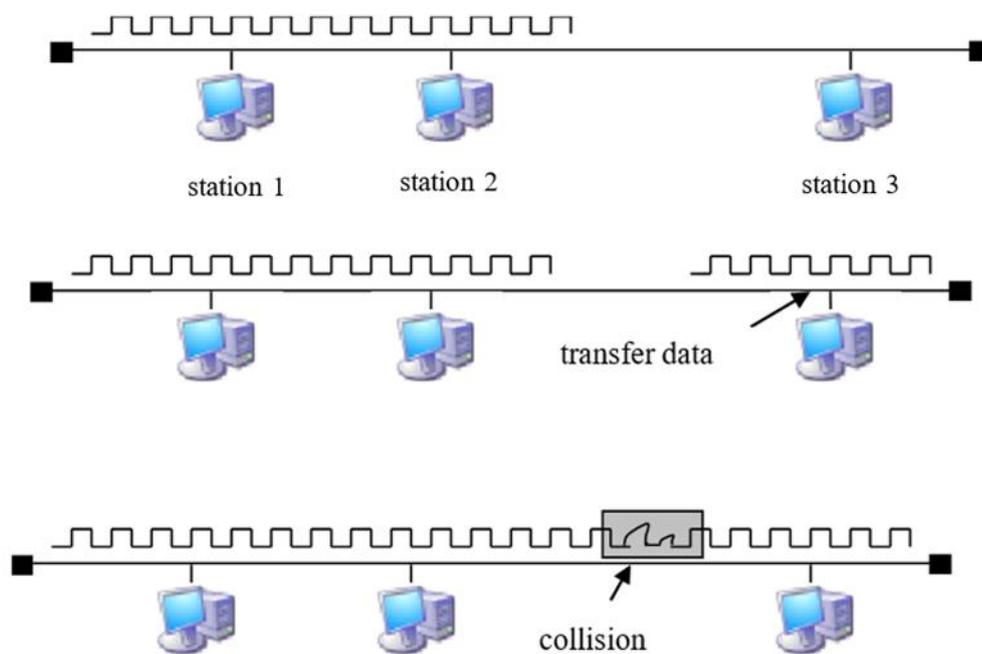
According to the method described, it may happen that two stations start data transfer simultaneously, the environment control mechanism and the IGP pause do not guarantee that this situation cannot happen. In this case, a collision is said to have occurred, because the signals representing both packets overlap and the data is damaged.

In the example in figure 2, the collision can occur when station 1 finds that the medium is free at approximately the same time as station 3 and both stations start transmitting data, not necessarily at the same time. Let station 1 start transmitting first. The signal has not yet reached station 3, and station 3 also finds that the medium is free and starts transmitting its own packet. Collisions are a normal thing for Ethernet networks, this results from the medium access method. If the signals transmitted and received by the station differ, collision detection (CD) takes place. The station that detected the collision interrupts the data transfer and broadcasts on the channel a short jamming signal with the length of 32 bits.

After transmitting the jamming signal, the station makes a pause of random duration  $t_0$ , which is determined as

$$t_0 = L\tau, \tag{1}$$

where  $\tau$  is the time interval from which the break is calculated. For Ethernet networks, these are 512-bit intervals (it is the time interval between two bits transmitted through the medium) or 51.2 mks (for the speed of 10 Mbps the interval between two bits is 0.1 mks). After this, she tries again to gain access to the environment (Олифер В., et al.,2020).



**Figure 2. Collision in Ethernet networks.**

*Source: Prepared by the author*

In formula 1,  $L$  is an integer from the interval  $[0, 2^N]$ , where  $N = \{1, 2, \dots, 10\}$  is the number of attempts to obtain access to the environment. After the 10th trial, the interrupt duration stops increasing, so the random interrupt can take values between 0 and 52.4 ms. After the 16th attempt, the station stops trying to receive access to the medium and ends the data transmission process. But, after trial 10, the cutoff cannot be greater than 1023. Limiting the range to 1023 quanta prevents excessive delays. This algorithm, called the binary exponential backoff algorithm, was designed to dynamically adapt to the number of stations trying to transmit. If the random generation interval was for all

collisions 1023, the chance of 2 stations colliding a second time is negligible, but the average waiting time after a collision would be hundreds of quanta, introducing a significant delay.

From the description of the medium access method, it has a random character and the probability of obtaining access to the medium depends on the network load, that is, on the number of stations and the intensity of the data transfer generated by each station. At the time of approval of this standard by IEEE, 1981, the speed of 10 Mbit/s was very high, compared to the need of stations to transmit data, therefore the transmission medium was never overloaded [9]. In the 90's, however, applications were already implemented that worked in real time with multimedia data, which overloaded the network. In such conditions, the number of collisions in the environment increases and the efficiency of the network operation decreases, because a large part of the time is spent trying to obtain access to the environment.

To reduce the intensity of collisions, the data traffic must be reduced, that is, the number of stations in a collision domain, using switches, or increasing the transmission speed, using Fast Ethernet, Gigabit Ethernet, etc.

## 2.2. Collision detection

Collision detection by all network stations is necessary for the correct operation of the Ethernet network. If any transmitting computer does not recognize the collision and believes that the data packet was transmitted correctly, then this packet will be lost. Due to the overlapping of signals upon collision, the data in the packet will be modified and the packet will be rejected by the destination station due to the mismatch of the checksum and as a result will be retransmitted by the higher layers, for example the transport or application layer. But retransmission by higher layers will waste more time (sometimes a few seconds) compared to a few milliseconds, with which the Ethernet protocol works.

Therefore, in order for collisions to be recognized, the condition  $T_{min} \geq PDV$  must be met, where  $T_{min}$  is the minimum volume data packet transmission time, and PDV (Path Delay Value) the time in which the collision signal manages to travel back and forth through the transmission medium between the most removed two stations from the network. That is why this time is called the double rotation time PDV (Олифер В., et al., 2020). If this condition is met, the station transmitting the data packet manages to identify the collision until the end of the transmission of the current data packet. It is obvious that this depends, firstly on the minimum length of the package, secondly on the length of the cable in the network and the speed of the signal transmission through the cable, because for different types of cable this speed is different.

Table 3. Ethernet MAC layer parameters

Parameter	Value
Data transfer speed	10 Mbps
IPG	9,6 mks
Maximum number of attempts to transmit data	16
The maximum number of intervals in which the pause increases	10
Jam packet length	32 biți
Maximum message length (without header)	1518 octeți

Minimum message length (without header)	64 octeti (512 biți)
Header length	64 biți
Minimum length of random break after collision	0 bt
Maximum length of random interruption after collision	524 000 bt
The maximum diameter of the network	2 500 m
Maximum number of stations	1024

*Source: Виктор Олифер, Наталья Олифер. Принципы, технологии, протоколы. Учебник*

Ethernet standards provide specific values for these parameters. The minimum length of the data field in the packet is 46 bytes, and together with the address fields, the checksum, etc. is 64 bytes, and together with the header, 72 bytes or 576 bits are received. From here we can find the maximum distance between any two stations or, more correctly speaking, between the two furthest stations. So, in the Ethernet network of 10 Mbps the bit intervals, is 57,5 mks. The distance that can be traveled in this time, for example, for the coaxial cable is 13280 m. Because this distance must be traveled twice, the maximum allowed distance for the coaxial cable is 6635 m. In reality, this distance is reduced due to other factors, one of the most important being signal attenuation.

To ensure the necessary signal strength, for the coaxial cable the maximum length of a segment is 500 m. Here PDV = 43.3 < 72 bytes, so this length would still need to be reduced, but considering that different network segments are connected by repeaters, which bring the signal strength back to normal, it was decided not to reduce this length. Given that no more than 4 repeaters can be used for coaxial cable, that is, 5 cable segments can be used, the maximum length in this case is 2500 m.

The values of the basic parameters of the 802.3 standard, which do not depend on the cable used, are given in table 3. If the type of cable is considered, some parameters have much narrower values, in other cases the values shown are more restrictive.

### 2.3. Channel efficiency in Ethernet Networks

Let us examine the performance of the 802.3 standard under heavy load conditions, when  $k$  stations are always ready to transmit. A rigorous analysis of the binary exponential regression algorithm would be complicated. Instead, we will research using the method Metcalfe and Boggs used in 1976 and will assume a constant retransmission probability for each quantum. If each station transmits during a conflict quantum with probability  $p$ , the probability  $A$  that a station receives the channel in this quantum is  $A = kp(1 - p)^{k-1}$  (Tanenbaum, et al., 2021).

$A$  is maximum when  $p=1/k$  and  $A \rightarrow 1/e$  then  $k \rightarrow \infty$ . The probability that the conflict interval has  $j$  quanta is  $A(1-A)^{j-1}$ , so the average number of quanta per conflict is:

$$\sum_{j=0}^{\infty} jA(1-A)^{j-1} = \frac{1}{A}$$

Since each quantum lasts  $2\tau$ , the average conflict interval,  $w = 2\tau/A$ . Let  $p$  be optimal. The average number of conflict quanta is never greater than  $e$ , so  $w$  is at most  $2\tau e \approx 5.4\tau$ .

When several stations want to transmit frames of average length, then  $P$  seconds are required. In this case the channel efficiency is:

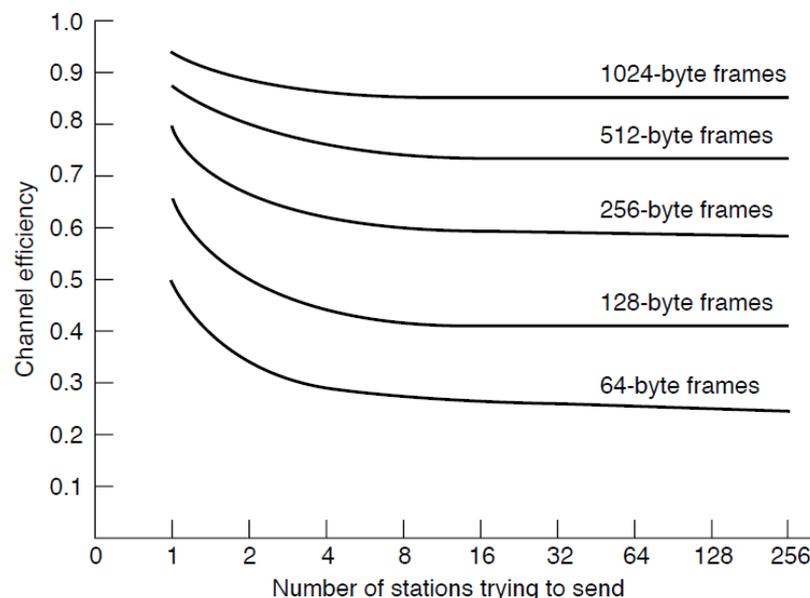
$$\text{Channel efficiency} = \frac{P}{P+2\tau/A} \tag{2}$$

As we can see, the maximum cable length influences the productivity of Ethernet networks. The longer the cable is, the longer the conflict interval is. Because of this, the maximum length of a collision domain is imposed.

It is instructive to formulate equation (2) also in terms of frame length  $F$ , network bandwidth  $B$ , cable length  $L$  and signal propagation speed  $c$ , for the optimal case with  $e$  conflict quants per frame. With  $P = F/B$ , equation (2) becomes:

$$\text{Channel efficiency} = 1 / (1 + 2BLE/cF) \tag{3}$$

When the denominator is high, the efficiency of the network will be low. More specifically, increasing bandwidth or distance ( $BL$  product) reduces efficiency for a given frame length. Figure 3 shows the efficiency of the channel as a function of the number of stations ready for transmission, for  $2\tau=51.2 \mu\text{s}$  and a data transmission rate of 10 Mbps.



**Figure 3. Efficiency of Ethernet at 10 Mbps with 512-bit slot times.**  
 Source: Tanenbaum A.S., Wetherall D.J., Feamster N. *Computer networks. 6th ed.* 2021

When a station wants to transmit data with a quantum size of 64 bytes, the channel efficiency is about 0,5. But as the number of stations wishing to transmit increases, the efficiency of the channel drops sharply. The ones that mean that 64-byte frames are not effective. On the other hand, with 1024-byte frames and an asymptotic  $e$ -value of 64 bytes per contention interval, the channel efficiency drops to 0,85. The ones that mean that Ethernet networks work efficiently.

Another way to improve user experience is to use faster networks. As mentioned, Gigabit Ethernet (1000 Mbps) and 10 Gigabit Ethernet networks are currently common. But already, 100 and 200 Gigabit Ethernet standards have appeared.

When local networks appeared, the most used network device was the repeater (hub). Which means that the local network forms a single collision domain (bus topology), in modern networks switches are used that divide the network into several collision domains (star topology). This fact further improves the performance of xEthernet networks, and some restrictions disappear. For example, the size of the network can already be theoretically unlimited, the restriction on the

maximum length of the cable remains. If the network is very large, for security reasons it can be divided into several networks using VLANs or routers. The most efficient routers divide the local network into several parts, those that allow to increase the level of security, network performance, and in case of problems in one network, segment isolates the other networks from these problems. In the case of a single network, when using repeaters and switches, problems in one network segment spill over into other segments.

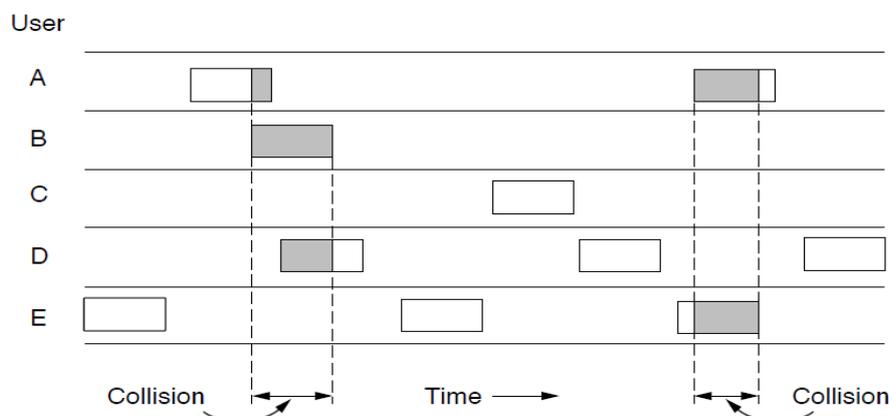
### 3. Efficiency of different environment access protocols

Above we discussed the performance of the CSMA protocol, but it has several versions. Besides this the CSMA protocol is an improvement of the ALOHA protocol. Which in turn, likewise, has many versions. The analyzed protocols are part of multiple access protocols. To increase the productivity of networks it is important which method of access to the environment we use. Therefore, let's do a small comparison of the most popular protocols in the field.

#### 3.1 ALOHA

In the 1970s, Norman Abramson and his colleagues at the University of Hawaii developed an elegant new method for solving the channel allocation problem. Abramson's creation, called the ALOHA system, was used to transmit data between computers on different islands. Because the cable connection of computers on different islands is expensive and difficult to achieve for technical reasons or use radio waves, the wireless connection. We will examine the most popular pure ALOHA and quantized ALOHA methods. In quantized ALOHA the time to send the data frame is divided into discrete intervals, intervals into which any frame must fit. In pure ALOHA it does not require global time synchronization, while quantized ALOHA does.

In pure ALOHA users send data whenever they have something to send. Using this method there will be collisions and overlapping packets must be retransmitted, as it is shown in figure 4. In a LAN, the reaction is immediate. In a satellite network, there is a delay of 270 ms before the transmitter knows whether the transmission has completed successfully. After that, users who have transmitted data, must wait a random amount of time, and retransmit. The wait time must be random, otherwise the same frames will collide over and over, blocking each other endlessly.



**Figure 4. In pure ALOHA, frames are transmitted at completely arbitrary times**

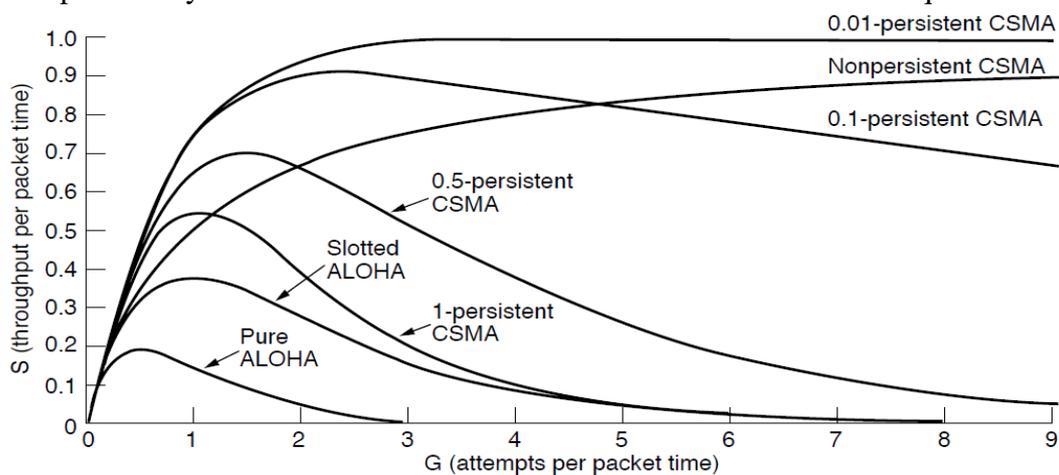
Source: Tanenbaum A.S., Wetherall D.J., Feamster N. Computer networks. 6th ed. 2021

As you can see, with a large number of users, the network efficiency decreases. The more is the number of users, the higher is the probability that we will have a collision again on the next attempt. Let's see how the network behaves depending on the number of attempts. Let we have  $N$  users and the probability of having  $k$  transmission attempts per frame interval, including retransmissions has a Poisson distribution, with mean  $G$  per frame interval. Obviously,  $G \geq N$ . Then the productivity is:  $S = GP_0$ , where  $P_0$  is the probability that a frame does not suffer collisions. It was calculated that for pure ALOHA the maximum productivity is 18%, but with the increase in the number of attempts (number of users) the productivity drops dramatically, see figure 5.

In 1972, Roberts published a method for doubling the capacity of an ALOHA system. His proposal was to divide time into discrete intervals, each interval corresponding to a frame. This approach requires users to agree on the quantum size (Nanda K., 1989). One way to achieve synchronization would be for a special station to emit a "beep" at the beginning of each interval, like a clock tick. The given method is called quantized ALOHA, and it essentially reduced the number of collisions. The network productivity in this case is calculated as [4]:  $S = Ge^{-G}$ . When  $G = 1$ , with a productivity of  $S = 1/e$ , i.e. approximately 0.368, double that of pure ALOHA. In this case the probability of an unused quanta is 0.368. The best performance we can expect from quantized ALOHA is: 37% unused quanta, 37% successfully transmitted frames, and 26% collisions.

### 3.2. Persistent and non-persistent CSMA

During the 80's, when creating Ethernet networks, the ALOHA method was taken, and some changes were made. From the beginning, Ethernet networks used thick and thin coaxial cable, then twisted pair and optical were added. The first protocol is CSMA 1-persistent (Carrier Sense Multiple Access). The basic change is that before transmitting the station listens to the environment. If the medium is free the station starts transmitting. If the medium is busy or there is a collision, the station waits for a random amount of time. The protocol is called 1-persistent, because the probability that a station transmits when it finds a free channel is equal to 1.



**Figure 5. Comparison of the channel utilization versus load for various random access protocols.**

Source: Tanenbaum A.S., Wetherall D.J., Feamster N. Computer networks. 6th ed. 2021

In the non-persistent CSMA protocol, the station is less "greedy" than in the previous one. Before broadcasting, the station listens to the channel. If no one is transmitting data, it starts

transmitting. But if the channel is busy, the station does not remain continuously listening, but waits for a random period and then repeats the algorithm. This algorithm allows a better use of the channel, but also at higher delays than CSMA 1-persistent (Hammond J., et al., 1986).

The following protocol is p-persistent CSMA applied to quantized channels. The station that wants to transmit listens to the channel. If the medium is free - it transmits with probability  $p$  and with probability  $q = 1-p$  it will wait for the next quantum. At the next quantum, likewise, it will transmit or wait with probability  $p$  and  $q$  respectively. Let's see next what the network performance is for different medium access methods (see figure 5).

As can be seen, quantized ALOHA has twice the productivity of pure ALOHA. In addition, it allows the number of attempts to transmit a packet to be greater, which means that it allows the simultaneous work of several users. It is received that quantized ALOHA allows more convenient work (fast transfer) of a larger number of users. But compared to CSMA the ALOHA model is about twice as slow even for the most pessimistic model.

Let's compare different CSMA models, first non-persistent CSMA is better than CSMA 1 and 0.5 persistent. But already for persistent CSMA 0.01 the situation changes. At first, a small number of users cannot load the channel to 100%, and the network productivity increases with the increase in the number of users. Even for a large number of users (attempts per packet), the persistent CSMA 0.01 ensures a productivity close to 100% of the channel bandwidth and does not decrease even as  $G$  increases from 2 to 9. This is due to the fact that, when transmitting data, even if the channel is free, the station transmits with probability 0.01 and with probability 0.99 it will wait for the next amount of time. Which ensures ideal productivity even with a large number of users.

### **Conclusions**

From year to year computer networks are used more widely, the speed of data transfer has an important role in economic development. Because of this, every year billions of dollars are spent on maintaining networks, producing network equipment, developing new technologies in the field. Therefore, the efficient use of computer network resources is of great importance. An important factor in the use of resources is the method of access to the environment, which is a factor that depends on the speed of data transfer, the number of users who can work comfortably in the network. Typically, users work from local Ethernet networks. That is why in the paper a comparison was made of the methods of accessing the medium in Ethernet networks and its predecessor the ALOHANET network. A qualitative description and comparison of pure ALOHA, quantized ALOHA, various versions of persistent CSMA and non-persistent CSMA media access methods was made. It has been shown that the CSMA 0.01-persistent method works most efficiently, even in the worst conditions, with a large number of users it works with a high efficiency, close to 100%.

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## EVALUATION OF SIMILARITY OF TREND FUNCTIONS

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**Abstract.** An approach to the evaluation of the similarity of the functions - approximating trend is proposed. The evaluation process consists of two stages: approximation techniques specific to non-linear regressions are applied, then certain procedures are used - algorithms for comparing the trend-functions obtained. Approximating functions are made up of components of polynomial form as well as terms - parameterized trigonometric functions sine and cosine. A function of this form allows us to obtain approximating functions at an acceptable level of accuracy for each individual case. Beforehand, the primary data sets are subjected to a smoothing process, which also provides for the inclusion of some parameters for the purposes of qualitative monitoring of operations to exclude exceptional values, values that, in some cases, can have a significantly negative impact. Varying the parameters of the approximating functions, in particular, of the trigonometric functions, can provide us with an approximation at a proper level of precision. In some cases, a high level of approximation accuracy can also have a negative impact. Having already obtained the trend functions for the respective data sets, we continue with the process of calculating the parameters that determine the basic fundamental properties of the obtained trend functions. For this purpose, the techniques of researching functions according to theories in the field of applied mathematics are used. Then, the domain of the independent variable is to be divided into several intervals, not necessarily of the same length, then, for each of them, the values corresponding to monotony effects, inflection points, extremes, etc. are calculated. The obtained values are to be included in the distance calculation formula.

**Keywords:** similarity, trend, functions, parameters, regression, applied, mathematics.

**JEL Classification:** C63, I21, I23, I25, I29.

### 1 Introduction

In the process of data analysis, the need to research the impact of a phenomenon on a group of study objects in the same period of time may often arise. For example, the spread of a particularly contagious disease in several geographical regions relatively close to each other. With the collected data, the trend functions can be determined for each locality, then the research can be continued from the point of view of the similarities between the approximating functions (between trends). The issue of similarities between functions is always at the center of discussions, in particular, when approaching the definition of the "distance" between them, on the basis of which the level of similarity between functions can be evaluated. Without coming up with more details about the advantages and disadvantages of some well-known methodologies for calculating "distances" between functions, this paper will describe a methodology, a similarity evaluation algorithm based on the techniques of studying functions with tools from the field of mathematics.

## **2 Model for evaluating the similarity between two functions**

In the process of calculating distances, it is proposed to involve some of the most fundamental notions in the field of function research, such as monotony intervals, convexity and concavity, critical points, extreme values, inflection points, etc. In order to be more explicit, in Figure 1 are presented the graphs of three functions, which describe a certain phenomenon that occurs in three situations in the same period of time. In Figure 1a) the primary statistical data are presented, in Figure 1b) – the approximating functions are added to the three primary dependencies and in Figure 1c) – only the graphs of the approximating functions are displayed. The most effective method of qualitative assessment of the similarity between the three functions presented as an example is the visual one. An attempt at visual evaluation, based on the image in Figure 1a) can create quite significant discomfort, therefore it can be considered ineffective, even if, in some simple situations, at a qualitative level, such evaluation, which is impractical for high volume data cases. Thus, it is necessary to implement approaches that involve certain techniques, methodologies, algorithms that involve quantitative parameters, and that are quite efficient in the data analysis process.

In this context, an analysis of the similarity of approximating functions instead of statistical - primary ones can be considered as a "gateway" to the respective approximating functions to be subjected to research. In the image in Figure 1b) it is possible to perform a comparative visual analysis of the substitution of functions - examples of primary data with approximate ones. A comparative analysis of the images in Figure 1a) and the one in Figure 1c) highlights the openness towards a much more accessible research of the similarity between the functions.

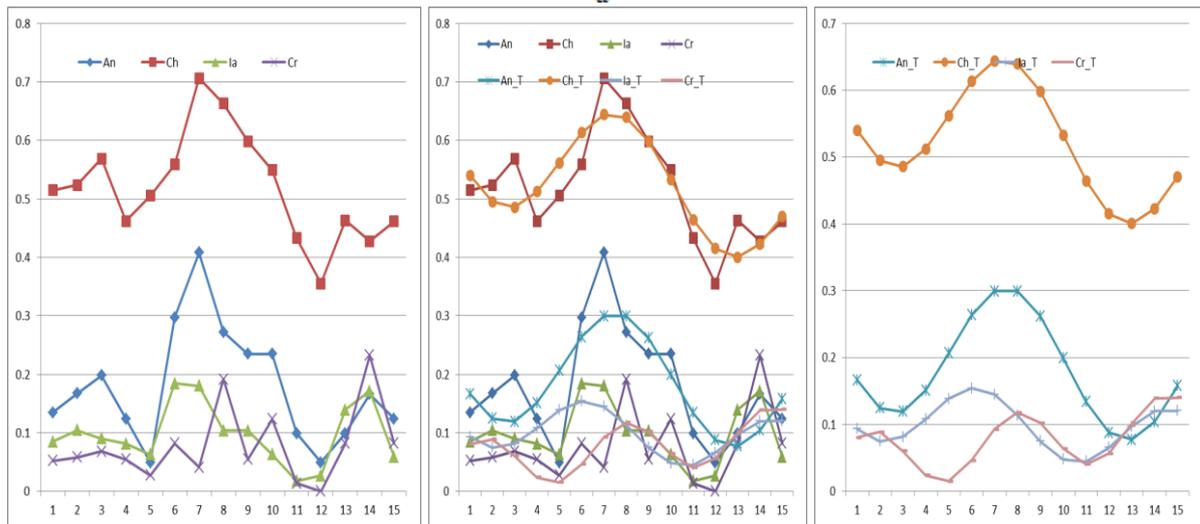
The most important question is the one related to the argumentation of the effect of preserving the level of accuracy in the process of approximating functions. In this context, it is necessary to point out the following:

- a) Statistical - primary data have some margin of errors, it depends on the field, "tools" and collection technology. It is recommended to take this into account in the process of arguing the veracity of the results obtained in the approximation processes.
- b) As a rule, among the values collected there are also out-of-the-ordinary data, so they could have a significantly negative impact on the integral information. Therefore, depending on certain specific situations, including the essence of the information content, a certain "smoothing" of the peaks is necessary. The smoothing technology should preserve the essence of the underlying content of the information exposed through the primary data. In this sense, in some cases it is recommended to carry out case studies in relation to a parameter that would regulate the level of smoothing. That parameter could be defined by the relative number of suspect values as well as their opposite placement in trends. In the case of the functions-examples from Figure 1a) it is possible to determine, with certainty, a single suspicious value for each of the four functions.

Taking into account the arguments in favor of "smoothing", a smoothing which, by the way, is a rather important stage in the process of defining approximating functions, follows the description of the approach to techniques for obtaining their analytical forms. Let us consider a function  $y = f(x)$  on the interval  $[a, b]$  and ask to evaluate the error when this function  $f(x)$  is replaced by another function  $\varphi(x)$ . To calculate the error, you can use, for example, the formula

$\max |f(x) - \varphi(x)|$  on the interval  $[a, b]$ , which is the so-called *maximum deviation* of  $\varphi(x)$  from  $f(x)$ . However, in some cases it is more natural to take as a measure of the error the so-called *mean square deviation*  $\delta$ , which is defined by the equation

$$\delta^2 = \frac{1}{(a-b)} \int_a^b [f(x) - \varphi(x)]^2 dx, \quad (1)$$



**a) primary functions**

**b) primary functions,  
approximating functions**

**c) approximating functions**

**Figure 1 Examples of primary data and their approximating functions**

Source: author's own study

where the function  $\varphi(x)$ , the approximating function, has the form

$$\varphi(x) = \frac{a_0}{2} + \sum_{k=1}^n (a_k \cos(kx) + b_k \sin(kx)) \quad (2)$$

Taking into account expression (2), from expression (1) we obtain

$$\delta^2 = \frac{1}{(a-b)} \int_a^b \left[ f(x) - \frac{a_0}{2} - \sum_{k=1}^n (a_k \cos(kx) + b_k \sin(kx)) \right]^2 dx \quad (3)$$

considering a particular case of the function  $\varphi(x)$

$$\varphi(x) = a + bx + c \sin(px) \quad (4)$$

the expression for  $\delta^2$  is obtained

$$\delta^2 = \sum_{i=1}^n [f(x_i) - (a + b x_i + c \sin(p x_i))]^2 \quad (5)$$

$a, b, c$  are coefficients to be calculated by the least squares method. For different values of  $p$ , different sets of  $a, b, c$  values will be obtained. It is necessary to involve an algorithm for

determining the value of  $\mathbf{p}$  so that the set of values  $\mathbf{a,b,c}$  ensures the smallest possible value of the value. One of the simplest options is to calculate the values of  $\mathbf{a,b,c}$  for a series of values of  $\mathbf{p}$  on an interval, for example  $[0,1]$ , and choose the value of  $\mathbf{p}$  that provides the smallest value  $\delta$ .

The graphs of the three approximating functions obtained by the method of least squares using expression (5) are shown in Figure 1c) (without the functions of the primary data), and which offer a possibility to evaluate the similarity of some differentiable functions of any order. Thus, methods can be applied to research functions by using mathematical methods usable only for continuous and differentiable functions.

### 3 Steps of the proposed algorithm for evaluating the similarity between functions

1. The necessary operations for smoothing the functions determined on the basis of the primary data are launched.

2. Non-linear regression technology is applied for each set of primary data according to formula (5), thus obtaining the analytical forms of approximating functions.

3. Steps of the algorithm for calculating the level of similarity between functions (in the following, we will only refer to approximating functions). Consider two functions  $f1(x)$  and  $f2(x)$ :

- a) The definition interval of the function  $[a,b]$  is divided into  $n$  segments of the same length;
- b) For  $f1(x)$  two vectors of size  $n$  are defined:  $V11$  with the coordinate equal to  $1$  (plus one), if the derivative of the first order in the middle of the interval  $i, (i=1, \dots, n)$  is positive, and, respectively, equal to  $-1$  (minus one), if the derivative of the first order is negative.
- c) Similarly, the vector  $V12$  corresponding to the values of the second-order derivative of the function  $f1(x)$  is defined.
- d) Similarly, the vectors  $V21$  and  $V22$  are also defined for the second function  $f2(x)$ .
- e) "Distance"  $d$  between these two functions  $f1(x)$  and  $f2(x)$ ..is calculated according to the formula

$$d^2 = \frac{1}{4n} \sum_{i=1}^n ((V11_i - V21_i)^2 + (V12_i - V22_i)^2) \quad (6)$$

Algorithm testing: fictitious data for 4 locations:  $(An, Ch, Ia, Cr)$ , respective values for parameter  $\mathbf{p}$  (5) formula:  $\mathbf{p}(0.62,0.62,0.75,0.98)$ , number of intervals  $n=20$ , distances obtained:  $(d12=0 ; d13=0.54 ; d14=0.7 ; d23=0.54 ; d24=0.7 ; d34=0.69)$  ,  $d13$  - calculated distance from  $An$  to  $Ia$  location.

### 4 Conclusions

Case studies have demonstrated the effectiveness of the algorithm described in this paper. Some of the most important elements of the algorithm are exposed. However, some key elements need to be further explored. This is the smoothing technology, the analytical model form of the approximating function, the determination of the values for the parameter  $\mathbf{p}$ , the number of intervals  $n$ , as well as the inclusion of the  $\cos(\mathbf{qx})$  term.

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## DATABASE FOR THE INFORMATION SYSTEM FOR MONITORING THE EPIDEMIOLOGICAL SITUATION

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**Abstract:** *The scientific paper proposes the projects of the conceptual and logical schemes of the relational database for the IT system for monitoring the epidemiological situation in the Republic of Moldova. The informational objects of the field of study are identified. The information base of the designed system is developed. The basic relationships between informational objects are highlighted. The integrity and referential constraints are proposed. Database's relationships are normalized up to NF3. The main idea is emphasized that the practical implementation of the database will allow solving the problems of efficient analysis of primary medical data and generation of consolidated reports, which will allow operative and strategic decisions to be made by the central administration of the Republic of Moldova*

**Keywords:** database, information system, design

**JEL Classification:** L86, I13

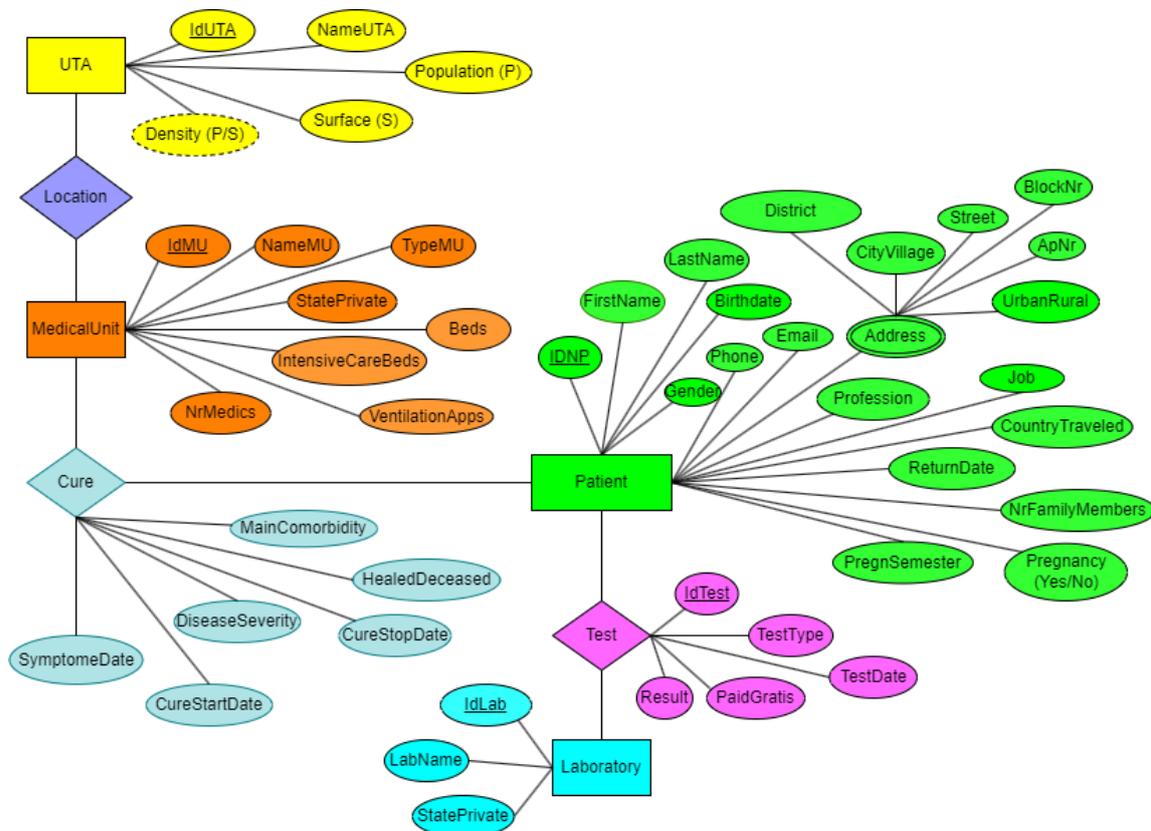
### 1 Introduction

The beginning of the SARS-Cov-2 virus pandemic in the Republic of Moldova in March 2020 found the information systems of medical institutions totally unprepared for prompt analysis and effective informational management of cases of infection with COVID-19. As it was demonstrated before (Oprea, 2020), the information systems of state organizations in the field of public health protection did not have reliable mechanisms for collecting and storing primary medical data in real time, for operative analysis of these data and for generating summary reports according to the criteria requested by the Government of the Republic of Moldova.

In order to obtain centralizing medical data at country level and to regulate the process of reporting cases of illness with COVID-19 by medical units in the territory, the Ministry of Health, Labor and Social Protection of the Republic of Moldova issued orders no. 294 of 20.03.2020 (MHLSP, 2020, 20 March) and no. 389 of 10.04.2020 (MHLSP, 2020, 10 April), in which the respective methodologies are described. In these orders, 5 forms of reports are specified, which were to be developed within the territorial medical units manually and transmitted in the form of Excel files to the higher hierarchical bodies. Due to the lack of specialized medical information systems, the entire process of collecting, organizing, processing and analyzing data regarding the epidemiological situation in the Republic of Moldova was carried out manually, by creating Excel files and sending them by e-mail to the hierarchically superior medical authorities. Obviously, this has generated a series of serious problems and made the work of the medical staff considerably more difficult, forced to

spend unnecessary hours of work perfecting some documents with daily operative data.

The analysis of the summary reports, developed within the National Agency for Public Health, highlighted serious errors in the organization and processing of statistical data (Oprea, 2021a). The main sources of errors were: lack of data validation mechanisms; logical data redundancy; lack of necessary information for the generation of summary reports; data isolation (using calendar and text formats for time periods). To eliminate these shortcomings, the concept of a database was proposed (Figure 1), which would allow the operative management of medical data within the information system of the National Public Health Agency of the Republic of Moldova.



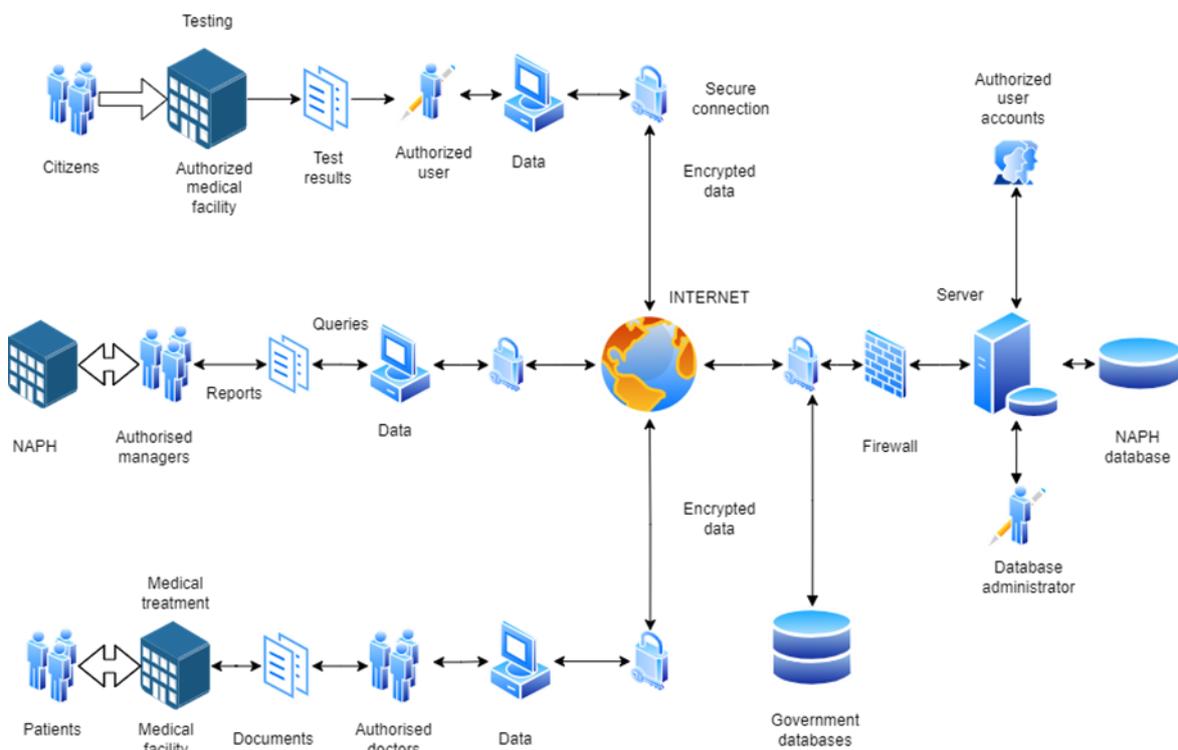
**Figure 1. Conceptual schema of the database for monitoring COVID-19 cases**

Source: author own study (Oprea, 2021a)

In order to use the database efficiently, it was proposed to create an information system for the management of the epidemiological situation (SIMSE) within the National Agency for Public Health (Oprea, 2021b). It is proposed that this computer system be set up on the basis of client-server technology (Figure 2), which would ensure real-time operation of the system and operational access of various categories of users to certain categories of data stored in a relational database. By applying mathematical calculation algorithms to the data in the database, all the synthesis data necessary for SIMSE operation can be obtained within the system (e.g., daily number of new cases of infection, total number of cases registered in territory, number of new import cases, total number of repeated positive tests, etc.). The implementation of the proposed database will allow the National Agency for Public Health to carry out operational monitoring of the epidemiological situation and to obtain the necessary

information for decision-making at the state level.

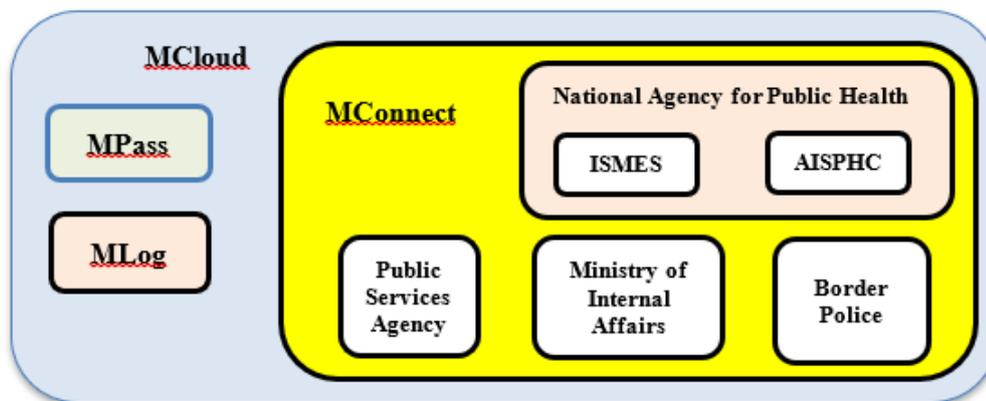
The functional logic of the processing of personal data in the information system for monitoring the epidemiological situation (ISMES) is presented in Figure 2. Testing and identification of cases of COVID-19 will be performed in authorized medical units (licensed laboratories), which will take the biological samples from the citizens and will generate based on them the primary input data of the computer system in the form of test results. These data will also include the personal data of the tested citizens (state identification number of citizen (IDNP), name, surname, date of birth, sex, address, telephone, email, number of family members, profession, place of work, date of first symptom of the disease, country visited last 14 days, date of return to the country).



**Figure 2. Functional logic of data processing based on client-server technologies**

Source: author own study (Oprea, 2021b)

The information system for monitoring the epidemiological situation (ISMES) must be interconnected with other medical and governmental information systems, primarily with the automated information system "Primary Health Care" (AISPHC) (<https://sia.amp.md/>), but also with the information systems of the Public Service Agency, the Ministry of Internal Affairs and the Border Police (Figure 3), based on the principles of data exchange and interoperability.



**Figure 3. Interoperability of government information systems**

Source: author own study (Oprea, 2021b)

## 2 Database logical design

The conceptual schema of the database (Figure 1) allowed the following entities to be identified in the analyzed field: **Patient** (Table 1), **Laboratory** (Table 2), **Medical Unit** (Table 3), **UTA** (Territorial-administrative unit) (Table 4), each having a set of mandatory or optional attributes.

**Table 1 Entity Patient**

Attribute	Description of attribute meaning (# - primary attribute, * - attribute with mandatory value, o – attribute with optional value)
# IDNP	Personal numerical code of the citizen
* FirstName	First name of the citizen
* LastName	Last name of the citizen
* Birthdate	Birthdate of the citizen
* Gender	Gender of the citizen
o Phone	Citizen's phone number
o Email	Citizen's email address
* Address	Address of the citizen. Compound attribute consisting of columns *NameUTA, *CityVillage, o Street, o BlockNr, o ApNr, *UrbanRural.
o Profession	Profession of the citizen (subsequently the field of professional activity can be added)
o Job	The citizen's workplace.
o CountryTraveled	The country where the citizen has traveled in the last 14 days
o ReturnDate	Date of return to the country from the trip
* NrFamilyMembers	The number of family members with whom the citizen lives together
o Pregnancy	In the case of women, it identifies the state of pregnancy
o PregnTrimester	In the case of pregnant women, it identifies the trimester of the pregnancy period

Source: own work

**Table 2 Entity Laboratory**

Attribute	Description of attribute meaning (# - primary attribute, * - attribute with mandatory value, o – attribute with optional value)
# IdLab	The identifier of the authorized medical laboratory
* LabName	Name of the authorized medical laboratory
* StatePrivate	Form of ownership (state laboratory, private laboratory)

Source: own work

**Table 3 Entity MedicalUnit**

Attribute	Description of attribute meaning (# - primary attribute, * - attribute with mandatory value, o – attribute with optional value)
# IdMU	Identifier of the curative medical facility
* NameMU	Name of the medical facility
* TypeMU	Category of medical facility (hospital, AMT, AMU, etc.)
* StatePrivate	Form of ownership (state institution, private institution)
o NrBeds	The number of beds for patients in the medical institution
o NrIntensiveCareBeds	The number of beds in the resuscitation department of the medical institution
o NrArtifVentDevices	The number of machines for artificial ventilation of the lungs
* NrMedics	The institution's medical staff number. Optionally, it can be divided by categories of medical personnel (doctors, nurses, etc.)

Source: own work

**Table 4 Entity Territorial-Administrative Unit (UTA)**

Attribute	Description of attribute meaning (# - primary attribute, * - attribute with mandatory value, o – attribute with optional value)
# IdUTA	Identifier of the territorial-administrative unit
* NameUTA	Name of the territorial-administrative unit
* Population	The number of the population with a stable domicile in the territorial-administrative unit
* Surface	The total area of the territory of the territorial-administrative unit

Source: own work

The relationships **Test** (Table 5), **Cure** (Table 6), **Location** with their specific attributes were identified between the database entities, with the possibility of expanding them if necessary.

**Table 5 Relation Test**

Attribute	Description of attribute meaning (# - primary attribute, * - attribute with mandatory value, o – attribute with optional value)
# IdTest	Test identifier
* TestType	Type of test performed
* TestDate	The date of the test
* PaidGratis	Free or paid test
* Result	Test result (positive / negative)

Source: own work

**Table 6 Relation Cure**

Attribute	Description of attribute meaning (# - primary attribute, * - attribute with mandatory value, o – attribute with optional value)
# IdCure	Medical treatment identifier
* SymptomeDate	The date of the first symptoms (for asymptomatic cases, the date of the first positive test is indicated)
* CureStartDate	Date of starting the application of the medical treatment protocol
* DiseaseSeverity	Disease severity (asymptomatic, mild form, severe form, intubation)
* CureStopDate	Date of termination of application of the medical treatment protocol
* HealedDeceased	Status of the patient (sick, cured, deceased)
o MainComorbidity	The main comorbidity of the deceased patient

Source: own work

### 3 Database normalization

Based on the requirements for summary reports, established in the orders of the Ministry of Health, Labor and Social Protection of the Republic of Moldova no. 294 of 20.03.2020 (MHLSP, 2020, 20 March) and no. 389 of 10.04.2020 (MHLSP, 2020, 10 April) the universal set of attributes of the relational database **CovidMonitoringDB** was developed:

**CovidMinitoringDB**{#IDNP, FirstName, LastName, Birthdate, Gender, Phone, Email, Address, Profession, Job, CountryTraveled, ReturnDate, NrFamilyMembers, Pregnancy, PregnTrimester, #IdLab, LabName, StatePrivate, #IdMU, NameMU, TypeMU, NrBeds, NrIntensiveCareBeds, NrArtifVentDevices, NrMedics, #IdUTA, NameUTA Population, Surface, #IdTest, TestType, TestDate, PaidGratis, Result, #IdCure, SymptomeDate, CureStartDate, DiseaseSeverity, CureStopDate, HealedDeceased, MainComorbidity}

On universal sets of attributes, the procedure of normalizing the relations up to the normal form 3 (NF3) was applied, obtaining the normalized relations:

**Patient**(#IDNP, FirstName, LastName, Birthdate, Gender, Phone, Email, Profession, NrFamilyMembers, Pregnancy, PregnTrimester)

**PatientAddress**(#IDNP, #IdAddress)

**Address** (#IdAddress, Street, BlockNr, ApNr)  
**AddressCityVillage**(#IdAddress, #IdCityVillage)  
**CityVillage**(#IdCityVillage, NameCityVillage, UrbanRural)  
**CityVillageUTA**(#IdUTA, #IdCityVillage)  
**UTA**(#IdUTA, NameUTA, Population, Surface)  
**PatientJob**(#IDNP, #IdInstitution)  
**Institution**(# IdInstitution, InstitutionName)  
**LastPatientTravel**(#IDNP, #IdCountry, ReturnDate)  
**Country**(#IdCountry, CountryName)  
**PatientTest**(#IdTest, #IDNP)  
**Test**(#IdTest, TestType, TestDate, PaidGratis, Result)  
**TestLaboratory**(#IdTest, #IdLab)  
**Laboratory**(#IdLab, LabName, StatePrivate)  
**Cure**(#IdCure, SymptomeDate, CureStartDate, DiseaseSeverity, CureStopDate, HealedDeceased, MainComorbidity)  
**CurePatient**(#IdCure, #IDNP)  
**CureMU**(#IdCure, #IdMU)  
**MedicalUnit**(#IdMU, NameMU, TypeMU, NrMedics, NrBeds, NrIntensiveCareBeds, NrArtifVentDevices)  
**Location**(#IdUTA, #IdMU)

#### **4 Conclusion**

As a result of carrying out the normalization process by decomposing the universal relation of attributes **CovidMonitoringDB**, the relational schemas of the database in normal form 3 (NF3) were obtained. These relational schemas can serve as a starting point for the physical design of database relations. Based on the relational schemas, the data dictionary can be developed and integrity and referential constraints can be defined for the database objects. In the same way, it will be possible to develop the operating rules on the data from the database based on the business rules, identified in the analyzed field. The relational schemas, operation rules and data dictionary will enable the physical database design process to be carried out efficiently, as well as the development and testing of the database prototype.

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## A KEY EXCHANGE METHOD BASED ON BOOLEAN FUNCTIONS AS SUBSETS OF COLUMNS

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**Abstract:** *The representation of Boolean functions as subsets of columns and one of its possible applications is discussed in this paper. Depending on the area of application, different Boolean function representations are used. Boolean functions as subsets of columns were investigated by the author together with other colleagues and published in many scientific works, which allow to apply this kind of representation in different domains. Based on the properties of the subsets of columns of Boolean functions, an algorithm of encryption key exchange between two or more entities is proposed. The algorithm consists of a long-lived secret key which consist of a family of  $n$  Boolean functions. The session key  $k_{ses}$  is defined by a subset of column of the partial derivative of one of the Boolean functions, randomly chosen from the secret key. The parameters that uniquely determine the secret key are generated randomly by one of the parties and may be sent nonencrypted to all other who are involved in the communication session. The main advantage of the algorithm is that it doesn't use public key cryptography, which is much more computationally demanding than calculation of the particular subset of column. The main challenge of the algorithm is choosing the correct type of functions that have as diverse subsets of columns as possible. The parameters of the table of partial derivatives of the Boolean functions also are very important and they need to best suit our purpose. These two particularities need further investigations.*

**Keywords:** Boolean function, subsets of column, Boolean function derivatives, key exchange, secret key, session key.

**JEL Classification:** C61, C63

### 1 Introduction

It is known (Bochmann & Posthoff, 1981) that determining a Boolean function knowing only its partial derivatives, is a very difficult task. The problem becomes even more complicated in the case when not all of the derivatives are known. This happens when the function and its partial derivatives are represented as subsets of columns (Булат, 1972), (Булат, 2002). This fact can be used to increase the processing speed of a cryptosystem without decreasing the cryptographic strength. For this, we need to know an effective way of calculating the derivatives of Boolean functions. Such a method was proposed in (Булат, 2002) and used in (Zgureanu, 2011), (Bulat, et al., 2012a), (Bulat, et al., 2010). In this paper we propose another application of Boolean functions partial derivatives, namely for cryptographic key exchange.

Boolean functions in their different representation are very important for a lot of domains. They have become the accepted model for designing circuits used in electronics nowadays. The theory of Boolean functions is also used in areas such as pattern recognition, coding theory, game theory, Reliability theory, Combinatorics, Logic, Cryptography, etc.

The function

$$F(x_1, \dots, x_\tau, \dots, x_n),$$

whose arguments

$$x_1, \dots, x_\tau, \dots, x_n$$

as well as the function itself, assume values from a two-element set  $\{0,1\}$ , is called Boolean function (Bochmann & Posthoff, 1981). Formally it is an  $n$ -ary relation  $R_{X^n}$ , where  $X = \{0,1\}$  and can be represented by the *truth table*, which explicitly lists its values  $\varepsilon_i$  for all the possible arguments. The truth table for the function  $F$  is shown in Table 1, where  $\varepsilon_i \in \{0,1\}$ ,  $i = \overline{1, u}$  and  $u = 2^n - 1$ . Truth table is very useful for functions of a quite small number of variables. When this number is raising truth tables became not unpractical because of its dimensions. For example, if  $F$  is a Boolean function of 10 variables  $x_1, \dots, x_\tau, \dots, x_{10}$ , its truth table has  $2^{10} = 1024$  rows. In such situations other Boolean function's representations could be used. The most popular ones are algebraic expressions: negation normal form, disjunctive normal form, conjunctive normal form, canonical normal form. A function may be expressed through several logically equivalent algebraic expressions, but there is only one unique truth table for every function. In each specific situation is used the representation which suits best for practical reasoning.

**Table 1 Boolean function's truth table**

	$x_1$	...	$x_\tau$	...	$x_n$	$F(x_1, \dots, x_n)$
	0	...	0	...	0	$\varepsilon_0$
			⋮			⋮
	$\sigma_1$	...	$\sigma_\tau$	...	$\sigma_n$	$\varepsilon_i$
			⋮			⋮
	1	...	1	...	1	$\varepsilon_u$

Source: based on Bochmann and Posthoff (1981)

This paper discuss Boolean functions represented as subset of columns, which allows in many situations to operate more conveniently on Boolean functions even given in other different representations. This form of Boolean functions was investigated by the author of this paper together with other colleagues and published in many scientific works, which allow to apply this kind of representation in different domains because it needs less computational resources when operating on Boolean functions represented in this way. Based on the research on Boolean functions as subset of columns a key exchange algorithm is proposed.

## 2 Boolean Functions Represented as Subset of Columns

### 2.1 Representing Boolean Functions as Subsets of Columns

According to (Булат, 1972), (Булат & Горюк, 1978), (Bulat, et al., 2008b), on the set

$$X = \{x_1, \dots, x_n\} \tag{1}$$

we build a partition

$$\{\tilde{X}_1, \tilde{X}_2\} = \{\{x_1, \dots, x_\tau\}, \{x_{\tau+1}, \dots, x_n\}\} \tag{2}$$

and define two sets

$$Y = \{y_0, y_1, \dots, y_{2^\tau-1}\}, Z = \{z_0, z_1, \dots, z_{2^{n-\tau}-1}\} \tag{3}$$

which consist of binary sets built on variables from  $\tilde{X}_1$  and  $\tilde{X}_2$  respectively. Function  $F(x_1, \dots, x_n)$  can be viewed as a binary relation  $R_{YZ}$  on the sets Y and Z and can be represented by

the following matrix

$$R_{YZ} = \begin{matrix} & z_0 & \dots & z_j & \dots & z_p \\ \begin{matrix} y_0 \\ \vdots \\ y_i \\ \vdots \\ y_m \end{matrix} & \begin{bmatrix} a_{00} & \dots & a_{0j} & \dots & a_{0p} \\ \vdots & & \vdots & & \vdots \\ a_{i0} & \dots & a_{ij} & \dots & a_{ip} \\ \vdots & & \vdots & & \vdots \\ a_{m0} & \dots & a_{mj} & \dots & a_{mp} \end{bmatrix} \end{matrix}, \quad (4)$$

where  $m = 2^\tau - 1$ ,  $p = 2^{n-\tau} - 1$ ,  $\forall i, j$   $a_{ij} = \begin{cases} 1, & \text{if } F(y_i, z_j) = 1, \\ 0, & \text{if } F(y_i, z_j) = 0. \end{cases}$

**Definition 1.** Subset  $S_{F^\varepsilon}^{z_j}$  of set  $Y$ , where

$$S_{F^\varepsilon}^{z_j} = \{y_i : \forall y_i \in Y, F(y_i, z_j) = \varepsilon, \varepsilon \in \{0,1\}\}, \quad (5)$$

is called a *subset of column* of function  $F(x_1, \dots, x_n)$  for the column  $z_j$ .

According to this definition, a Boolean function can be represented using a table of subsets of columns (Table 2):

Table 3.1.2. Boolean function's table of subsets of columns

**Table 2 Boolean function's table of subsets of columns**

	$z_0$	$\dots$	$z_j$	$\dots$	$z_p$
$F^0$	$S_{F^0}^{z_0}$	$\dots$	$S_{F^0}^{z_j}$	$\dots$	$S_{F^0}^{z_p}$
$F^1$	$S_{F^1}^{z_0}$	$\dots$	$S_{F^1}^{z_j}$	$\dots$	$S_{F^1}^{z_p}$

Source: based on Zgureanu (2010)

It is obvious that  $S_{F^0}^{z_j} = Y \setminus S_{F^1}^{z_j}$  and usually the subsets  $S_{F^0}^{z_j}, j = \overline{0, p}$  are not included in the Table 2.

### 2.2 Subsets of columns of Boolean functions represented algebraically

Every Boolean function can be represented by an algebraic expression. [Several](#) properties of some of these representations are shown in Theorems 1, 2 and 3 (Zgureanu, 2011) and allow us to use the representation of subsets of columns when the Boolean function is expressed by a disjunction, conjunction, or a symmetric difference of some Boolean functions.

**Theorem 1** If

$$F(x_1, \dots, x_\tau, x_{\tau+1}, \dots, x_n) = F_1 \vee \dots \vee F_i \vee \dots \vee F_k, \quad (6)$$

then

$$S_{F^1}^{z_j} = \bigcup_{i=1}^k S_{F_i^1}^{z_j}, \quad \forall j \in \{0, \dots, 2^{n-\tau} - 1\}. \quad (7)$$

**Theorem 2** If

$$F(x_1, \dots, x_\tau, x_{\tau+1}, \dots, x_n) = F_1 \wedge \dots \wedge F_i \wedge \dots \wedge F_k, \quad (8)$$

then

$$S_{F^1}^{z_j} = \bigcap_{i=1}^k S_{F_i^1}^{z_j}, \quad \forall j \in \{0, \dots, 2^{n-\tau} - 1\}. \quad (9)$$

**Theorem 3** If

$$F(x_1, \dots, x_\tau, x_{\tau+1}, \dots, x_n) = F_1 \oplus \dots \oplus F_i \oplus \dots \oplus F_k, \quad (10)$$

then

$$S_{F^1}^{z_j} = \bigtriangleup_{i=1}^k S_{F_i^1}^{z_j}, \quad \forall j \in \{0, \dots, 2^{n-\tau} - 1\}, \quad (11)$$

where  $\bigtriangleup$  denotes the symmetric difference of the subsets of columns.

A special interest represents Boolean functions in their disjunctive normal form:

$$F(x_1, \dots, x_n) = U_1 \vee \dots \vee U_i \vee \dots \vee U_k, \quad (12)$$

where

$$U_i = x_{i_1}^{\sigma_{i_1}} \wedge \dots \wedge x_{i_s}^{\sigma_{i_s}} \wedge x_{j_1}^{\sigma_{j_1}} \wedge \dots \wedge x_{j_q}^{\sigma_{j_q}}, \quad (13)$$

and

$$x_a^{\sigma_a} = \begin{cases} x_a, & \text{if } \sigma_a = 1, \\ \bar{x}_a, & \text{if } \sigma_a = 0, \end{cases} \quad a \in \{i_1, \dots, i_s, j_1, \dots, j_q\}, \quad x_{i_1}, \dots, x_{i_s} \in \tilde{X}_1, x_{j_1}, \dots, x_{j_q} \in \tilde{X}_2. \quad (14)$$

In (Zgureanu, 2011) was shown that if the subsets of columns of each conjunction are known, we can find out  $S_{F^1}^{z_j}, \forall j \in \{0, \dots, 2^{n-\tau} - 1\}$  and so we can calculate easily all subsets of columns of a Boolean function given in its disjunctive normal form (Table 3).

There are three different cases related to the  $U_i$  structure. These cases are considered in Theorems 4 – 6 (Zgureanu, 2011).

**Theorem 4** Let

$$U_i = x_{j_1}^{\sigma_{j_1}} \wedge \dots \wedge x_{j_q}^{\sigma_{j_q}}, \quad x_{j_1}, \dots, x_{j_q} \in \tilde{X}_2. \quad (15)$$

Then

$$S_{U_i^1}^{z_j} = \begin{cases} \{0, \dots, 2^\tau - 1\}, & \text{if } \forall a \in \{1, \dots, q\}: x_{j_a} = \sigma_{j_a}, \\ \emptyset, & \text{if } \exists a \in \{1, \dots, q\}: x_{j_a} \neq \sigma_{j_a}. \end{cases} \quad (16)$$

**Table 3** Table of subsets of columns of a Boolean function in disjunctive normal form

	$z_0$		$z_j$		$z_p$
	$S_{u_1^1}^{z_0}$		$S_{u_1^1}^{z_j}$		$S_{u_1^1}^{z_p}$
	$S_{u_2^1}^{z_0}$		$S_{u_2^1}^{z_j}$		$S_{u_2^1}^{z_p}$
	$\vdots$		$\vdots$		$\vdots$
	$S_{u_k^1}^{z_0}$	..	$S_{u_k^1}^{z_j}$		$S_{u_k^1}^{z_p}$
	$S_{F^1}^{z_0} = \bigcup_{i=1}^k S_{u_i^1}^{z_0}$		$S_{F^1}^{z_j} = \bigcup_{i=1}^k S_{u_i^1}^{z_j}$		$S_{F^1}^{z_p} = \bigcup_{i=1}^k S_{u_i^1}^{z_p}$

Source: based on Zgureanu (2011)

**Theorem 5** Let

$$U_i = x_{i_1}^{\sigma_{i_1}} \wedge \dots \wedge x_{i_s}^{\sigma_{i_s}}, \quad x_{i_1}, \dots, x_{i_s} \in \tilde{X}_1. \quad (17)$$

Then

$$S_{u_i^j}^{z_j} = \bar{m}_{i_1}^{\sigma_{i_1}} \dots \bar{m}_{i_s}^{\sigma_{i_s}}, \forall j \in \{0, 1, \dots, 2^{n-\tau} - 1\}. \quad (18)$$

**Theorem 6** Let

$$U_i = x_{i_1}^{\sigma_{i_1}} \wedge \dots \wedge x_{i_c}^{\sigma_{i_c}} \wedge x_{j_1}^{\sigma_{j_1}} \dots \wedge x_{j_q}^{\sigma_{j_q}}, \quad (19)$$

where  $x_{i_1}, \dots, x_{i_c} \in \{x_1, \dots, x_\tau\}$  and  $x_{j_1}, \dots, x_{j_q} \in \{x_{\tau+1}, \dots, x_n\}$ .

Then

$$S_{u_i^j}^{z_j} = \begin{cases} \emptyset, & \text{if } \exists a \in \{1, \dots, q\}: x_{j_a} \neq \sigma_{j_a}, \\ \bar{m}_{i_1}^{\sigma_{i_1}} \dots \bar{m}_{i_c}^{\sigma_{i_c}}, & \text{if } \forall a \in \{1, \dots, q\}: x_{j_a} = \sigma_{j_a}. \end{cases} \quad (20)$$

Theorems 1 – 6 allow to perform the transition from the algebraic representation of Boolean functions to their representation by subsets of columns. This transition makes it possible to perform operations with functions of a large number of variables.

### 3 Derivative Calculation of a Boolean Function

#### 3.1 Derivative of a Boolean function

The Boolean Differential Calculus is a very powerful theory that significantly extends the basic concepts of Boolean Algebras. According to (Bochmann & Posthoff, 1981), the partial derivative of a Boolean function is defined as follow:

**Definition 2** The partial derivative of an  $n$ -variable Boolean function  $F(x_1, \dots, x_{i-1}, x_i, x_{i+1}, \dots, x_n)$  to the  $i$ -th variable  $x_i$  is another  $n$ -variable Boolean function  $\frac{\partial F}{\partial x_i}$ , defined as follows:

$$\frac{\partial F}{\partial x_i} = F(x_1, \dots, x_{i-1}, 1, x_{i+1}, \dots, x_n) \oplus F(x_1, \dots, x_{i-1}, 0, x_{i+1}, \dots, x_n). \quad (21)$$

Also, according to (Bochmann & Posthoff, 1981), some of the properties of partial derivatives of a Boolean function are (22) – (24):

$$\frac{\partial(F_1 \vee F_2)}{\partial x_i} = \bar{F}_1 \wedge \frac{\partial F_2}{\partial x_i} \oplus \bar{F}_2 \wedge \frac{\partial F_1}{\partial x_i} \oplus \frac{\partial F_1}{\partial x_i} \wedge \frac{\partial F_2}{\partial x_i}, \quad (22)$$

$$\frac{\partial(F_1 \wedge F_2)}{\partial x_i} = F_1 \wedge \frac{\partial F_2}{\partial x_i} \oplus F_2 \wedge \frac{\partial F_1}{\partial x_i} \oplus \frac{\partial F_1}{\partial x_i} \wedge \frac{\partial F_2}{\partial x_i}, \quad (23)$$

$$\frac{\partial(F_1 \oplus F_2)}{\partial x_i} = \frac{\partial F_1}{\partial x_i} \oplus \frac{\partial F_2}{\partial x_i}. \quad (24)$$

Partial derivatives of a higher order can be calculated using the formula (25)

$$\frac{\partial^s F}{\partial x_{i_1} \dots \partial x_{i_s}} = \frac{\partial}{\partial x_{i_s}} \left( \frac{\partial^{s-1} F}{\partial x_{i_1} \dots \partial x_{i_{s-1}}} \right), \quad (25)$$

consecutively calculating

$$\frac{\partial F}{\partial x_{i_1}}, \frac{\partial^2 F}{\partial x_{i_1} \partial x_{i_2}}, \dots, \frac{\partial^s F}{\partial x_{i_1} \partial x_{i_2} \dots \partial x_{i_s}}. \quad (26)$$

However, finding partial derivatives according to (22) – (24) is associated with complex calculations. These calculations can be greatly simplified using Boolean functions represented as subsets of columns.

### 3.2 Derivative calculation of a Boolean function represented as subsets of columns

The result of calculating the derivative does not depend on the order of the variables by which the derivative is calculated (Bochmann & Posthoff, 1981). These calculations can be simplified by applying Theorems 7 – 10 (Bulat, et al., 2010), (Zgureanu, 2011), which play an essential role in calculating the derivatives of Boolean functions and offer a more accessible way than the mentioned traditional formulas.

**Theorem 7** Let  $x_{i_1}, \dots, x_{i_s} \in \tilde{X}_2, j \in \{0, 1, \dots, 2^{n-\tau} - 1\}$ . Then

$$S^{z_j} \left( \frac{\partial^s F}{\partial x_{i_1} \partial x_{i_2} \dots \partial x_{i_s}} \right)_1 = S_{F^1}^{j_1} \Delta S_{F^1}^{j_2} \Delta \dots \Delta S_{F^1}^{j_k}, \quad (27)$$

where  $\Delta$  is the symmetric difference of subsets of columns,  $k = 2^s$ ,  $j_1, \dots, j_k \in \{0, 1, 2, \dots, 2^{n-\tau} - 1\}$ ,  $j \in \{j_1, \dots, j_k\}$  for each  $z_{j_a}, a = 1, k$  there are  $s$  neighbouring binary sets by the variables  $x_{i_1}, \dots, x_{i_s}$ .

Formula (3.1.10) allows calculating the partial derivative of the order  $s$  without calculating the derivatives of the lower orders. In order to do this, we need to find the elements of the set  $J = \{j_1, j_2, j_3, \dots, j_k\}$ , where  $k = 2^s$  and  $j_1 = j$ . If we know  $j$ , the other elements can be calculated using the algorithm proposed in (Bulat, et al., 2010).

**Definition 3** Two sets  $\tilde{\alpha} = (\alpha_1, \dots, \alpha_{k-1}, 0, \alpha_{k+1}, \dots, \alpha_n)$  and  $\tilde{\beta} = (\beta_1, \dots, \beta_{k-1}, 1, \alpha_{\beta+1}, \dots, \beta_n)$ , differing only in the  $k$ th component are called neighbouring sets by the component  $k$  (Bochmann & Posthoff, 1981).

According to (Булат, 2002), if  $x_i \in \tilde{X}_2$  and  $z_j$  and  $z_k$  are neighbouring binary sets by the variable  $x_i$ , then

$$S^{z_j} \left( \frac{\partial F}{\partial x_i} \right)_1 = S^{z_k} \left( \frac{\partial F}{\partial x_i} \right)_1 = S_{F^1}^{z_j} \Delta S_{F^1}^{z_k}, \quad (28)$$

where  $\Delta$  is the symmetric difference of sets.

**Theorem 8** Let  $x_i \in \tilde{X}_1$  and  $S_{F^1}^{z_j} = \{\alpha_1, \alpha_2, \dots, \alpha_k\}$ . Then

$$S_{F^1}^{z_j} \left( \frac{\partial F}{\partial x_i} \right)_1 = \{\alpha_1, \beta_1\} \Delta \{\alpha_2, \beta_2\} \Delta \dots \Delta \{\alpha_k, \beta_k\}, \quad (29)$$

where  $\beta_1, \beta_2, \dots, \beta_k$  are neighbours with  $\alpha_1, \alpha_2, \dots, \alpha_k$  respectively, by the variable  $x_i$ .

**Corollary 1** If  $S_{F^1}^{z_j} = \{0, 1, 2, \dots, 2^\tau - 1\}$  or  $S_{F^1}^{z_j} = \emptyset$ , then

$$S_{F^1}^{z_j} \left( \frac{\partial F}{\partial x_i} \right)_1 = \emptyset, \quad \forall i \in \{1, \dots, \tau\}. \quad (30)$$

The calculation of partial derivatives could be improved as is shown in the next four Theorems 8 - 11 (Bulat, 2013):

**Theorem 8** If

$$S_{F^1}^{z_j} = \bigcup_{i=1}^m Y_i, Y_i \subset Y = \{0, 1, 2, \dots, 2^\tau - 1\}, \quad (31)$$

then for any  $a \in \{1, \dots, \tau\}$

$$S_{F^1}^{z_j} \left( \frac{\partial F}{\partial x_a} \right)_1 = S_{F^1}^{z_j} \left( \frac{\partial F_1}{\partial x_a} \right)_1 \Delta \dots \Delta S_{F^1}^{z_j} \left( \frac{\partial F_m}{\partial x_a} \right)_1 \Delta S_{F^1}^{z_j} \left( \frac{\partial (F_1 \wedge F_2)}{\partial x_a} \right)_1 \Delta \dots \Delta S_{F^1}^{z_j} \left( \frac{\partial (F_1 \wedge F_2 \wedge \dots \wedge F_m)}{\partial x_a} \right)_1, \quad (32)$$

where

$$S_{F_1^1}^{z_j} = Y_1, \dots, S_{F_m^1}^{z_j} = Y_m, S_{(F_1 \wedge F_2)^1}^{z_j} = Y_1 \cap Y_2, \dots, S_{(F_1 \wedge F_2 \wedge \dots \wedge F_m)^1}^{z_j} = Y_1 \cap Y_2 \cap \dots \cap Y_m. \quad (33)$$

**Theorem 9** If  $S_{F^1}^{z_j} = \bar{m}_i^{\sigma_i}$  then

$$S_{\left(\frac{\partial F}{\partial x_a}\right)^1}^{z_j} = \begin{cases} \emptyset, & \text{if } a \neq i, \\ Y, & \text{if } a = i, \end{cases} \forall i, a \in \{1, 2, \dots, \tau\}, \forall \sigma_i \in \{0, 1\}. \quad (34)$$

**Theorem 10** Let  $S_{F^1}^{z_j} = \Delta^k \bar{m}_{i_a}^1$ , where  $i_a \in \{1, 2, \dots, \tau\}$ . Then

$$S_{\left(\frac{\partial F}{\partial x_b}\right)^1}^{z_j} = \begin{cases} \emptyset, & \text{if } b \notin \{i_1, \dots, i_k\}, \\ Y, & \text{if } b \in \{i_1, \dots, i_k\}. \end{cases} \quad (35)$$

**Theorem 11** If  $S_{F^1}^{z_j} = \bar{m}_{i_1 \dots i_k}^{\sigma_{i_1} \dots \sigma_{i_k}}$ , where  $i_1, \dots, i_k \in \{1, \dots, \tau\}$ , and  $\sigma_{i_1}, \dots, \sigma_{i_k} \in \{0, 1\}$ .

Then

$$S_{\left(\frac{\partial F}{\partial x_b}\right)^1}^{z_j} = \begin{cases} \emptyset, & \text{if } b \notin \{i_1, \dots, i_k\}, \\ \bar{m}_{i_1}^{\sigma_{i_1}} \cap \dots \cap \bar{m}_{i_{b-1}}^{\sigma_{i_{b-1}}} \cap \bar{m}_{i_{b+1}}^{\sigma_{i_{b+1}}} \cap \dots \cap \bar{m}_{i_k}^{\sigma_{i_k}}, & \text{if } b \in \{i_1, \dots, i_k\}. \end{cases} \quad (36)$$

Applying Theorems 8 – 11 we can calculate all subsets of columns  $S_{F^1}^{z_j}$  of Boolean function derivatives much more easily.

Now suppose the function  $F$  is represented as

$$F(x_1, \dots, x_n) = U_1 \oplus \dots \oplus U_i \oplus \dots \oplus U_k, \quad (37)$$

where

$$U_i = x_{i_1}^{\sigma_{i_1}} \wedge \dots \wedge x_{i_s}^{\sigma_{i_s}} \wedge x_{j_1}^{\sigma_{j_1}} \wedge \dots \wedge x_{j_q}^{\sigma_{j_q}}, x_a^{\sigma_a} = \begin{cases} x_a, & \text{if } \sigma_a = 1 \\ \bar{x}_a, & \text{if } \sigma_a = 0 \end{cases} a \in \{i_1, \dots, i_s, j_1, \dots, j_q\},$$

$$x_{i_1}, \dots, x_{i_s} \in \tilde{X}_1, x_{j_1}, \dots, x_{j_q} \in \tilde{X}_2. \quad (38)$$

According to (Zgureanu & Cataranciuc, 2010), (Bulat, et al., 2012b), each conjunction  $U_i$ , through the variable  $x_{i_1}, \dots, x_{i_s} \in \tilde{X}_1$  determines a block, as shown below:

$$\bar{m}_{i_1 \dots i_s}^{\sigma_{i_1} \dots \sigma_{i_s}} = \bar{m}_{i_1}^{\sigma_{i_1}} \cap \dots \cap m_{i_s}^{\sigma_{i_s}}, \quad (39)$$

where

$$i_1, \dots, i_s \in \{1, \dots, \tau\}, \sigma_{i_1}, \dots, \sigma_{i_s} \in \{0, 1\}. \quad (40)$$

Variables  $x_{j_1}, \dots, x_{j_q} \in \tilde{X}_2$  determine the index  $z$  for which

$$S_{u_i^z}^{z_j} = \bar{m}_{i_1 \dots i_s}^{\sigma_{i_1} \dots \sigma_{i_s}}. \quad (41)$$

All the subsets of columns of the conjunctions  $U_i$  from (37) are shown in the Table 4. According to (Zgureanu & Cataranciuc, 2010), (Bulat, et al., 2012b), the last row of Table 4 contains the subsets of columns of the function  $F$ . Applying formulas (28) and (29), we can calculate the subsets of columns of the corresponding derivatives. The subsets of columns of the conjunctions  $U_i$  represent a block of partitions or the empty set ( $\emptyset$ ) or the universe ( $Y$ ). Applying Theorem 9 and Theorem 11 and the property

$$S_{\left(\frac{\partial(F_1 \oplus F_2)}{\partial x_i}\right)^1}^{z_j} = S_{\left(\frac{\partial F_1}{\partial x_i}\right)^1}^{z_j} \Delta S_{\left(\frac{\partial F_2}{\partial x_i}\right)^1}^{z_j} \quad (42)$$

we can find  $S_{\left(\frac{\partial F}{\partial x_i}\right)^1}^{z_j}$  without calculating  $S_{F^1}^{z_j}$ . This way, we can reduce the number of

operations to calculate the subsets of columns of partial derivatives and, in consequence, reduce the time to calculate them.

**Table 4 Table of subsets of columns of the conjunctions  $\mathcal{F}_i$**

	$z_0$		$z_j$		$z_p$
	$S_{u_1^1}^{z_0}$		$S_{u_1^1}^{z_j}$		$S_{u_1^1}^{z_p}$
	$S_{u_2^1}^{z_0}$		$S_{u_2^1}^{z_j}$		$S_{u_2^1}^{z_p}$
	$\vdots$		$\vdots$		$\vdots$
	$S_{u_k^1}^{z_0}$	..	$S_{u_k^1}^{z_j}$		$S_{u_k^1}^{z_p}$
	$S_{F^1}^{z_0}$		$S_{F^1}^{z_j}$		$S_{F^1}^{z_p}$
$F^1$	$\Delta_{i=1}^k S_{u_i^1}^{z_0}$	..	$\Delta_{i=1}^k S_{u_i^1}^{z_j}$		$\Delta_{i=1}^k S_{u_i^1}^{z_p}$

Source: based on Bulat *et al.* (2012)

#### 4 A key exchange algorithm based on Boolean functions derivatives

One of the pressing problems of the information society is the secure transportation and storage of information using different computer technologies and local or global computer networks. An essential tool in information security represents cryptography, which covers encryption algorithms, protocols, cryptographic key handling facilities, etc. To obtain a reliable information protection system, it is necessary to anticipate many possible attacks on it because it is useless to protect one side of the system when the attack can be easily made on other, more sensitive side.

A cryptographic system is effective when it keeps a balance between what is necessary at the moment and what is possible in the future. In order to create such a system, it is needed to build a better infrastructure, which contains the following components: symmetric and asymmetric cryptographic algorithms, hash algorithms, digital signature, the required key infrastructure and many other things.

In practice, when the problem of implementing such a system arises, we choose between one of the two possibilities: either select an existing solution or create a new one. Each of these ways has advantages and disadvantages: existing solutions have been studied by experts in theory and applied in practice, therefore they would probably be safer. The problem is that these systems may not be suitable for our goals or for the information system we use. Therefore, there is often necessary to create a new algorithm or system, which is tuned to our needs.

Along with the improvement of computing facilities, the requirements for cryptosystems are also growing. The size of keys grows incredibly and arithmetic operations with very large numbers seriously slow down the operation speed of cryptosystems and, as a result, their performance decreases (Zgureanu, 2011), (Bulat, et al., 2008a). The situation may change when logical operations on Boolean functions are used instead of arithmetic operations on large numbers. Such solutions were proposed in (Bulat, 2013), (Zgureanu, 2010), (Bulat, et al., 2012a), (Bulat, et al., 2010).

Taking this into account, and based on the theory from chapters 2 and 3, we propose a concept of a key exchange algorithm between two parties. This algorithm use Boolean functions represented as subsets of columns and it is based on the complexity of the problem of determining a Boolean function, knowing only some of its partial derivatives.

As we know, the mainly common methods of key exchange are: using a Key Distribution Centre (KDC), which is a symmetric-key technique, or using a Certification Authority (CA) which provide certificates based on an asymmetric-key technique. Both of these approaches have advantages and disadvantages. For example, Kerberos, which is in widespread use is vulnerable to weak or repeated passwords; it only provides authentication for services and clients. On the other hand, the main disadvantage of asymmetric-key exchange techniques is that they are much computationally demanding than symmetric ones.

The algorithm we propose here also use certificates, but quite more rarely - only to certificate the long-lived secret key  $k$ , which will be used for session key generating.

*Secret key generation.* The secret key consists of the family of specific properties Boolean functions of  $n$  variables  $F = \{F_1, F_2, \dots, F_g\}$  and will be used for session keys generation only. The secret key should be randomly generated by one party, then signed and sent to the other party through a protected channel (e.g., encrypted). The recipient will decrypt it, verify the signature and, after signature validation, both parties could start using it for session keys  $k_{ses}$  generation for a fixed, but quite a long period of time. In addition to the family  $F$  there should be generated a number  $\tau$ , which define the partitions for subset of column representation of functions  $F_i$  and of their derivatives.

*Session key generation.* The main idea in session key generating is that  $k_{ses}$  represent a randomly chosen subset of column of a randomly chosen function  $F_i$  from the secret key  $k$ . For this the party which initiates the session should randomly choose three integers  $(n_1, n_2, n_3)$ , where:

- $1 \leq n_1 \leq g$  and  $n_1$  represents the index of function  $F_{n_1}$  in the secret key  $k = F = \{F_1, F_2, \dots, F_g\}$ ,
- $1 \leq n_2 \leq 2^n$  and  $n_2$  in its binary form, defines the variables with respect to which we calculate the partial derivative taking in mind only units indexes;
- $1 \leq n_3 \leq p$  and  $n_3$  represents the index  $z$  of the subset of column of the derivative of the function  $F_{n_1}$ , where  $p = 2^{n-\tau} - 1$ .

The triplet  $(n_1, n_2, n_3)$  uniquely define a subset of column of the function  $F_{n_1}$  partial derivative. This subset of column is sent to the recipient unencrypted and is used to calculate the secret session key  $k_{ses}$ .

Let's explain how to obtain  $k_{ses}$  for the triplet (13, 53, 9) and a family  $F$  which consists of functions of 10 variables ( $n = 10$ ). Firstly, we choose the function  $F_{13}$  from the secret key  $k$ . Then we calculate the binary form of  $n_2$ , taking in mind that we have 10 variables, therefore we will use 10 bit's binary representation for  $n_2$ :  $53_{10} = 0000110101_2$ . In this number, the units are situated in 4 positions: 5, 6, 8 and 10. Finally,  $n_3 = 9$  define the column  $z_9$ . This means that for the function  $F_{13}$  we should calculate the subset of column  $z_9$  of the partial derivative of the order 4 with respect to the variables  $x_5, x_6, x_8$  and  $x_{10}$ :

$$S^{z_9} \left( \frac{\partial^4 F}{\partial x_5 \partial x_6 \partial x_8 \partial x_{10}} \right)^1.$$

This derivative, in its binary representation, is the material from which we choose for example 128, 192 or 256 bits for an AES encryption session.

### 5 Conclusion

The elaborated algorithm allows us to use public key cryptography only once for a long period, to validate the secret key generated by one party involved in communication process. This implies less computational necessities when the two parties exchange the session key, using only subset of column calculation and not using very demanding Diffie-Hellman or RSA key exchange every time. The cryptographic strength is based on the complexity of calculating the subsets of columns that were used for encryption without knowing the functions  $F_i$  in the secret key  $k = F = \{F_1, F_2, \dots, F_g\}$ .

On the other hand, to make this algorithm secure, further research on some additional parameters of the secret key is needed: the quantity of functions  $F_i$  in the secret key (secret key dimension), number  $n$  of their variables, bounds of  $\tau$ . At the same time there are some necessary conditions that functions  $F_i$  must satisfy: the subsets of columns of derivatives of  $F_i$  must contain the lowest possible number of elements with the same minimal number of units in their binary representation and using only of so-called bent-functions in secret key generation [7]. In addition to this, further research on the functions  $F_i$  is needed in order to obtain as different as possible subsets of columns of their partial derivatives.

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## **SESSION VIII**

# **FINANCIAL DIMENSIONS OF KNOWLEDGE ECONOMY**

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## HISTORICAL ANALYSIS OF STOCK MARKET PARTICIPATION IN TÜRKIYE

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***Abstract.** Investor participation is an important element for sustainable Stock markets. Sustainable stock market participation can allow sustainable funds for companies, for their investment and national economic development. In some developing countries low investor participation is an important problem. Thus the aim of the paper is to find out main factors affect the investor participation in Turkish Stock Market. Monthly and Quarterly Data covers from 2003 to 2022 has been used for this aim. By the Correlation analysis it has been revealed that the relationship between investor numbers and macroeconomic data. Lee Strazicich LM unit root test show that break point of the time series of the investor numbers. There are main two factors affect investor numbers in Türkiye (Turkey). One of them is 2008 global financial crisis and another one is 2018 new local macroeconomic policy in Türkiye. Findings show that the country has not yet sustainable policies for stable participants in stock market.*

**Key words:** Investor, BIST, Stock Market, Türkiye (Turkey), Stock Market Participation, Equity market

**JEL classification:** E22, D24, O16

### **Introduction**

As one of the developing countries, Türkiye (Turkey) strives to meet the need for resources to increase its economic growth. In order to meet this capital need, the Turkish stock exchange was established in 1985. While stock exchanges enable companies to raise funds through public offerings, they also enable investors to earn dividends and trading income. An increase in the number of investors means more resources for the economy. After reaching a certain level in the 2000s, the number of investors in Türkiye has fluctuated within a certain fixed corridor for a long time. However, in the continuation of some macroeconomic policies implemented since 2018 by the government, there has been a significant increase in the number of investors. While the desired results could not be obtained from the policies, aimed raise the investor number, implemented in the stock market in previous years, current policies have had an effect beyond what was desired. In order to ensure sustainable investor participation in the stock market, analysis of the factors that lead investors to make decisions is needed. For this reason, this study aims to observe the reactions of investors to participate in the stock market in line with the macro-economic, political and social events experienced over the years.

### **Research Problem**

Main problem is that there is no sustainable increase in Investor number in Turkish Stock market during 2003 and 2022. Because, stock market participation is one of the important factors for deepening financial markets. Thus we need to understand which factors or events have effect on Investor number.

### **Purpose**

The purpose of the paper is to revealed that the main factors on stock markets participation in Turkish Stock Market – Borsa İstanbul

### **Method**

It is used monthly and quarterly data from 2003:01 to 2022-07 to see the impact of some major factors on the stock market participation in Türkiye. Investor numbers data obtained from Turkish Capital Markets Associations and data include all individual and institutional investors. Customer Price Index (CPI) and Producer Price Index (PPI) data obtained from Central Bank of the Republic of Turkey. 2 years Bond Rates obtained from “investing.com”

Main limitation is that there isn’t investor data before 2003.

### **Findings**

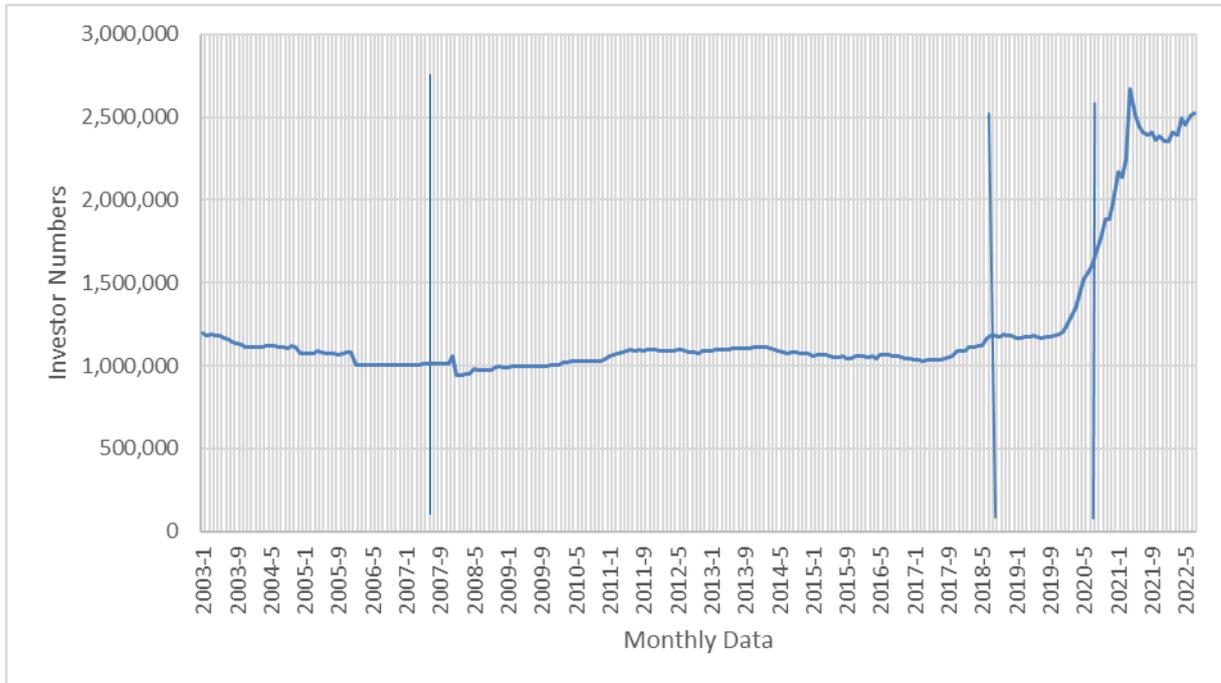
It can be seen the investor numbers in Turkish Stock Market from 2003 to 2022-July (Table 1). According to table 1, investor numbers in 2003Q1 is 1.186.337. Even though past 16 years as of 2019Q3, after 16 years, investor number is under the investor number in 2003Q1. The lowest investor number is in 2008Q3.

**Table: 1 Quarterly Investor Number from 2003 to 2022/7**

Years	Investor Nr	Years	Investor Nr	Years	Investor Nr	Years	Investor Nr	Years	Investor Nr
2003-3	1.186.337	2007-3	1.004.551	2011-3	1.071.926	2015-3	1.068.585	2019-3	1.170.725
2003-6	1.169.352	2007-6	1.015.166	2011-6	1.092.791	2015-6	1.052.900	2019-6	1.171.776
2003-9	1.134.546	2007-9	1.015.166	2011-9	1.091.919	2015-9	1.044.909	2019-9	1.174.899
2003-12	1.111.848	2007-12	1.060.569	2011-12	1.097.786	2015-12	1.059.313	2019-12	1.203.438
2004-3	1.110.402	2008-3	946.082	2012-3	1.089.532	2016-3	1.056.210	2020-3	1.347.388
2004-6	1.120.768	2008-6	973.105	2012-6	1.093.793	2016-6	1.062.315	2020-6	1.569.290
2004-9	1.107.108	2008-9	973.393	2012-9	1.080.659	2016-9	1.054.532	2020-9	1.761.538
2004-12	1.072.663	2008-12	989.853	2012-12	1.088.566	2016-12	1.040.794	2020-12	1.988.940
2005-3	1.074.924	2009-3	998.689	2013-3	1.095.430	2017-3	1.025.926	2021-3	2.249.648
2005-6	1.074.903	2009-6	994.001	2013-6	1.105.938	2017-6	1.034.226	2021-6	2.445.559
2005-9	1.068.258	2009-9	998.832	2013-9	1.105.785	2017-9	1.046.890	2021-9	2.409.270
2005-12	1.079.207	2009-12	1.000.261	2013-12	1.110.408	2017-12	1.090.903	2021-12	2.355.070
2006-3	1.004.551	2010-3	1.015.427	2014-3	1.102.772	2018-3	1.113.326	2022-3	2.390.852
2006-6	1.004.551	2010-6	1.029.971	2014-6	1.081.909	2018-6	1.165.558	2022-6	2.508.942
2006-7	1.004.551	2010-7	1.028.399	2014-7	1.076.863	2018-7	1.178.147	2022-7	2.525.543
2006-9	1.004.551	2010-9	1.025.175	2014-9	1.079.614	2018-9	1.173.404		
2006-12	1.004.551	2010-12	1.038.778	2014-12	1.075.368	2018-12	1.178.919		

**Source: Turkish Capital Markets Association**

In Figure 1, fluctuations on investor number by years can be seen more clearly. One can see the important jump of investor number after 2018. This can be caused by the Turkish government’s new economic policy. And there can be seen the impact of global financial crisis in 2008.



**Figure 1: Quarterly Investor Number from 2003 to 2022/7**

Source: Turkish Capital Markets Association

To see main Structural Break and Crash in the investor data, Lee Strazicich LM unit root test has been applied. And, it has been used Correlation analysis to show relationship between;

- i - Investor numbers and interest rate.
- ii - Investor numbers and real interest rate based on PPI and CPI.

According to Lagrange Coefficient (LM) Statistics value (Table 2), Model A shows series are not stationary and there are 2 break points 2007-December and 2020-July.

**Table 2: Lee Strazicich LM Unit Root Test**

Lee Strazicich LM unit root test	
Model: Crash (A)	
Null hypothesis : INV has a unit root with break	
Minimum test statistic (tau)	-2.036060
Break point	2007M12 2020M07
Selected lag	12
Test critical values	
1% level	-4.078227
5% level	-3.568787
10% level	-3.305147

Regression output		
Variable	Coefficient	t statistic
S(t-1)	-0.017865	-2.036060
Constant	-4596.312	-0.761664
B1(t)	-115593.1	-3.120119
B2(t)	31509.05	0.831765

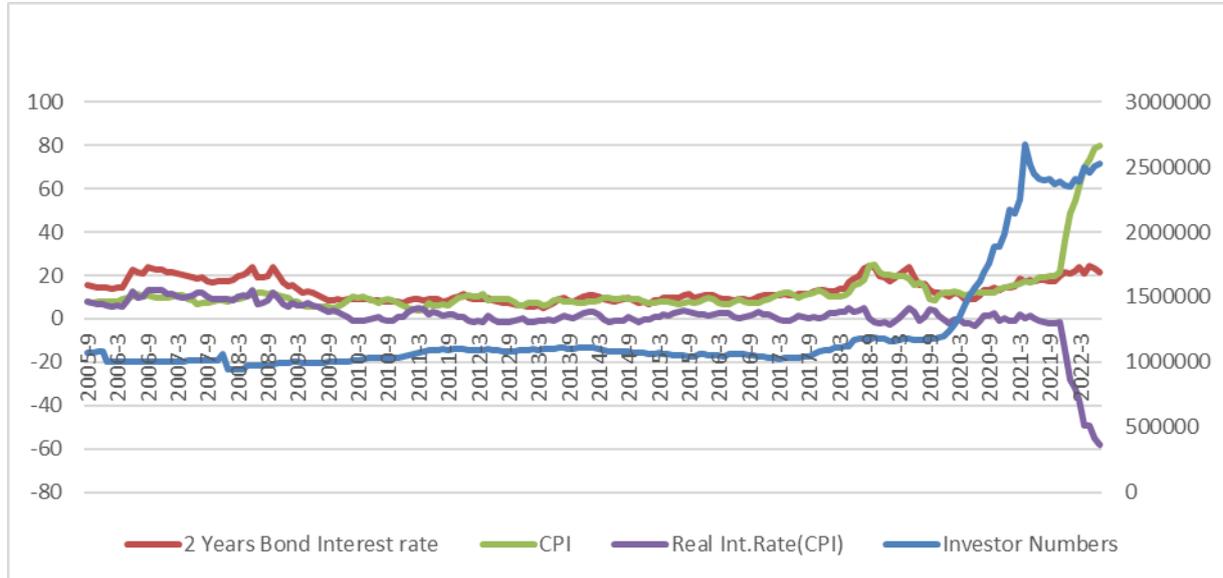
2007-December shows the effect of Global Financial Crises and 2020 July reflect Economics Policy changing point of Turkish Central bank which aims Low Interest Rate, even though other central banks increased Policy Interest Rate.

Model C is Stationary (In trend and Constant) Break points of the serie shows the changing of interest rate policy of the Turkish government (Table 3). 2018/7 is Election time and, 2020/8 is the date government declared its Interest Rate policy repeatedly and therefore there are 2 break points.

**Table 3: Lee Strazicich LM Unit Root Test**

Lee Strazicich LM unit root test		
Model: Break (C)		
Null hypothesis : INV has a unit root with break		
Minimum test statistic (tau)	-6.133967	
Break point	2018M07 2020M08	
Selected lag	12	
Test critical values	1% level	-6.547840
	5% level	-5.934213
	10% level	-5.618840
Regression output		
Variable	Coefficient	t statistic
S(t-1)	-0.261647	-6.133967
Constant	-33852.24	-5.472560
B1(t)	15035.42	0.413428
B2(t)	-32176.61	-0.845972
D1(t)	16003.74	2.049666
D2(t)	80601.65	4.962592

Figure 2 shows that the fluctuation of investor numbers during 2003 and 2022. We calculated real interest rate by using Consumer Price Index (CPI) and 2 years bond rate as indicator of market interest rate (IR).



**Figure 2: Long term movement of the data**

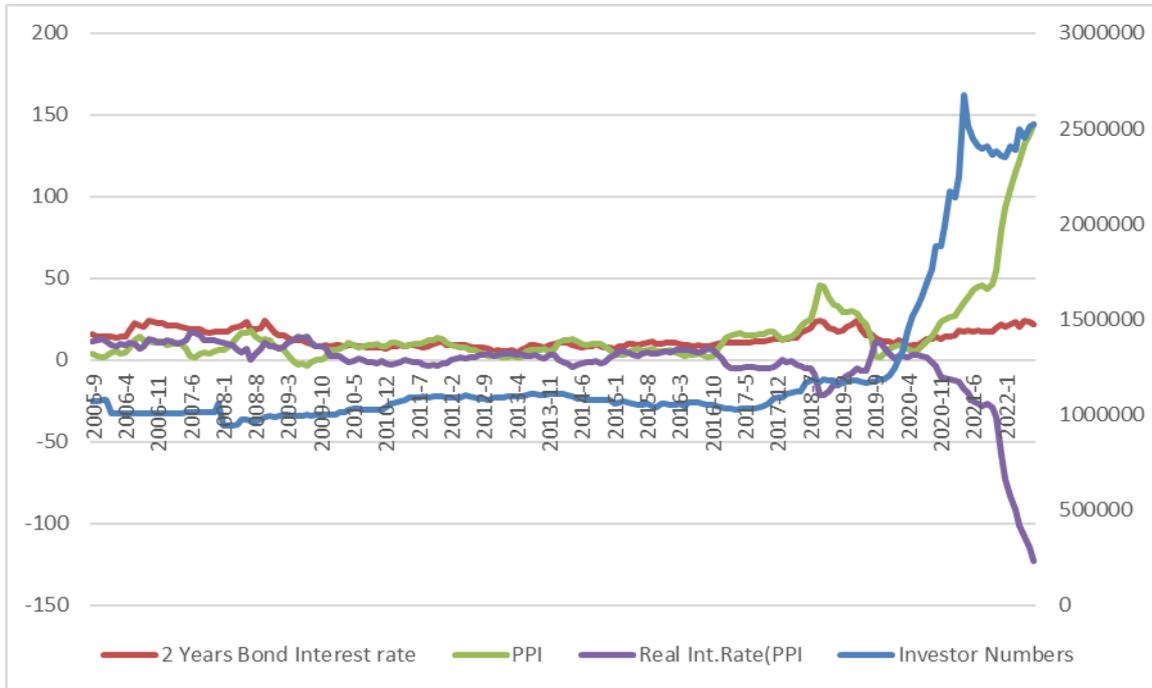
Table 4 shows, There is negative and powerful Correlation between investor number (IN) and real interest rate by CPI (RR-CPI). It hasn't been used Fisher formula to calculate the real interest rate, because the investors interest mostly nominal gap between interest rate and CPI. There is negative correlation between investor number and real interest rate by CPI (-0,638). This means when RR-CPI fall, investor number rise.

**Table 4: Correlation Analysis / With CPI**

		<b>Correlations</b>			
		IN	IR	CPI	RR-CPI
<b>IN</b>	Pearson Correlation	1	<b>,342**</b>	<b>,706**</b>	<b>-,638**</b>
	Sig. (2-tailed)		,000	,000	,000
	N	203	203	203	203
<b>IR</b>	Pearson Correlation	<b>,342**</b>	1	<b>,512**</b>	-,062
	Sig. (2-tailed)	,000		,000	,381
	N	203	203	203	203
<b>CPI</b>	Pearson Correlation	<b>,706**</b>	<b>,512**</b>	1	<b>-,889**</b>
	Sig. (2-tailed)	,000	,000		,000
	N	203	203	203	203
<b>RR-CPI</b>	Pearson Correlation	<b>-,638**</b>	-,062	<b>-,889**</b>	1
	Sig. (2-tailed)	,000	,381	,000	
	N	203	203	203	203

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 5 shows, there is negative and powerful correlation between investor number (IN) and real interest rate by PPI (RR-PPI).



**Figure 3: Long term movement of the data.**

According to figure 3, the movement of the investor number and PPI more similar than that of investor number and CPI. Correlation analysis in Table 5 support this relationship. Because according to table 5, correlation coefficient of IN and PPI is higher than that of IN and CPI. When PPI fall 1 unit, investor number raise 0,772. This shows investors in Türkiye are more sensitive to PPI.

**Table 5: Correlation Analysis / With PPI**

		Correlations			
		IN	IR	PPI	RR.PPI
IN	Pearson Correlation	1	<b>,342**</b>	<b>,772**</b>	<b>-,772**</b>
	Sig. (2-tailed)		,000	,000	,000
	N	203	203	203	203
IR	Pearson Correlation	<b>,342**</b>	1	<b>,536**</b>	<b>-,347**</b>
	Sig. (2-tailed)	,000		,000	,000
	N	203	203	203	203
PPI	Pearson Correlation	<b>,772**</b>	<b>,536**</b>	1	<b>-,978**</b>
	Sig. (2-tailed)	,000	,000		,000
	N	203	203	203	203
RR.PPI	Pearson Correlation	<b>-,772**</b>	<b>-,347**</b>	<b>-,978**</b>	1
	Sig. (2-tailed)	,000	,000	,000	
	N	203	203	203	203

\*\*. Correlation is significant at the 0.01 level (2-tailed).

## **Conclusion**

Findings shows there are two main factors affecting the investor participation onto Stock Market. These are Global crises and Interest Policy of the Central Bank of Turkish republic.

While global financial crisis has negative effect on market participation, negative interest policy of Central bank of TR has Positive effect.

But the negative interest policy has some devastating effect some economic indicators (This is out of the paper’s aim). Thus, Turkish government should apply more sustainable policy to raise the stock market participation.

The data of the study were obtained from Turkish financial institutions. The findings of the study show that investors tend to invest in stocks besides housing, automobiles, gold and foreign currency to protect their wealth, especially in periods when negative real interest rates are applied. However, it does not seem possible that the negative real interest rate policy will ensure sustainable investor participation in the stock market as a single method. Therefore, there is a need for policies that will attract investors to this market continuously.

## **Limitation and further studies**

There may be many factor which can affect the investor number such as Currency rate and Stock market return. And these factors can be added to the analysis to explain the changing on the Investor number.

Besides; regression and causality tests can show the relationship more clearly. Study period can be divide as 2 parts before 2018 and later to see the effect of negative interest rate policy.

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## TRENDS AND CHALLENGES IN THE DEVELOPMENT OF SMALL AND MEDIUM ENTERPRISES

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**Abstract:** *Small and medium-sized enterprises (SMEs) are the main force for economic growth and job creation and one of the most important sectors of the economy in many countries. Like other countries, SMEs represent most businesses in the Republic of Moldova. The SMEs sector in the Republic of Moldova has grown in terms of quality and quantity over the last years. This trend may be the result of the new support programs in the field of entrepreneurship, launched by the Organization for Development of Entrepreneurship, but it may also be a result of a qualitative change of perception on the part of the business world regarding the business environment in the country. Starting from this reality, the primary aim of this research paper is to analyse the trends and challenges in SMEs development in order to provide recommendations for the SMEs' long-run development. In order to meet the aim of this research, an analysis of secondary data resources will be carried out, using scientific methods, in particular logical methods, such as comparative analysis, synthesis, induction and deduction. The research will include a macro analysis of SMEs from Republic of Moldova, based on official data from national and international bodies. The results of this research paper will make it possible to develop recommendations for improving the overall results of SMEs from the Republic of Moldova.*

**Keywords:** small and medium-sized enterprises; finance; development of the small business.

**JEL Classification:** G20; M10

### 1. Introduction

Despite the numerous crises facing the country, important structural changes in the field of entrepreneurship have been observed: while in the period 2017–2020 the number of established businesses was constantly lower than the number of closed ones, in the period 2021–2022 a reversal of the situation is observed, with registered companies beginning to outnumber closed ones (State of the Country Report, 2022).

This trend may be the result of the new support programs in the field of entrepreneurship, launched by the Organization for Development of Entrepreneurship, but it may also be a result of a qualitative change of perception on the part of the business world regarding the business environment in the country (State of the Country Report, 2022).

Still, according to the Technical Assistance report provided by IMF in 2021, Moldova is among the least competitive European countries. In addition, the Republic of Moldova faced a significant labor emigration; the Moldovan population (2.6 million inhabitants on January 1, 2020, according to the official date of the National Bureau of Statistics) has been on a trend decline since the early 1990s. All these realities slowed down the economic development of the Republic of Moldova, particularly of SMEs.

The change of the political vector in recent years in the Republic of Moldova and the efforts undertaken by the EU-Moldova Association Agreement and the Deep and Comprehensive Free Trade Area Agreement were essential documents in shaping policy development in Moldova stimulating the speed and depth of economic and financial reforms.

On March 3, 2022, Moldova officially applied for membership in the European Union. These positive steps are meant to support the economy and SMEs in particular. Accordingly, to the EU4Business Country Report 2021, the most recent Government actions on support for SMEs referred to legislative amendments dealing with the economy's digitalization, adjusting the national legislation to the European one and improving the legal framework in the competition field. SMEs have been identified as innovation-friendly, as they may encourage a corporate culture that allows participation, flexibility, networking, inclusion and experimentation across the organization. Challenges of the external environment faced by SMEs could lead to an innovative response to establish a competitive advantage. Starting from this reality, this paper analyzes the trends in SMEs development in Moldova.

## 2. Trends in SMEs development in Moldova

According to the National Bureau of Statistics from Moldova, in 2021, SMEs represented about 98.4% of the total number of enterprises; from this number, the largest share of 85.1% were micro-enterprises, 10.9% were small enterprises, and only 2.4% were medium-sized enterprises. From the data presented in table 1, we can see that the most attractive domain in the activity of SMEs in the Republic of Moldova is wholesale and retail trade.

**Table 1 Share of SMEs by major types of activity during the years 2017-2021, %**

Types of activity	2017	2018	2019	2020	2021
Total	100.00	100.00	100.00	100.00	100.00
agriculture, hunting and forestry	7.09	7.54	7.87	8.22	8.5
processing industry	8.40	8.44	8.41	8.39	8.1
electric energy, gas and water	0.19	0.18	0.18	0.17	0.3
water distribution, sanitation	0.75	0.72	0.89	0.87	0.8
constructions	5.78	5.75	5.90	5.94	6.2
whole sale and retail trade	38.43	37.52	36.31	35.84	35.0
transport and stoking	5.22	5.21	5.37	5.42	5.5
public alimentation	3.54	3.59	3.76	3.67	3.6
communication	4.10	4.13	4.29	4.37	4.8
real estate business	6.34	6.46	6.62	6.64	6.7
scientific and professional activity	8.77	8.80	8.77	8.74	8.9
other types of activity	11.38	11.67	11.63	11.71	11.8

**Source:** developed by authors based on the data from National Bureau of Statistics from Moldova

These data allow us to conclude that SMEs' innovation capacity in the Republic of Moldova is relatively low, and local SMEs prefer to activate in trade, agriculture or real estate business. These dominant shares in trade and other activities are explained by the flexibility of the SMEs, which fulfil the function of intermediaries in the market.

Of course, to exist and extend their share of the market, SMEs need to be profitable. In this context, we will analyse the profit before taxation obtained by SMEs in the Republic of Moldova from the main types of economic activity during the years 2017-2021, presented in Table 2.

**Table 2 Evolution of profit before taxation obtained by SMEs in the Republic of Moldova, by main types of activity during the years 2017-2021, million lei**

Types of activity	2017	2018	2019	2020	2021
Total	10 568,9	11 219,4	12 386.0	9 050.9	20 237.4
agriculture, hunting and forestry	1 926,2	1 212,5	1 278.7	(271.9)	5 190.2
processing industry	772,8	704,9	831.1	848.8	1 291.5
electric energy, gas and water	(7,2)	28,0	28.4	29.3	19.3
water distribution, sanitation	5,3	9,7	(3.0)	7.6	5.2
constructions	985,5	1 277,6	1 244.5	1 255.3	1 196.5
whole sale and retail trade	3 252,3	3 439,6	3 664.8	3 403.9	5 523.6
transport and stoking	447,0	553,8	334.7	626.4	830.7
public alimentation	3,3	110,7	276.5	(278.1)	183.7
communication	386,5	569,1	850.5	850.8	1 144.8
real estate business	962,2	1 277,7	1 186.1	840.9	1 595.3
scientific and professional activity	797,3	854,8	884.4	1 014.9	1 410.0
other types of activity	1 037,8	1 181,0	1 809.3	723.1	1 846.3

**Source:** developed by authors based on the data from National Bureau of Statistics from Moldova

During the period 2021–2022 SMEs recorded a positive evolution of profit before taxation obtained by SMEs in Moldova.

Despite this positive trend, the micro-enterprises still represent the largest share of companies in the SMEs sector (85.1%); however, their contribution to employment and turnover is relatively modest. In addition, the largest share of SMEs from Moldova is still in the wholesale and retail trade. A reduce number of SMEs are involved in innovation activities, as a result, innovation impact on national economy is reduced as well. The following reasons determine us to have a close look at the measures that have been applied during the years in the Republic of Moldova that aimed to foster SMEs' development.

### **3. Development policies and projects applied in Moldova SMEs**

In the last years, public-private projects and international financing have been launched in the Republic of Moldova, meant to contribute to increasing SMEs' innovation and competitiveness capacities.

Several business incubators have been opened, and the process has been extended to creating a network of business incubators. Industrial parks were opened, and feasibility studies were carried out for their regional expansion. This support infrastructure is extremely important for SMEs as it contributes to their efficient activity, offering those opportunities to launch and expand their business.

The changes in the fiscal system and the economic liberalization reform undertaken in the past years contributed profoundly to the regulation of SME activity (Institute for Development and Social initiatives report, 2019). Government support schemes also include interest rate subsidies and state support programs. Accordingly, to the EU4Business Country Report, Moldova Government resources supporting SMEs in 2021 were 12.04 million euro. In addition, one of the main objectives of the SMEs Development Strategy 2030 is to have productive, innovative and competitive enterprises in Moldova. One of the main targets of the Strategy is to intensify foreign direct investments attracted in the free economic zones, the IT Park, the multifunctional industrial platforms.

Still, the current legal framework of Moldova does not stimulate enough innovation activity. There is not any well-established system of direct and indirect financial incentives (for instance tax incentives) aiming to encourage research and development activities of firms and state's low financial capacity to support SMEs. The legal framework does not require more responsibility from enterprises and costs within the enterprise for achieving the objectives in terms of innovative activities. Thus, the introduction in the legislative acts or regulations of product safety, operational and work safety, environmental protection, and intellectual property right enforcement, provisions on taxes, employment or social affairs led to effects such as stimulating innovation.

Most of the supporting measures and policies from Moldova are addressed to the small business sector without pointing out the massive potential of the small business companies that apply innovation. The development of innovative small business companies involves comprehensive solutions. Small businesses from Moldova also miss new business practices for organizing procedures (supply chain management, business re-engineering, knowledge management, quality management), thus limiting the development of innovative organization enterprises.

A major help for SMEs from Moldova is provided by the European Union through EU4Business programme. Estimated EU support to SMEs in Moldova available at January 2021, was 15.09 million euro. From the best practices of European SMEs, innovative policies may become an effective tool in creating a competitive advantage for SMEs from Moldova.

#### **4. Conclusion**

SMEs from Moldova face a large number of challenges, both on a global and local level. Moldova state should promote and implement survival policies to expand dynamic capabilities, establish new partnerships, and develop technological innovation. Considerable work remains to be done to promote entrepreneurial learning, including meeting the specific skills requirements of SMEs. A developed SMEs sector can reconfigure the economy of the Republic of Moldova, both through massive employment opportunities and through competitiveness and dynamism.

The prospects for encouraging SMEs in Moldova with the best European practices are as follows: development of innovation infrastructure; supporting public-private partnerships in research; adopting the framework on innovation and venture funds.

The development of the SMEs in the Republic of Moldova in terms of innovations will increase the competitiveness of the small business and, consequently, will promote the intensification of growth rates, market expansion, export development, increasing sales and thus profit.

### **Acknowledgment**

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## BUDGET DEFICIT: INDICATOR OF FINANCIAL RELATIONS WITHIN THE FINANCIAL SYSTEM

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**Abstract:** *The budget deficit has become a widespread phenomenon in most states of the world, as their demand and financing needs are often higher compared to the revenues obtained from taxes and fees. In this context, in the given article, the authors propose to analyze the theoretical and conceptual foundations of the budget deficit as an indicator of financial relations within the financial system, as well as its causes, consequences and sources of coverage. At the same time, the dynamics and evolution of the budget deficit of the Republic of Moldova, as well as their financing sources, will be analyzed. The research methodology related to the given article is represented by the method of analysis, synthesis, comparison, graphic method and data interpretation method, etc. As a result of the given research, the optimal methods of financing the budget deficit are to be identified as well as the situation of the budget deficit in the Republic of Moldova is to be analyzed.*

**Keywords:** financial system, public finances, state budget, budget deficit, financing sources

**JEL Classification:** E44, G10, H20, H61, H62, H70

### 1. Introduction

The *financial system* is one of the pillars of any national economy, as it contributes to the provision of facilities for carrying out financial transactions, channeling funds from depositors to borrowers, providing the means for businesses and households to manage financial risk, etc. The successful performance of these functions contributes positively to prosperity and economic development. A financial system can be considered consolidated, if it is able, effectively, to attract and place funds in the economy, ensures the management of financial risks, absorbs negative economic shocks, in which there are no signs of financial instability.

The concept of the financial system is very complex, in the specialized literature (Băcescu-Cărbunaru, 2008; Ковалев, 2006; Cobzari, Baurciulu, 2001) being met several interpretations of it, as a result of the analysis of which the manifestation of the financial system was found from the following aspects and forms:

- system of financial relations;
- system of funds of financial resources;
- system of financial plans;
- financing system of the national economy;
- system of institutions.

From the perspective of *financial relations*, the financial system manifests itself in the process of establishing, distributing and using financial funds, thus distinguishing two large financial subsystems: *the public financial subsystem*, the main components being: the state budget, local budgets, state social insurances; credit (with the participation of some public entities), insurance of goods, persons and civil liability (through state owned enterprises), finances of enterprises and other public entities; and the private financial subsystem, composed of the finances of enterprises and other private entities, bank credit (private), goods and private social insurance, personal and civil liability insurance (private), household finances.

At the macroeconomic level, the financial system involves the redistribution, through public finances, of the gross domestic product (GDP), a fact that is quantified by the establishment of budget funds, as well as the distribution and use of these funds to satisfy public needs, those of wider national or local interest. The relationships that are formed around public finances involve, on the one hand, public authorities, and on the other hand, individuals and legal persons, in the role of taxpayers to the establishment of funds and/or beneficiaries of public goods and services financed from these resources.

The exercise of public finance functions (allocation and distribution of resources and regulation of the economic life of the state) is carried out through the *budget*. The state budget is an element of public finances, in particular, and of the financial system, in general, manifested in the form of financial relations, of significant importance, having multiple meanings: multitude of operations and specific financial flows; the most important law debated annually by the legislative forum; synthesis of different economic, social and political options; means of manifestation of the financial-budgetary constraint; negotiation tool with various financial bodies, etc.

## **2. Budget Deficit as an Indicator of the Financial Relations**

### **2.1 Theoretical Aspects Related to the Budget Deficit**

Given that the state budget is an important benchmark for reflecting the degree to which the state is involved in the economy and social life, as well as the capacity of the national economy to contribute to the establishment of the financial resources necessary for the state, any country tends to balance it, which often becomes impossible. Thus, as a result of an excessive demand for public financial resources, compared to the funds that can be constituted at the state level from taxes, fees and other revenues, a public financial imbalance appears. This imbalance, determined by the difference between budget revenues and expenditures, can take the form of a *budget deficit* (negative budget balance), budget surplus (positive balance) and budget balance (zero balance).

The budget deficit has become, for some time now, a common phenomenon in many states on the background of increasing public spending. Therefore, in the current conditions of economic activity, in which the need for financial resources exceeds the existing funds, the drafting of budgets at any level is one of the primary concerns, especially in the part related to respecting the

principle of budget balance. Although significant efforts are made through various policies, in most cases, the budget balance is not achieved automatically by covering budget expenses with budget revenues, which implies that the budget is drawn up with a financing deficit (Molănescu, 2011). The existence of the budget deficit is generated by several factors, such as:

- the decrease in the volume of economic activity, which leads to a decrease in the income of individuals and legal persons, as a result, there is a reduction in the taxable base and, consequently, a decrease in budget revenues;
- increasing government spending in order to implement social programs (spending on unemployment, with assistance for people with special needs, etc.);
- increase in public expenditures associated with infrastructure development;
- reducing the tax rate in order to stimulate the activity of economic agents;
- the low level of tax collection (Balan, 2020).

The existence of a budget deficit does not always reflect a difficult economic situation, and the absence of a deficit does not mean that the country's economy does not face problems and that it has a dynamic development. A good part of the economically developed states had and still have a high level of budget deficit. This is not necessarily a problem when it is fully reflected in investment spending and, in particular, in the construction of infrastructure and is covered by safe financial resources, without resorting to inflationary monetary issues. Thus, the existence of the budget deficit can be determined by the government's intention to make public investments in the development of some sectors of the economy with the aim of achieving progressive changes in the structure of social production.

However, most frequently, the budget deficit reflects crisis situations in the economy, the worsening of the economic and financial indicators of agents' economic activity, the inefficiency of the tax system, etc., in which case, the adoption of urgent measures by the government in order to stabilize the economy is necessary, reforming the credit-financial system, adjusting the budgetary-fiscal policy. For these reasons, all countries tend to balance the budget or, at least, do their best not to exceed the maximum allowed limit of the budget deficit, which, according to world experience, must be 2-3% of GDP, 5% of national income, or 8-10% of budget expenditures (Balan, 2020).

## **2.2 Financing Sources of the Budget Deficit**

Regardless of the causes of the budget deficit appearance or existence, it must be countered, a fact that can be achieved by promoting economic growth measures, maximizing the efficiency of the public revenues use, connecting expenses to the real possibilities of the national economy, simplifying fiscal regimes, thus determining improved economic conditions and a confident business environment in state policies. If the budget resources are oriented to the development of industry, the modernization of agriculture, the construction of communication routes, environmental protection, etc., then, in the future, they will contribute to the increase of material production, the development of the business environment, the creation and employment of jobs and, in the end, to the GDP increase. If, however, the budget resources are oriented towards financing current expenses, subsidizing unprofitable production, then the budget deficit will inevitably lead to the increase of negative trends in the development of the economy.

Although the business environment development is the safest method of countering the budget deficit (Stratan A., Manole T.), its achievement and effects take time, as states are required to identify ways for covering the deficit with immediate effects. In this sense, the specialized literature presents four ways of financing budget deficits (table 1).

**Table 1. Financing methods of budget deficit**

No.	Methods	Particularities
1.	Tax increase	it implies increasing the volume of fees and taxes in order to reduce budget imbalances. Due to the generally negative influences in the economic activity, in almost all cases an increase in taxation, through the direct effect of diversion of financial resources towards the redistributive consumption of the state, leads to the weakening of the development effort, by weakening the capacity to invest, and to reducing the solvent demand of intermediate and final consumers, with an unfavorable effect on the demand-supply ratio on the market.
2.	Reducing budget expenses	practicing a restrictive budget policy, at least by reducing government consumption, can have positive results on the public financial balance in the short term. The promotion of such a long-term policy will be followed, with certainty, by negative consequences that will affect economic growth. A restrictive budget policy can be implemented in crisis situations, when states face excessive public deficits that usually lead to increased inflation, exchange rate fluctuations and affect the entire economic system.
3.	Monetary issue	this method generates an uncontrolled and unjustified increase in the monetary mass, aggravating the inflationary phenomenon in the economy in the immediate term. The process of monetizing the budget deficit is clearly inflationary until the moment when the economy moves towards a new long-term equilibrium with a high level of prices. If the government decides to maintain this policy for a longer period, a corresponding increase in the money supply will result, meaning a continuation of inflation.
4.	Public debt	it involves accessing the necessary financial resources by resorting to state loans. The primary element that must be the basis of this decision is the need for the medium and long-term "profit" achieved by financing public expenditures to be large enough to cover the debt service. Also, the loss of utility that the market bears by depriving it of the resources used to cover the deficit must be covered, and the public decision-makers must maintain their credibility following the recourse to the state loan.

Source: elaborated by the authors based on (Molănescu, 2011; Manole, Stratan, 2016)

Regardless of the consequences that may occur, however, the most widespread way of covering the budget deficit in world practice is to finance it through internal and external state loans, which form the internal and external public debt. Unlike the other financing methods, the financing of the budget deficit through public debt does not oblige the state to undertake drastic measures, such as increasing taxes, reducing and optimizing public expenditures, and does not generate any inflationary processes in the economy.

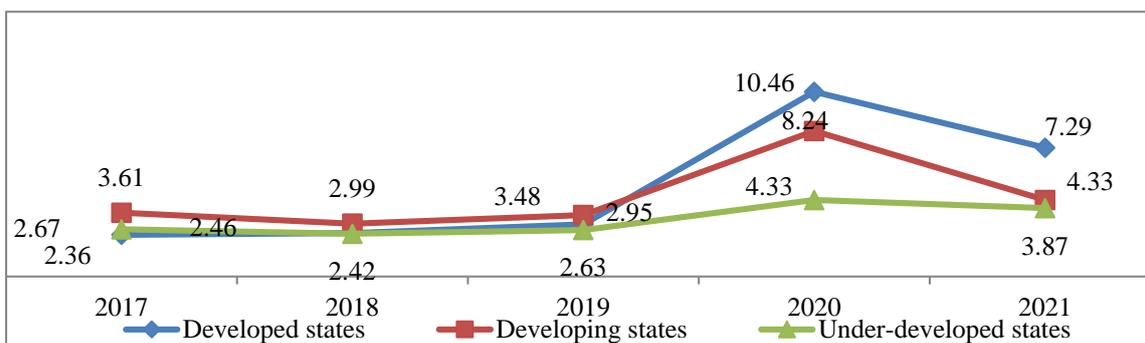
Thus, in the conditions where the budget deficit represents a variable of flows, and the public debt represents a variable of stocks, every time at the end of the year the state faces a

budget deficit and requires funds for financing, accessing and obtaining them affects the level of public debt. At the same time, according to European Union regulations, the limit level for public debt, as a share of GDP, must not exceed 60%.

### 2.3 Budget Deficit and Public Debt at International Level

Over time, the governments of the world's states have always faced challenges in the process of ensuring the financial resources necessary for economy financing and development, the budget revenues accumulated by the state being insufficient to cover the budget expenses and in recent years, the given problem significantly sharpened. In addition, as communities around the world struggled to contain the spread of the Covid-19 infection and manage the health situation, including the human costs of the pandemic, governments around the world implemented a wide range of response policies to mitigate the most serious social and economic impacts of the pandemic.

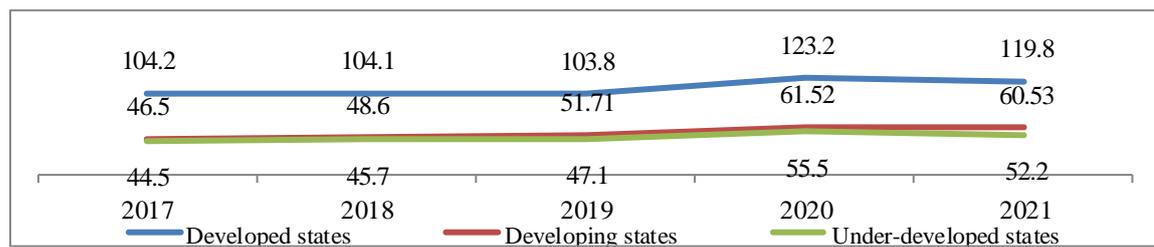
Thus, given the governments' financial intervention in the economy to limit the impact of the crisis on households and businesses, the budget deficit related to 2020 increased significantly, its share in GDP constituting 10.46% in the case of developed states, 8.24% - developing states and 4.33% for under-developed ones (figure 1).



**Figure 1. The budget deficit dynamics of world states in the period of 2017 - 2021, % of GDP**

Source: elaborated by the authors based on (Kose, Nagle, Ohnsorge, Sugawara, 2021)

The most dramatic increases, compared to the period of 2017-2019, of the share of the budget deficit in GDP related to 2020 can be seen in developed states (by about 7.5 p.p.) and in developing countries (by about 5 p.p.). In 2021, a decrease in budget deficits is observed, given that in most states economic activity has slowly started to recover. Thus, in 2021, the share of the budget deficit in GDP of the developed states was reduced, compared to 2020, by 3 p.p., of developing states - by about 4 p.p., and of the under-developed ones - by about 0.5 percent. In order to finance the recorded budget deficit, the states resorted to loans, the level of public sector debt increasing analogously to the level of the budget deficit (figure 2).



**Figure 2. The public debt dynamics of world states in the period of 2017-2021, % of GDP**

Source: elaborated by the authors based on (Kose, Nagle, Ohnsorge, Sugawara, 2021)

Therefore, if in 2017-2018, the share of public sector debt in GDP remained at a relatively constant level, from 2019 it began to increase in the case of developing and under-developed states, considerable increases (by about 10 p.p. in the case of these and by about 20 p.p. in the case of the developed ones) attesting in 2020 compared to 2019. Along with the decrease in the level of the budget deficit in 2021, and respectively, in the need to finance it, the public debt level was also slightly reduced at a global level, its share in GDP being about 4 p.p. lower in relation to the values related to 2020. It is also worth mentioning that the share of public debt in GDP of developed states has far exceeded the recommended limit of 60%, this situation being characteristic for the entire analyzed period.

### 3. Budget Deficit in the Republic of Moldova

#### 3.1 Legislative Aspects of the Budget Deficit and its Financing Sources in the Republic of Moldova

In the Republic of Moldova the limit of the budget (national public budget - NPB) deficit, constituted by the deficits of the component budgets of the NPB: the state budget, the state social insurance budget, the compulsory medical assistance insurance fund, local budgets), established by legislation, is 2.5% of GDP. Exceeding the predetermined limit level is allowed when there are real financing sources for capital investment projects and for their capitalization capacities. At the same time, exceeding the limit of 2.5% of GDP can only be allowed for a fixed period, of at most three years, and only in case of:

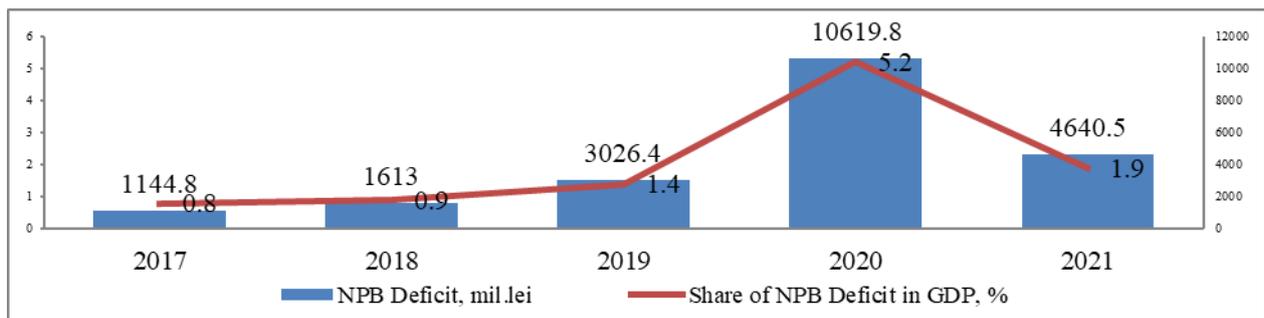
- natural disasters and other exceptional situations that endanger national security;
- decline in economic activity and/or if the level of inflation exceeds the forecasted/planned level by 10 percentage points;
- emergence of the need to cover the debit balance of the general reserve fund of the National Bank of Moldova, as well as in case of a systemic financial crisis, for the capitalization of banks.

At the same time, according to the legislation, the financing sources of the NPB deficit are formed from: operations with debt instruments; operations related to the sale and privatization of public patrimony; operations with the balances in the budget accounts; other operations with financial assets and budget liabilities (Law no. 181/2014).

### 3.2 Analysis of the Budget Deficit and the Related Financing Sources in the Republic of Moldova

The Republic of Moldova, from its independence until now (1991-2021), is facing, practically continuously, with a lack of budgetary resources necessary to finance activities of major importance for the country, for society, such as: health, education, social assistance, infrastructure projects and other spheres of economic importance. Thus, along with other countries of the world, the Republic of Moldova faces the phenomenon of the budget deficit. The recession of 2020 caused by the COVID-19 pandemic, the severe drought of 2021, but also the energy crisis of the fall of 2021, which produced a chain increase in the prices of both regional energy resources and product prices supply at the internal level, generated new challenges for the authorities and the business environment, which increased their pressure on the balanced execution of the budget, generating a significant increase in the country's budget deficit.

According to the reports of the Ministry of Finance regarding the execution of the NPB, the largest deficit was recorded in 2020, its value registering 10,619.8 million lei, which is about three times more compared to 2019 (figure 3).



**Figure 3. Evolution of NPB deficit of the Republic of Moldova in the period of 2017-2021**

Source: elaborated by the authors based on (Ministry of Finance of the Republic of Moldova, 2017-2021)

Although during 2021, the Republic of Moldova faced a drought and an energy crisis that generated several unfavorable reactions in the chain (price increase), the NPB deficit related to 2021, as a result of the execution of the NPB, was 4,640.5 million lei, 5,979.3 million lei less compared to 2020. This decrease in the NPB deficit value is due, in large part, to a series of increases from an economic point of view against the background of the relaxation of the COVID-19 restrictions, the acceleration of the growth of domestic consumption, of the investment activity and, respectively, of the revival of the economic activity.

As a share in GDP, it can be observed that from 2017 until 2020 the deficit, recorded as a result of the execution of the NPB, recorded an upward evolution, from 0.8 and 0.9 percent in 2017 and 2018, respectively, until to 1.4 and 5.2 percent in 2019 and 2020, respectively. In 2021, the share in GDP of the deficit as a result of the execution of the NPB registered 1.9%, which is 3.3 p.p. lower in relation to the share related to 2020.

Analyzing the financing sources of the state budget deficit<sup>36</sup> of the Republic of Moldova, it can be found that operations with debt instruments represent the main source of its financing (table 2).

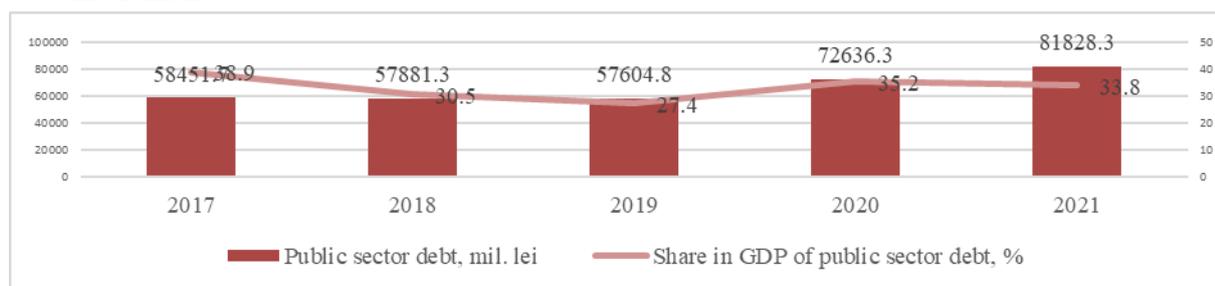
**Table 2. The dynamics of state budget deficit and the structure of its financing sources in the period of 2017-2021**

*(mil. lei)*

No.	Indicators	2017	2018	2019	2020	2021
1.	State budget deficit	1 531,7	2 275,7	3 106,0	11 134,9	4 733,1
2.	<i>Financing sources:</i>					
2.1	Financiar assets	-250,1	670,0	892,3	-288,5	-2 257,8
2.2	Debt	3 421,2	991,6	621,9	12 980,1	11 917,5

Source: elaborated by the authors based on (Ministry of Finance of the Republic of Moldova, 2017-2021)

In the part related to financial assets, it can be observed that in 2017, 2020 and 2021, they did not contribute to financing the budget deficit, but on the contrary, generated financial pressure on it, the only source of financing the budget deficit during these years being the operations with debt instruments.



**Figure 4. Evolution of public sector debt of the Republic of Moldova in the period of 2017 - 2021**

Source: elaborated by the authors based on (Ministry of Finance of the Republic of Moldova, 2017-2021)

In this context, the public sector debt balance of the Republic of Moldova recorded the most significant values in 2020 – 72,636.3 million lei and in 2021 – 81,828.3 million lei, a fact that is explained by the considerable level of the NPB deficit (figure 4). As a share of GDP, public sector debt in 2021 constituted 33.8%, which represents 1.4 p.p. less than in 2020 and by 6.4 p.p. more compared to 2019.

#### 4. Conclusion

Considering the current economic realities and the continuous and growing demand for financial funds from the state, the resources that are formed from taxes and fees are often not enough to cover this demand, the budget deficit thus becoming an increasingly common phenomenon among the states of the world, and an increasingly characteristic indicator of the financial relations as a manifestation of the financial system as a whole. Statistical data show that,

<sup>36</sup> Given that the legislation stipulates that transfers are made from the state budget (with general, special purpose, in order to cover the insufficiency of revenues) to the other components of the NPB, there were analyzed the sources of financing of the state budget deficit.

against the background of the latest events that took place at the global and regional level, the value of the budget deficit has increased significantly, with states resorting to state loans to cover it. Being the most widespread method of financing the budget deficit, since it does not require an increase in taxes, which would affect the living standard of the population, it does not imply the reduction and optimization of public spending, including by giving up certain investments or projects intended to contribute to the economy development, as well as does not generate any inflationary processes in the economy, the amount of public debt at the global level register considerable values, exceeding the recommended limits. The Republic of Moldova, along with the other states of the world, faced record values of the budget deficit in 2020, with a slight reduction in 2021 due to the recovery, to a certain extent, of the economic activity. The main source of financing the budget deficit in the Republic of Moldova are loans, and the increase in the budget deficit generated, respectively, an increase in the level of public debt. However, despite this increase, its share in GDP falls comfortably within the limit level established by EU practice (60%), and its amounts did not exceed the planned values that were established by the annual budget laws during the analyzed period.

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## **ADMINISTRATION OF FISCAL REVENUES BY THE CUSTOMS SERVICE OF THE REPUBLIC OF MOLDOVA**

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**Abstract:** *Fiscal collections administered by the Customs Service have the largest share in the total of taxes and fees levied in the National Public Budget. These receipts are represented by import-export rights that are collected by the customs authority when goods are introduced or removed from the customs territory of the Republic of Moldova and which, according to the provisions of the Customs Code, include: customs tax, tax for customs procedures, value added tax, excise duties and any other sums due to the state for the import of goods, collected by the customs institution.*

*The purpose of the paper is determined by the analysis of customs statistics from the perspective of taxes and duties collected for import-export operations by the Customs Service of the Republic of Moldova, respectively the examination of their evolution and the contribution to the formation of NPB revenues. The researched subject is the collection of import and export duties for goods brought into or out of the territory of our country. In order to achieve the proposed goal, the research methodology was focused on the method of analysis and synthesis, and the results obtained were interpreted and the relevant conclusions were formulated respectively. The conclusions express the significant contribution of taxes collected on import-export operations as revenues administered by the Customs Service. Thus, analyzing all the taxes and charges levied on import and export and respectively collected as revenues in the national public budget, we found the significant weight held by excises and VAT for the goods produced and imported services compared to those provided on the territory of the Republic of Moldova and which cumulatively with the taxes on foreign trade and foreign operations constitute 37 percent of the total revenues of the NPB or 58 percent of the total taxes and fees.*

**Keywords:** customs service, import-export rights, customs statistics, National Public Budget's revenue, customs tax.

**JEL Classification:** H27, H71, H72

### **1 Introduction**

The Customs Service is the administrative authority that carries out its activity under the Ministry of Finance, being a separate organizational structure in the administrative system of this ministry, established for the provision of public administrative services to customs payers, for the exercise and improvement of customs control, including the legality of the introduction/exit of goods in / from the customs territory, performing customs formalities, creating the conditions for accelerating the traffic of goods across the customs border. The basic duties of the customs service are regulated in Section 2, Article 11 of the Customs Code of the Republic of Moldova:

- participates in the elaboration of the customs policy of the state and implements this policy;
- ensures compliance with customs and fiscal legislation; defends the rights and legitimate interests of the person within the customs activity;
- contribute, within the limits of competence, to ensuring the economic security of the state;
- apply customs procedures for regulating economic and commercial relations;
- collect import rights and export rights;

- coordinates the application of the Combined Nomenclature of goods;
- manages the Integrated Customs Tariff of the Republic of Moldova (ICTRM);
- fight against smuggling, the violation of customs regulations and fiscal legislation that refers to the passage of goods across the customs border, the illegal passage across the customs border of narcotic substances, weapons, art objects, objects of historical and archaeological value, intellectual property objects, species of endangered animals and plants (derivatives and their parts), other goods;
  - contributes to the prevention and combating of money laundering, as well as international terrorism;
  - exercises and perfects customs control, performs customs clearance, creates conditions for speeding up the traffic of goods across the customs border;
  - contributes and participates in the elaboration of foreign trade customs statistics and special customs statistics;
  - exercise customs control over currency values, within the limits of competence;
  - ensures the fulfillment of the state's international obligations in the customs field;
- participates in the elaboration of international agreements in the customs field, in collaboration with customs services, with other public authorities from abroad, with international organizations in the customs field;
  - manages the origin certification system, in the cases established by the Government, including certifying the origin of the goods and issuing certificates of origin against payment for the export of the goods;
  - carry out the necessary activities for risk management;
  - ensures the dissemination of customs legislation and access to information of public interest;
  - develops the public-private partnership in the customs field and collaborates with the business environment;
  - exercise other duties established by legislation. [3]

The State Fiscal Service is the public authority, empowered to administer taxes, fees and other payments in the interest of the state. The mission of the State Fiscal Service is to ensure an efficient process of tax administration and service by creating conditions for taxpayers to comply with the legislation, the uniform application of policy and regulations in the tax field, ensuring the level of resources necessary for the state to finance social projects and good development of society as a whole. [2] Voluntary compliance is for the Fiscal Service the priority tool for ensuring revenue, and in this sense the efficient collection of taxes and fees is a cornerstone of an efficient budget system.

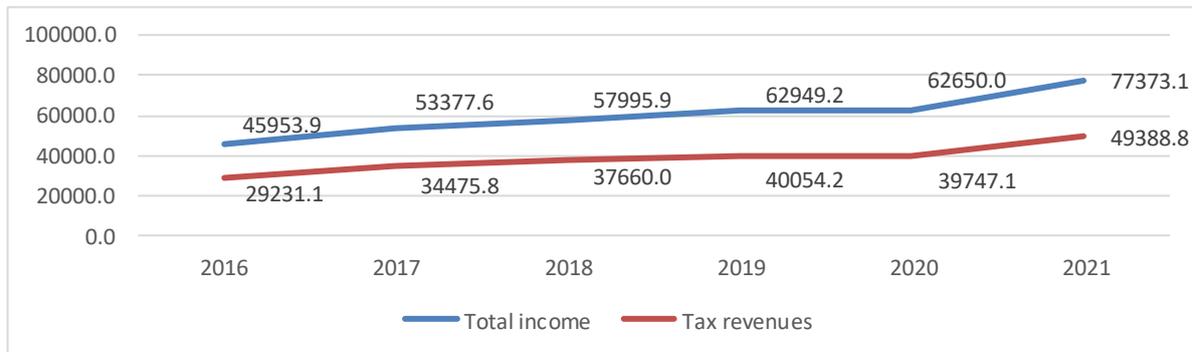
In carrying out its functions, the State Fiscal Service has the following general attributions:

- contributes to the implementation, in its field of activity, of the government program and other public policies by elaborating and applying medium- and long-term development strategies, general or sectoral;
- pursues the organization of an efficient and coherent management of the fiscal administration;
- directs the activity of local tax collection services;

- implements the institution's internal and external risk management model;
- participates in the development of amendments and additions to fiscal legislation, in the development of draft methodological norms and other normative acts that contain provisions related to fiscal administration;
  - elaborates projects of normative acts and the procedures for applying the provisions relating to the administration of the national public budget revenues given in its competence, including expressing the official position of the State Fiscal Service. The official position of the State Fiscal Service is approved by order of the State Fiscal Service management and is published on the official website of the State Fiscal Service;
  - initiates measures for the development and development in good conditions of international relations in its field of activity;
    - manages information regarding the collection of administered revenues;
    - elaborates procedures and methodological norms in its field of activity for its own structures and for taxpayers; prepares studies, analyzes and surveys regarding the organization of its own activity;
    - collects, verifies, processes and archives data and fiscal information necessary for carrying out its activity, also constitutes its own databases of relevant data and manages the collaboration with the competent national authorities regarding the information held, in accordance with the law;
    - issues and implements policies and action plans regarding ensuring information security;
    - administers and develops the information system of the State Fiscal Service;
    - represents the state in the courts and in the criminal investigation structures as the subject of rights and obligations regarding fiscal legal relations, as well as any other legal relations resulting from the activity of the State Fiscal Service;
  - organizes professional development programs for the staff of the State Fiscal Service at the central level and at the level of subordinate structures;
  - controls compliance with fiscal legislation in the process of issuing, awarding, accepting and reimbursing the value of meal vouchers;
    - issues and presents, in the established manner, budget proposals based on programs;
    - ensures administrative cooperation, including the exchange of information, with other institutions in the country and with tax administrations from other states or international organizations regarding its object of activity;
    - ensures the application of the fiscal provisions of the international treaties to which the Republic of Moldova is a party;
    - concludes agreements at departmental level and conventions with tax administrations from other states, with international organizations or with other entities in its field of activity according to the provisions of the legislation in force;
    - participates in the elaboration of the medium-term budget framework and the drafts of the annual budget laws by presenting proposals for the objectives of the fiscal administration policy and the medium-term estimates regarding the administered revenues. [5]

## **2. Tax collections administered by the State Fiscal Service**

Tax collections administered by the State Fiscal Service hold a significant share in the overall revenues of the National Public Budget. Figure 1 shows the evolution of the total revenues that make up the national public budget, the emphasis being, in this case, on tax revenues.

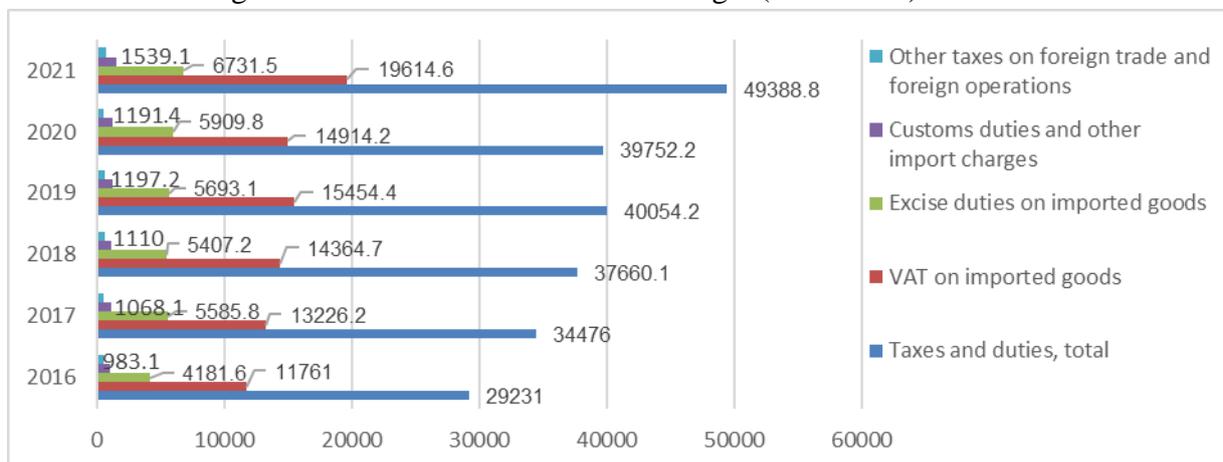


**Figure 1. Evolution of total and fiscal revenues for the period 2016-2021, million lei**

Source: developed by the author based on the data [www.date.gov.md/ro/system/files/resources/2021-06/BPN-evolutia%20indicatorilor%202016-2021.xls](http://www.date.gov.md/ro/system/files/resources/2021-06/BPN-evolutia%20indicatorilor%202016-2021.xls)

According to the data in figure 1, there is a uniform increase in the two types of budget revenues. The rectilinear path of graphic representation is the same for the two indicators, a fact that attests to a direct dependence between the total collected amounts and tax revenues. This fact demonstrates the primary role of tax revenues in the formation and consolidation of the national budget, having the largest share of total revenues.

Fiscal collections administered by the Customs Service constitute the largest share of the total taxes and charges levied in the National Public Budget (about 58%).

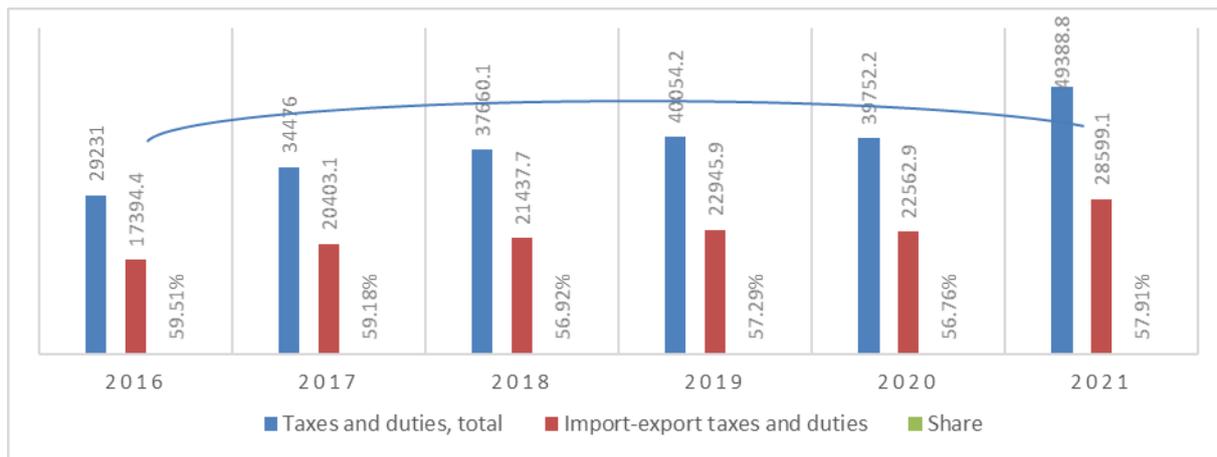


**Figure 2. The table of fiscal receipts administered by CS against total taxes and fees collected in NPB for the years 2016-2021, million lei**

Source: elaborated by the author based on the NPB Execution Reports for the years 2016-2021

Analyzing the figure above, a considerable increase in import-export taxes and duties can be observed in 2021, following the consequences of the 2020 pandemic, which left its mark in all fields of activity. The VAT increased by 4700.4 million lei, i.e. from 14914.2 million lei in 2020 to 19614.6 million lei in 2021. The value of excise duties according to the data in the figure shows that it has not undergone any changes of stagnation, as it is in a continues to grow in 2021, however, there is an increase of 821.7 million lei compared to the increase of 216.7 million lei in

2020 compared to 2019. Customs duties in 2020 decreased insignificantly compared to 2019, instead in in 2021, they also increased by approximately 347.7 million lei. Other taxes on foreign trade include the customs procedures charged, which also decreased in 2020, but in 2021 it increased from 547.5 million lei to 713.9 million lei. Since imports in 2021 increased at a higher rate than in previous years, the increase in customs value, customs duties and customs procedures of goods and services also influenced the increase, which respectively led to the increase in value added tax theirs.



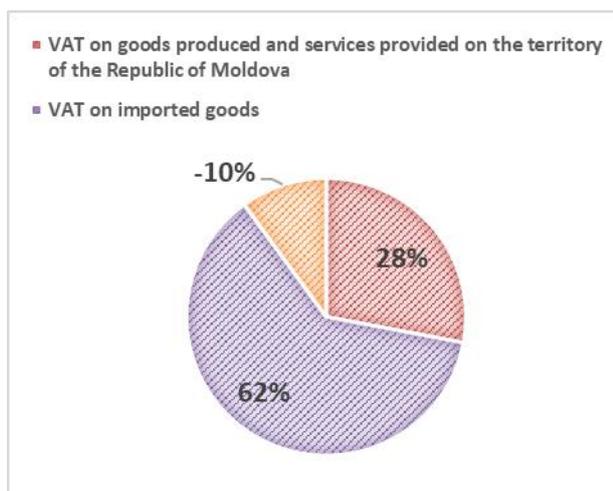
**Figure 3. Share of taxes and duties collected on import-export in total taxes and duties collected in NPB, %.**

Source: developed by the author based on figure 2

The figure above shows the share of fiscal revenues administered by the Customs Service in fiscal revenues administered by the Fiscal Service. Thus, it can be observed that the values vary in the range of 56-59%, which is positively appreciated taking into account the fact that these taxes collected on import-export exceed the taxes collected on the territory of the Republic of Moldova, so that the fiscal burden is lower for individual taxpayers and, respectively, the income in the budget, it is supplemented from the account of the fiscal obligations of economic agents.

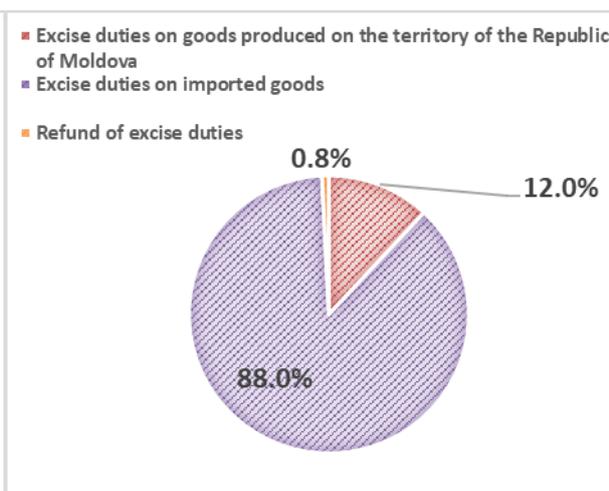
In conclusion, we can state with certainty that the values of both VAT and excise duties paid on import considerably exceed those charged for goods and services produced in the country: for example, in 2021 the VAT for goods produced and services provided on the territory of the Republic of Moldova was 8918.4 mil. lei, and for imported 19614.6 mil. lei, a substantial difference that proves that more is imported than produced.

This difference between VAT and excise duties paid on import and VAT and excise duties paid for goods produced on the territory of the country is structurally analyzed for the year 2021 and is reflected in the figures below.



**Figure 4. Distribution of VAT in total revenues collected from VAT in NPB, year 2021**

Source: developed by the author



**Figure 5. Distribution of excise duties in total revenues collected from excise duties in NPB, year 2021**

Source: developed by the author

The figures presented above show that 62% constitutes VAT for imported goods and 28% VAT for goods produced and services provided in the country. Also, in the case of excise duties, the largest share goes to excise duties on imported goods, approximately 88% and only 12% on those on the territory of the country.

Thus, we can highlight the role of taxes levied on the introduction and removal of goods from the country for the formation of the national public budget and the development of the economy. In fact, these statistical data demonstrate the importance of taxes and duties collected on imported goods in the formation of the NPB revenues of the Republic of Moldova, which also shows the importance of the activity of the Customs Service.

### **3. Tax collections administered by the Customs Service**

The Customs Service of the Republic of Moldova is the public administration authority, subordinate to the Ministry of Finance, which contributes to the development of the Republic of Moldova by ensuring the economic and fiscal security of the state, facilitating legitimate trade and offering quality public services to the business environment and citizens. For this purpose, the Customs Service ensures the administration of customs revenues, exercises control and supervision duties based on risk analysis and applies modern customs clearance techniques in a professional, transparent and responsible manner. [4]

Tax collections administered by the Customs Service are represented by import-export rights. Import duties include taxes, fees and charges levied by the customs authority on the importation of goods, namely:

- custom duty;
- value added tax;
- excise taxes;

- the tax for customs procedures, including any other amounts due to the state for the import and export of goods, collected by the customs service in accordance with the legislation. [6]

Statistical data on exports and imports of goods are collected, verified, processed by the Customs Service, in accordance with article 321 of the Customs Code of the Republic of Moldova no. 1149 of 20.07.2000 and submitted to the National Bureau of Statistics for verification, completion, validation, processing, rectification, finalization and dissemination in accordance with the Law of the Republic of Moldova "On Official Statistics", no. 93 of May 26, 2017. For exports and imports of material goods that are the subject of commercial transactions, the basic document for the record statistics is the customs declaration in detail, which is drawn up at the customs points when the goods enter or leave the country.

**Table 1. Collection of import-export rights for the years 2011-2022, thousands of lei**

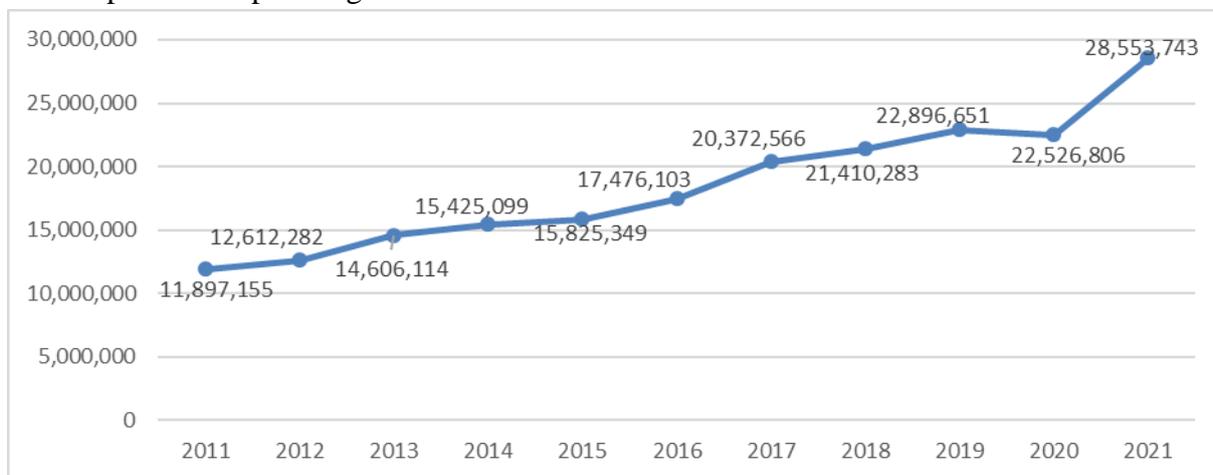
Year	Custom duty	The tax for customs procedures	Special taxes	Excises	VAT	Other payment:	Total
2011	832 672	305 780	2218	2 182 956	8 547 924	25 605	11 897 155
2012	938 081	309 454	50	2 440 248	8 911 222	13 228	12 612 282
2013	1 024 627	349 391	1	3 059 507	10 106 119	66 469	14 606 114
2014	1 053 604	366 602	-	3 039 478	10 892 346	73 069	15 425 099
2015	907 954	372 746	-	3 483 848	10 952 370	108 431	15 825 349
2016	983 075	410 294	-	4 181 602	11 760 977	140 155	17 476 103
2017	1 068 102	457 985	-	5 585 759	13 226 179	34 541	20 372 566
2018	1 109 989	487 320	-	5 407 231	14 364 710	41 034	21 410 283
2019	1 197 137	525 827	-	5 693 137	15 454 380	26 171	22 896 651
2020	1 191 460	489 378	-	5 909 805	14 914 169	21 994	22 526 806
2021	1,539,139	635,925	-	6,731,461	19,614,568	32,651	28,553,743
2022 (6 months)	830,594	353,234	-	3,119,677	11,215,676	15,682	15,534,863

Sursa: <https://customs.gov.md/ro/articles/date-statistic>

Customs services accumulate (on the basis of customs declarations) and process data on the passage of goods across the customs border. The data related to an operation or a specific economic agent are considered confidential and cannot be transmitted to third parties or other public authorities without the permission of the declarant, except in the cases provided by the legislation. The data sources for customs statistics are the documentation and information presented for customs clearance and customs control. Table 1 shows the fees charged for import-export rights.

Based on the data in table 1, it can be observed that the taxes collected on import-export in the Republic of Moldova for the period of 2011-2021 are increasing. If in 2011 the fees and taxes paid constituted 11,897,155 thousand lei, in 2021 they constitute 28,553,743 lei, increasing by 16,656,588 lei. However, we can note that in 2020, both foreign trade and the entire economy underwent significant changes, as total taxes paid decreased from 22,896,651 lei in 2019 to 22,526,806 lei in 2020, but this decline was followed by a considerable increase the following year.

Figure 6 shows the evolution of fees and taxes for the period 2011-2021 charged and paid for the import and export of goods and services.



**Figure 6. Dynamics of import-export rights for the years 2011-2021, thousands of lei**

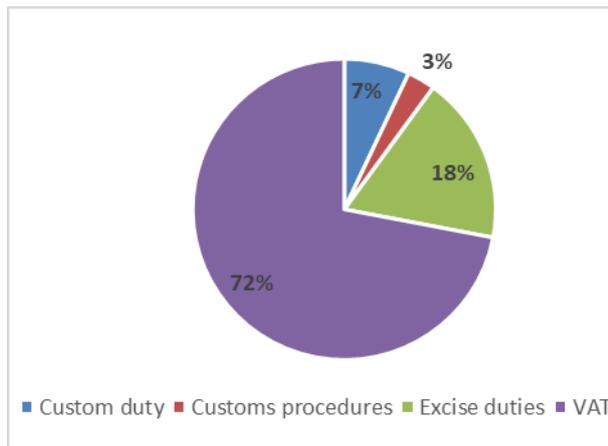
Source: developed by the author based on Table 1

Analyzing the data above, it can be seen that until 2020 import-export taxes registered an increasing trend, a fact due to the increase in imports and exports for the given period. The growth rate of taxes and fees for 2019 compared to 2011 is 92.40%. As mentioned above, in 2020 there is a decrease in values, as the whole economy was affected by the consequences of the pandemic, respectively import/export also suffered, which also led to the reduction of taxes paid by taxpayers.

Therefore, in 2020 total taxes and duties decreased compared to 2019 by approximately 1.7%, and in 2021 they increased by 26.70% compared to 2020. This increase shows that foreign trade managed to evolve and overcome the period of stagnation, as exports of goods from Moldova in 2021 exceeded 3 billion dollars for the first time in history. Imports and the trade deficit also reached record levels. In addition, the entire foreign trade has crossed the psychological threshold of 10 billion dollars.

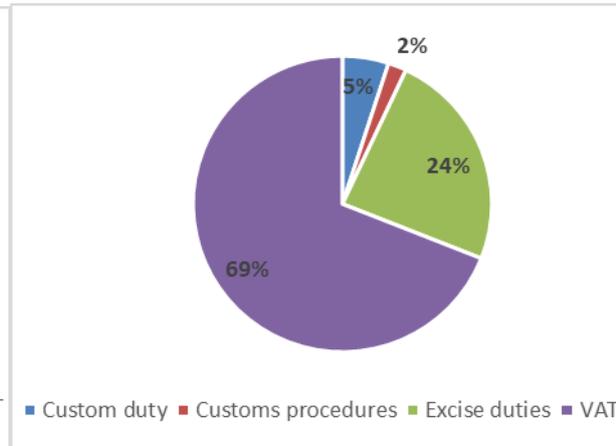
As for the structure of taxes and duties levied on import-export, it has not changed essentially, with the largest share being recorded by VAT, followed by excise and customs duties.

From those represented graphically in the figures below, in 2011 VAT constitutes 72% of the total receipts, excises account for 18%, customs duty - 7% and customs procedures only 3%. The percentage of 72% for VAT also includes the values of the other taxes and fees, since the VAT calculation basis for import includes the customs fee, the fee for customs procedures and excise duties if they are charged. In 2021, there are small changes, more precisely the reduction of receipts from customs duties, customs procedures and VAT, as a share of total receipts, while excise duties increased by 6 p.p. in 2021 compared to 2011.



**Figure 7. Structure of import-export rights for 2011**

Source: developed by the author based on table 1

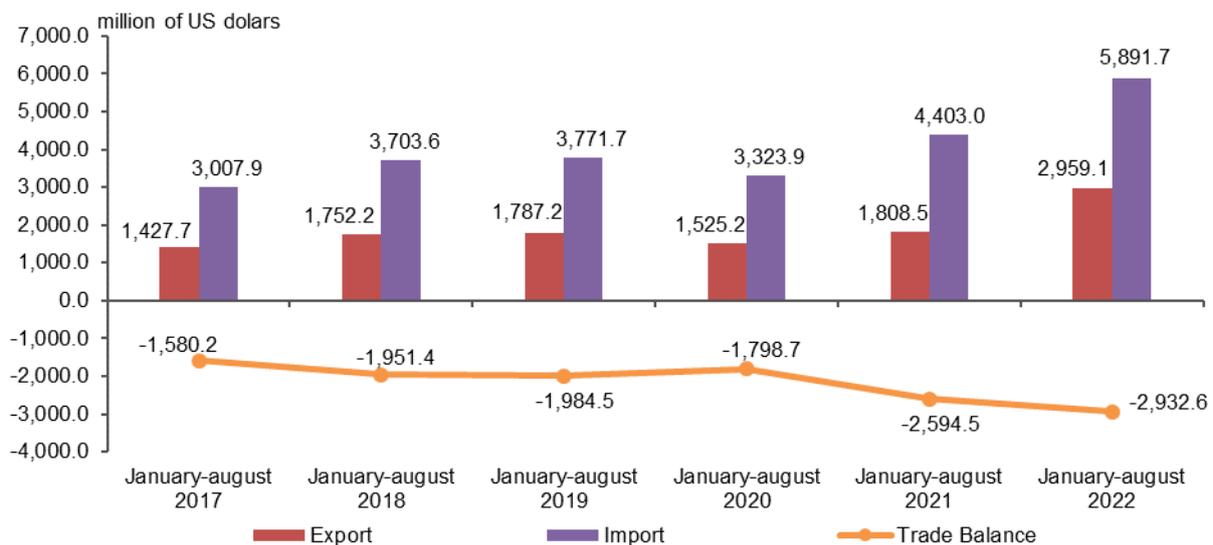


**Figure 8. Structure of import-export rights for 2021**

Source: developed by the author based on table 1

In the context of the analysis of the evolution of import-export rights as tax receipts, it is important to also examine the amount of imports and exports, because their dynamics directly influence the amount of taxes and fees paid by individuals and legal entities, which later accumulate as revenues in the state budget.

The figure below highlights the evolution of international trade in goods, emphasizing the comparative values between the sum of imports and exports carried out during the years 2017-2022.



**Figure 9. Trends in international trade in goods, in January - August 2017-2022 (millions of US dollars)**

Sursa: [https://statistica.gov.md/ro/comertul-international-cu-marfuri-al-republicii-moldovain-luna-august-si-in-ianu-9539\\_59932.html](https://statistica.gov.md/ro/comertul-international-cu-marfuri-al-republicii-moldovain-luna-august-si-in-ianu-9539_59932.html)

The considerable gap between exports and imports of goods led to the accumulation, in January-August 2022, of a deficit of the trade balance in the amount of 2932.6 million US dollars

or 338.1 million US dollars (+13.0%) more, compared to the one recorded in the same period of 2021. One of the determining factors of the reduction in imports is the fact that natural persons imported, in January-August 2022, goods worth 151.1 million US dollars, 12.3% more slightly, compared to the corresponding period of 2021. The decrease was conditioned, mainly, by the reduction in the number of imported cars (-24.1%), which accounted for 84.4% of the imports made by natural persons.

In total, the foreign trade of the Republic of Moldova in 2021 was 10.3 billion dollars, an increase of 2.4 billion dollars compared to 2020 and significantly higher than the previous record of 8.6 billion dollars recorded in 2019. The trade deficit increased by more than a billion dollars (+36.5%), reaching a total of about 4.03 billion dollars, which is 128% of the total exports and also a new anti-record.

In 2021, the trade balance with the EU countries stood at a deficit of 1229.7 million dollars, and with the CIS countries at 1439.1 million dollars, increasing by 399.3 million dollars and 498.3, respectively million dollars compared to the values recorded in the previous year.

For the Republic of Moldova, the export of goods and services is an extremely important issue in terms of increasing revenues in the state budget, since the efficiency of foreign trade is influenced by several factors: a) the level of labor productivity in the national economy; b) production expenses in the branches and sectors of activity; c) price level and purchasing power of the national currency, etc.

The main measures to increase the efficiency of foreign trade can be determined by increasing the degree of processing of raw materials and the competitiveness of services intended for export; the specialization of export production, which is accompanied by an increase in labor productivity; raising the quality of export products and services; improvement of the commercialization activity and the implementation of international export-import standards. [1]

#### **4. Conclusion**

The Customs Service proposes a series of short, medium or long-term strategic objectives, depending on their degree of complexity. First of all, it aims to further develop the concept of Electronic Customs (E-customs) and promote cross-border customs cooperation mechanisms (joint control, information exchange, mutual recognition of the AEO Program about Authorised Economic Operator, etc.). The Customs Service also has as a major strategic objective the strengthening of operational capacities to prevent and combat customs fraud, a phenomenon that affects the degree of collection of budget revenues.

Every week the Customs Service reports receipts to the state budget according to the budget burden established for a certain interval. The money collected from taxpayers is paid directly into the state budget and redistributed for salaries, infrastructure development, social projects, etc.

Also, the number of completed customs declarations and the flow of means of transport are reported weekly. In the chapter on combating fraud, in the relevant periods, violations of customs legislation and the amount of fines applied are found.

As a result, as a result of the development of new technologies, the Customs Service proposes to modernize the information programs at the internal customs control posts by adapting the "Integrated Customs Information System" to data exchange conditions with other state

institutions, as well as interstate in order to ensure maximum compliance with customs and fiscal legislation through the correct collection of import and export rights, since according to what was previously analyzed, the taxes paid for the import and export of goods and products constitute an instrument for the achievement of several essential functions, the primary being the accumulation of revenues in the public budget national. The evolution of imports and exports in/from the territory of the Republic of Moldova, the correct determination of the value in customs and respectively of the customs tax and the customs procedure directly influence the revenues collected in the budget and respectively the entire economic process.

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CZU: 336.226.322:[336.228:338](478)

## THE IMPACT OF VAT AND EXCISE TAXES ON SOME ECONOMIC PROCESSES

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**Abstract.** *International experience shows that there is a stable relationship between the level of economic development of a country and the tax burden on the economy. Economically more developed countries can redistribute through the budget a large share of the national product produced in their economy. The maximum possible level of tax collection is determined by many factors depending on the level of socio-economic development of the country.*

*Indirect taxes, especially VAT and excise taxes, are of great socio-economic importance and play an important role in the life of Moldova. Firstly, they are a significant source of state revenue, their share in the budget is significantly higher than the share of direct taxes. In the Republic of Moldova, the share of indirect taxes in budget revenues has varied by about 45% for many years, and the share of VAT alone exceeds 32%. Consequently, the amounts of accumulated indirect taxes redistributed through the budget have an impact on everything that is financed from the budget of Moldova.*

*Indirect taxes also have an impact on the level of consumer prices, significantly increasing them for certain groups of goods (for example, fuel and tobacco products), therefore they are a factor in regulating the level of inflation, a means of influencing the dynamics and level of prices in the country. Thirdly, the system of collecting VAT and excise taxes affects production, the service sector (especially trade), the level of consumption, foreign economic activity, contributing to their growth or, conversely, reduction, that is, it allows you to regulate the movement of spheres of commodity circulation in accordance with the development goals of the state. All this determines that the problems of improving the taxation of VAT and excise taxes are currently extremely relevant for Moldova.*

**Keywords:** taxes, VAT, excises, tax evasion, tax burden

### JEL CLASIFICATION – H2

One of the main problems in the field of indirect taxes from the point of view of taxpayers is the high level of rates and tax burden on indirect taxes, especially VAT and excises. The standard value added tax rate in the Republic of Moldova is 20%, while the world maximum registered in Hungary is 27%. These are the data of the consulting company KPMG.

The VAT rate in our country is comparable to the rates in Armenia, Albania, Austria, Belarus, Bulgaria and Great Britain, while in Croatia and Denmark it is 25%, in Iceland it is 23%, and in Italy the rate is 21%. The consulting company notes that on a global scale, the VAT rate averages 15.5%, in the EU - 22.24%, in Eastern Europe - 20.05% [3]. European countries have the highest value-added tax rates in the world, which is associated with their increase during the sovereign debt crisis in the hope of balancing budgets.

In neighboring Romania, VAT is 24%, the rate was increased from 19% a few years ago. In addition to the standard rate, Romania applies a reduced rate of 9% for books and 5% for the sale of new apartments of less than 100 square meters. In Greece, Poland, Portugal, Finland, VAT is

applied at a rate of 23%, in Latvia - 22%, in the Czech Republic, Estonia, Italy, Austria, Slovenia, Slovakia and the UK - 20%.

One of the important issues related to VAT is the issue of its scope. From an economic point of view, in order to meet the criteria of equality and neutrality, the ideal VAT as a consumption tax should be levied on all household consumption, including self-produced goods and services. But from the point of view of tax administration, the presentation of value added tax described above distorts its nature, since VAT is not a tax on individuals, but is a tax on consumer spending and its collection ends at the stage of retail sales of goods, regardless of the type of goods. Here a dilemma arises for the state - on the one hand, it is fair to tax as many taxpayers as possible (that is, everyone who sells goods and services), on the other hand, small entrepreneurs who bring very little income to the budget and at the same time are potential firms - ephemeral, divert a lot of budget funds for their administration.

Export of goods and services is exempt from VAT with the right of deduction, which is a measure to stimulate export operations. The difference between this regime and a simple exemption from VAT without the right of deduction is that in the case of the right of deduction, it provides for the reimbursement of VAT previously paid to suppliers on inventory items purchased for the production of goods and services sold for export. At the same time, a very important stimulating factor for exporters is the actual receipt of VAT refunds in a bank account.

The main problem associated with the reimbursement of VAT from the budget is delays in the transfer of funds from the budget or a complete denial of reimbursement to many taxpayers, which is a consequence of both problems with the diversion of financial resources from the budget, and the fact that cases of abuse by the subjects of this benefit, which makes the tax service distrustful of all taxpayers, suspecting them of tax evasion through the illegal use of tax benefits. Therefore, for exporters, the reimbursement procedure often stretches for months, instead of the 45 days provided for by the Tax Code.

But the negative consequence of the diversion of non-reimbursable funds from the turnover of enterprises is the deterioration of their financial condition and liquidity.

The VAT refund system is very important for bona fide exporters, but generates (like the whole system of tax incentives) the possibility of fraud and violations. In general, the problem of fraud in the VAT refund system is worldwide. Exporters are exercising their right to a refund, presenting false documents for allegedly purchased materials and components, and claiming a refund of VAT that was never paid.

Therefore, a dilemma arises: is it necessary to speed up the process of VAT refund and increase the risk of its refund on forged acts and documents, or should each case be more thoroughly investigated, as a result, extending the time for consideration of relevant claims for conscientious taxpayers as well.

Based on international experience, it is possible to significantly reduce the volume of violations and fraud in the field of VAT refunds by combining the system of calculating and paying VAT, as well as paying income tax on the wages of employees of exporting enterprises and contributions to off-budget funds (for example, to the budget of the state social insurance).

Instead of refunding VAT in cash, exporters are offered tax certificates that can be used to pay deductions to these funds and to the budget for income tax. The facts of fraud will not

completely disappear, but their number may decrease significantly. Income tax and contributions to off-budget funds make up a significant part of the payments paid by any company. In most cases, the amount of VAT recoverable does not exceed the amount of these payments. Thus, the integration of VAT refund and wage taxation systems will lead to a reduction in tax evasion.

The impact on the level of budget revenues from VAT is the problem of the effectiveness of the administration of value added tax. In our country, VAT evasion has become widespread through the use of one-day firms (phantom firms), as entrepreneurs believe that the VAT tax burden is excessive. For many years they have been proposing to reduce it, but the Ministry of Finance, given the importance of VAT for the budget and the rather tense state of public finances (especially in recent years, given the crisis in our economy), does not go to reduce the main VAT rate.

In the Republic of Moldova, the structure of the relationship between direct and indirect taxes in the tax system differs markedly from most developed countries, and the fiscal function of the tax system comes to the fore. This gives rise to such a phenomenon as tax evasion, especially indirect ones. Although it is believed that indirect taxes are passed on to consumers and, therefore, do not greatly affect producer taxpayers, due to the fact that these taxes are paid in most cases even before the sale of goods to final buyers, the burden of paying them directly affects most economic agents.

That is why they try to evade indirect taxes in every possible way. For VAT, they usually use schemes with phantom firms (one-day companies) and non-reflection in the accounting of turnover through non-penetration of checks to underestimate the turnover of the enterprise, for excises - smuggling and falsification of excisable products. All these methods are well known to tax inspectors, therefore, it is precisely to combat these phenomena that their attention is most often directed. Thus, it can be said that the main problem for VAT is tax evasion. Therefore, all attention should be directed to improving tax legislation and eliminating loopholes that allow taxpayers to minimize this tax. At the same time, we should not forget that often law-abiding taxpayers fall under the pressure of the tax authorities when the fight against tax evasion is tightened.

In order to combat tax evasion (on imports) and smuggling, care should first be taken in assessing the likely impact of higher tax rates on smuggling, especially on excisable goods. Problems often arise when an increase in a country's tax rates results in rates that are substantially higher than in neighboring countries, thereby increasing both the incentives to smuggle goods and the profitability of the activity.

The use of excises very often leads to evasion of their payment and falsification of excisable products due to the high tax burden on this tax. The most reliable protection against counterfeit alcohol is an excise stamp. According to the current legislation, this distinctive sign is part of the mandatory marking. He confirms that the excise tax has been paid to the state, and the products themselves have been certified and meet the established quality standards. The excise stamp must contain information about the manufacturing plant, the date of issue and the number of the stamp itself.

In the process of administering excises in the Republic of Moldova, the tax office faces the problem of falsification of alcoholic products and thus excise evasion. In the fight against this phenomenon, methods such as labeling alcohol products with excise stamps and establishing stationary tax posts at enterprises producing strong alcohol are used. But, despite the application

of these measures, the process of excise evasion continues to be an important problem in the tax system of the Republic of Moldova.

The obligations assumed by Moldova to bring the level of excises on tobacco products to the European level also lead to negative consequences in the form of smuggling. To a large extent, the increase in excise revenues over a number of years is the result of an annual increase in excise rates in Moldova, experts emphasize. Some of them perceive this fact unambiguously positively, others note the disproportionate ratio of budget revenues from direct and indirect taxes in Moldova.

A significant burden of indirect taxes leads to a high cost of our products, which, taking into account open markets and trade liberalization, leads to a significant decrease in the competitiveness of Moldovan products, not only in world markets, but even in the domestic one. Despite the fact that the labor force in Moldova is quite cheap, this leads to a constant diversion of working capital and, as a result, the low competitiveness of our products.

International experience in the application of excises testifies to the successful practice of its use in the fight against some negative socio-economic phenomena, such as, for example, the consumption of goods that are harmful to health (alcohol products, tobacco products) by the population. In Moldova, alcoholic products are excisable, as in many countries of the world.

However, the excise policy applied in recent years, aimed primarily at a constant increase in government revenues through indirect taxes, not only did not contribute to a reduction in the consumption of strong alcoholic beverages, but at some stages of the economic development of the alcohol industry led to a decline in legal production while simultaneously increasing sales of illegal alcohol.

As a result, in practice, an increase in excise rates led to the opposite effect: budget revenues decreased due to a decline in legal production, in addition, the qualitative structure of alcoholic beverages consumed by the population deteriorated sharply, which undoubtedly had a negative social result.

The current system of excise duty on strong alcohol is convenient for the state, as it guarantees that the tax will be collected. But it is very difficult for enterprises today, since they pay excise duty and VAT when buying raw materials (alcohol). The manufacturer will receive their return after manufacturing, certification, delivery of products to trade and sale. Paying these taxes in advance, the business credits the state. For example, buying 10 tons of alcohol (one car), you immediately need to transfer about one million lei of excise tax to the state budget. Not every company can withstand such a financial burden. When an entrepreneur takes out a loan to pay taxes, it means the beginning of the collapse of his business.

Entrepreneurs are asking the Ministry of Finance to review the system of administration of excise duty and VAT in their industry. In other countries, excise duty is paid after a certain period after the sale of products (as well as VAT). An increase in excise tax rates as one of the tools for maximizing budget revenues is used most often when additional financial resources are needed to reduce the budget deficit. But raising the excise rate is not the main way to improve excise taxation and increase the value of the regulatory function of this tax. On the contrary, occasionally such an increase has the opposite effect - a high excise tax undermines the production of legal producers, increases smuggling, stimulates the emergence of shadow production and falsification.

As a result, the country suffers economic and social losses: the country's budget does not receive the expected high incomes, the structure of goods consumed by people worsens. And the point here is not only the imperfection of our tax legislation. Thus, as a result of studying the practice of applying excise taxes on alcoholic beverages, it can be concluded that the main reserves for increasing the collection of this tax should be sought not in the field of improving tax legislation and increasing the excise rate, but in the suppression of illegal production and turnover of excise products.

One of the main topics in the field of excise taxes this year is the increase in excise taxes on tobacco products, bypassing the previously established excise calendar. Nevertheless, despite the arguments and proposals of relevant associations and local producers, the increase in rates was adopted by parliament. The situation is aggravated by the fact that these changes provide for the establishment of new excise rates for a separate group of tobacco products - cigars and cigarillos. Namely: 41% of their value, but not less than 959 lei (in 2022) and 41%, but not less than 1103 lei (in 2023). Thus, it is implied that the excise taxes of the cigar and cigarilla group are equalized with the excise taxes on cigarettes. The authors of the amendments have one argument: the increase in excise taxes is based on our country's obligations to harmonize legislation with the European one.

This provides for an Agreement on associate membership in the EU, on the basis of which Moldova pledged to increase tobacco excise taxes by 2025. However, industry experts clarify: European legislation assumes differentiated taxation of various groups of tobacco products. Thus, in accordance with Directive 2011/64 /UE, the minimum excise tax on cigarettes should be at least 90 euros per 1 thousand pieces, for cigars and cigarillos – 5% of the retail price or 12 euros per 1 thousand pieces, and for thin-cut tobacco for rolling cigarettes - 60 euros per 1 kg [4].

In Moldova, there is a tendency for a rather superficial interpretation of European legislation and a change in the already established rules of the game, lobbying someone's interests, and not for the first time. For example, the excise tax on thin-cut tobacco for rolling cigarettes in 2019 was brought in accordance with the European norm - 1.2 thousand lei (about 60 euros). Whereas excise rates on cigarettes will be equated to European ones only by 2025. According to market operators, after a sharp increase in the excise tax on thin-cut tobacco, this type of product was practically not imported. Accordingly, the budget has lost significant amounts of tax revenue – about 30 million per year.

Now a situation is being created when an erroneous interpretation of European norms removes local producers from the market — those whose share of cigarillo production has only recently begun to grow slightly.

And not at all due to the fact that they allegedly took away part of the volumes from international corporations. On the contrary, the appearance of cigarillos - a new and affordable category of tobacco products - has pulled over part of the illegal cigarette market, ensuring an increase in tax revenues by reducing the consumption of shadow products. This is also proved by market analytics, according to which the volume of the illegal market has significantly decreased over the year.

According to domestic processors, the tax model applied in Moldova since 2011 has been beneficial mainly to importers, as it has always contributed to a sharp rise in the price of low-budget tobacco products.

Such an example is given. As you know, the excise tax on tobacco products consists of two components — a fixed part for 1 thousand pieces and an ad valorem part, which provides for a certain percentage of the retail price. The constant growth of the fixed part leads to a significant increase in excise taxes, and hence the final price of local cigarettes, which, as a rule, were positioned in the low-price segment. If in 2013 the fixed part for 1 thousand cigarettes was 75 lei plus 24%, then in 2016 the excise tax was already 300 lei per 1 thousand pieces plus 12%. And since 2016, the annual increase in excise rates has concerned exclusively the increase of a specific component. Whereas the ad valorem part has grown by only 1% over the years. This factor, as well as the fact that a minimum excise tax was also introduced five years ago, led to a price war, which turned out to be not in favor of local producers. Thus, in just one year, the cost of premium cigarettes from three major importers decreased by 8 lei. As a result, local producers were taken out of the game, and the state missed significant budget revenues.

In 2020, the excise tax rate on cigarettes with a filter and without a filter was equalized (540 lei per 1 thousand pieces, plus 13% of the cost), which sharply increased prices for the entire filter-free range. This left no doubt that the local manufacturer would finally lose the market, which would come under the control of multinational corporations, as well as increase the share of the illegal segment. In such a situation, the only "lifeline" turned out to be cigarillos, the excise tax on which has remained relatively stable over the past 10 years.

The current excise tax on cigarettes in Moldova is 621 lei plus 13%. According to experts, such a tax burden is extremely beneficial to suppliers of expensive tobacco products. So, in 2021, the share of excise taxes in a pack of cigarettes worth 40 lei is 44%, while in a pack of cigarettes for 30 lei — 56%. In 2022, the share of excise taxes in a pack of expensive cigarettes will decrease even more. It turns out that the poor pays for the rich. If we compare the taxation of the same cars, then the more expensive the car, the higher the tax, and vice versa. According to the latest changes in tax legislation, the excise tax on cars is calculated on a progressive scale, i.e. the more powerful the car engine, the higher the excise tax rate per 1 cubic cm of capacity. Why should the tobacco market be taxed on a different principle?

Everyone understands that tobacco products belong to a special commodity category, but whatever the differentiation of the excise tax, the consumer will eventually pay for it. At the same time, the importer will benefit: his tax burden is limited to the payment of excise duty and VAT, and all profits of foreign corporations are withdrawn from the country. While the local producer leaves investments in Moldova, directing them to the development of the enterprise and the human factor. For the first time in many years, processors were able to revive local production and increase investment in their core asset. If the ground is knocked out from under their feet, they are unlikely to be able to rise again.

According to local tobacco manufacturers, in the absence of a protectionist state policy, it will be easier for manufacturers to close enterprises and establish contract production in any other country. It is much calmer and easier for them to import products to Moldova without worrying about the development of factories, production costs in the form of wages, purchase of raw

materials, modernization of production lines, logistics, and so on. Under the conditions of the game that are being imposed on the tobacco market today, it is easier to withdraw dividends from the country than to attract them as foreign investments in the industry. Why invest money in a market that lobbies for the interests of importers. But this is a flawed model that moves the national economy to collapse. The correct model of any state is based on political will that protects the interests of its producers.

A common disadvantage not only of indirect taxes, but also of the tax system of our country as a whole, is some unpredictability of tax legislation and, consequently, the complexity of doing business, for which it is necessary to know the conditions of activity in advance. Most often, changes to legislation are aimed at ensuring stable and sufficient budget revenues necessary to finance public expenditures; ensuring clear, fair and stimulating conditions for the development of the entrepreneurial and investment environment; creating a socially oriented state; fair distribution of income and social responsibility; improvement and simplification of national taxation mechanisms.

### **Conclusions**

In conclusion, we can formulate some proposals for improving the system of collecting VAT and excise taxes:

1. to lower the tax burden on indirect taxes in order to reduce the scale of tax evasion, but in parallel with tightening control over the operations of tax subjects;
2. streamline and simplify the system of VAT and excise tax refunds, especially for exporters, which will contribute to the economic development of not only these enterprises, but also the country as a whole. Eliminate unjustified bureaucratic barriers related to the procedure of VAT and excise reimbursement. The procedure for VAT and excise tax refund should be carried out in a strictly defined period, which will have a positive impact on the economic activity of exporters and investors, as well as stimulate the inflow of financial resources to our country;
3. to streamline the various provisions of the Tax Code regarding VAT and eliminate the existing internal contradictions. It is necessary to strive to ensure that VAT is easy to calculate and pay. To do this, it is necessary to change the rules for processing tax invoices, unify the rights to tax deductions in various situations and exemption from taxation, clarify many formulations of the Tax Code that can be interpreted ambiguously and that create problems for both taxpayers and tax officials;
4. to make more extensive use of cross-country cooperation in combating indirect tax evasion (exchange of information on the volume of foreign economic transactions, joint fight against smuggling, etc.).

But in conclusion, it can be noted that the fight against indirect tax evasion will be more effective the more taxpayers will see the return on the funds they pay to the state in the form of taxes. That is, when the system of public spending will bring great benefits to the whole society, then taxpayers will be more willing to fulfill their tax obligations, in our opinion.

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## **IMPROVEMENT OF BANK RATING PRUDENTIAL SUPERVISION IN THE REPUBLIC OF MOLDOVA THROUGH EUROPEAN UNION BEST PRACTICES**

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**Abstract:** *The main purpose of the rating is to increase the information transparency of the bank, to facilitate the arrangement of entities in the field of activity according to key success factors.*

*The rating points assigned to the bank is identified with its competitive position in the banking system, which undoubtedly affects the image and trust of customers and investors. Therefore, assigning a specific rating to a bank affects its competitive position in the economy.*

*The banking supervision function is aimed at ensuring the smooth functioning of the financial system based on a strong and competitive banking sector, focused on market relations and risk prevention. In this context, in prudential supervision, various rating systems are applied, their purpose is to monitor and analyze the financial condition of banks.*

*In writing the article, the following scientific and methodological support was used: methods of analysis and synthesis, a monographic method, a comparison method, classification, methods of induction and deduction, methods of statistics and mathematical analysis, as well as a method of generalization.*

*The purpose of the article is to deepen the study of bank rating as a consolidation tool for prudential supervision, as well as from the importance of this activity for ensuring the stability of the banking system in particular and of the financial system in general.*

**Key words:** *banking system, bank rating, prudential supervision, competitive position, CAMEL, Basel Committee on Banking Supervision, corporate governance etc.*

**JEL Classification:** **E5, E58, E7, G21.**

### **1. Introduction**

The main objective of the bank is to obtain the maximum possible profit, it is important to pay significant attention to the implementation of its operations with the minimum possible risk. In order to avoid the risk of bankruptcy, to achieve a long-term preservation of a stable position in the market, banks need to develop and actively apply effective ratings and offer tools for the most performant prudential supervision.

The main purpose of the rating is to increase the information transparency of the bank, to facilitate the arrangement of entities in the field of activity according to key success factors. However, the ideal option is vulnerable, because it requires complete information on many aspects of activity, which in real life does not happen. The main difficulty in working with a rating is that it is necessary to ensure information transparency of a particular area of the bank's activities in conditions where some of the necessary information is not available.

Rating means classifying a bank as a class or category. Banks with the same rating are not necessarily ranked for any reason. Just their position is the same. Rating - this is a comprehensive assessment of the state of the subject, which uses a combination of many indicators that are not always formalized. In prudential supervision, ratings are used largely to determine the ability of an operating bank to fulfill its obligations and operate in accordance with established standards. Thus, ratings perform an informative function, help develop a long-term strategy. And, just as importantly, ratings are taught to work openly and transparently.

The rating points assigned to the bank is identified with its competitive position in the banking system, which undoubtedly affects the image and trust of customers and investors. The banking sector is an integral element of the country's monetary policy. Therefore, assigning a specific rating to a bank affects its competitive position in the economy.

The banking supervision function is aimed at ensuring the smooth functioning of the financial system based on a strong and competitive banking sector, focused on market relations and risk prevention. In this context, in prudential supervision, various rating systems are applied, their purpose is to monitor and analyze the financial condition of banks. Ratings are compiled on the basis of reports submitted by banks.

In writing the article, the following scientific and methodological support was used: methods of analysis and synthesis, a monographic method, a comparison method, classification, methods of induction and deduction, methods of statistics and mathematical analysis, as well as a method of generalization.

The purpose of the this study is to deepen the study of bank rating as a consolidation tool for prudential supervision, as well as from the importance of this activity for ensuring the stability of the banking system in particular and of the financial system in general.

## **2. EU principles of bank rating in prudential supervision**

Specific conditions for the development of the world and national economies in recent years have determined the growing interest of various persons and organizations associated with the activities of commercial banks in issues of assessing the quality of banking management. This topic turned out to be in demand both by state authorities, and by banking supervision and regulation bodies, and by the internal organizational structures of banks, and by their customers.

High-quality, competent, efficient and adequate banking management can not only resist the negative macro- and microeconomic factors that could potentially lead to bankruptcy, the collapse of a bank with poor-quality management, and not only neutralize them, but often even use them for their own purposes. Therefore, the presence of quality management in the bank is the main condition and a guarantee of its stability and efficient operation. In this connection, it becomes necessary to evaluate management, and, accordingly, a system of evaluation parameters and indicators. Management itself is an integral component of the assessment of banks in a number of rating systems.

Many assessment criteria, while being applied, are individual and exclusive, as the interests and tasks of appraisers can be exclusive.

Basel Committee on Banking Supervision defined 29 core principles that are needed for a supervisory system to be effective. Those principles are broadly categorised into two groups: the

first group (Principles 1 to 13) focus on powers, responsibilities and functions of supervisors, while the second group (Principles 14 to 29) focus on prudential regulations and requirements for banks. The original Principle 1 has been divided into three separate Principles, while new Principles related to corporate governance, and disclosure and transparency, have been added. This accounts for the increase from 25 to 29 Principles.

The primary purpose of uniform rating system is to help identify those institutions whose compliance with consumer protection and civil rights statutes and regulations displays weaknesses requiring special supervisory attention and which are cause for more than a normal degree of supervisory concern. To accomplish this objective, the rating system identifies an initial category of institutions that have compliance deficiencies that warrant more than normal supervision concern. These institutions are not deemed to present a significant risk of financial or other harm to consumers but do require a higher than normal level of supervisory attention.

The uniform identification of banks giving cause for more than a normal degree of supervisory concern will help ensure that:

- The degree of supervisory attention and the type of supervisory response are based on the severity and nature of bank’s problem;
- Supervisory attention and action are, to the extent possible, administered uniformly and consistently, regardless of the type of institution or the identity of the regulatory agency;
- Appropriate supervisory action is taken with respect to those banks whose compliance problems entail the greatest potential for financial or other harm to consumers.

### **3. Elaboration of methodology for assessing the rating of banks used in prudential supervision**

Recently, controversy has arisen around the rating analysis of banking activities. Numerous discussions are underway regarding which indicators should be included in a particular methodology, what specific weight should be assigned to each of them in the final rating, and whether this rating should be calculated at all. Some experts even suggest over time to completely abandon coefficient analysis, explaining their position by the low accuracy of existing methods and the negative impact of the analysis on the public consciousness (ratings - these are effective tools for both advertising and anti-advertising). Some analytical services take the opposite position and try to compensate for the inaccuracy of individual methods by attracting as many of them as possible. But both of them agree on one thing - it is necessary to significantly reform the rating methods to make them more accurate and objective. An analysis of the methods currently used in the Republic of Moldova demonstrates their methodological limitations: when issuing a comprehensive assessment, many factors affecting the work of a bank are not taken into account, one or another analysis method is incorrectly and unreasonably used, controversial conclusions are given when interpreting one or another indicator.

In the following table are represented some shortcomings and its solutions for the Moldavian methodology for assessing the rating of commercial banks:

**Table 1. Shortcomings and its solutions for the Moldavian methodology for assessing the rating of commercial banks**

<b>Shortcoming</b>	<b>Solution</b>
<p><b>Lack of reliable information</b>                      (The key conditions for conducting an effective analysis of the financial condition of the bank are the completeness, reliability and accuracy of the information used in the analysis. Moreover, each bank is directly interested in providing such information, since otherwise its rating will be deliberately lower than that of more open credit institutions.)</p>	<p>The urgency of the problem is due to the fact that the lack of reliable data leads to an underestimation of the problems of banks and can have dangerous consequences for the development of the situation. The reliability of the reports submitted by banks, as well as the adequacy of the risk assessment they take on themselves, should be checked both in the process of documentary supervision and in the course of inspection inspections, and the results should be used as an important source of information in the analysis.</p>
<p><b>The complexity of forming the optimal scorecard</b>                      (Currently, there are several hundred indicators that are used to conduct the analysis. Therefore, the compilers of bank ratings have a difficult task to select from them several of the most significant ratios, which together allow a comprehensive assessment of the financial condition of the bank and obtain a final rating.                      As a rule, the indicators included in the final rating are chosen intuitively, without providing a sufficient scientific basis for this choice. Weights of indicators are also determined on the basis of subjective assessments, and therefore the result can not always be considered correct.)</p>	<p>To overcome this drawback, it is necessary to use the means of economic mathematics. Factor analysis allows you to identify which factors have a significant impact on a particular statistic, and which should be discarded as insignificant. At the same time, within the framework of factor analysis, the problem of calculating the weight coefficient for each of the indicators included in the formula for calculating the final rating is solved.</p>
<p><b>Construction of forecast values</b>                      (Whatever technology the bank analyzes, its purpose remains to assess the condition of the credit institution not at the time of receipt of the source data, but in the future. Therefore, along with static information for a certain date, it is necessary to consider dynamic characteristics, which are designed to show in which direction the bank selected for research is developing.)</p>	<p>For this can be used the technique in which two final ratings are calculated, one of which is an assessment of the current state of the bank, and the second, calculated independently of the first, is a long-term assessment of its condition, expected in the future. The main advantage of this method of analysis is the ability to predict risk based on a study of the dynamics of both internal and external factors, which ensures high accuracy and validity of the result.</p>
<p><b>Application of an adequate grouping of banks</b>                      (Distribute banks into separate groups within which it is planned to rank using the rating.)</p>	<p>A promising solution for an adequate grouping is the use of cluster analysis based on selected factors. In this case, banks are automatically combined into homogeneous groups, which are significantly different from each other.</p>
<p><b>The bulkiness of the calculations</b></p>	<p>It should be noted that the construction of individual ratings requires the maintenance of a powerful apparatus for collecting information and conducting continuous monitoring of the studied population, which increases the costs of rating compilation (population clustering with the number of objects exceeding several hundred). This approach seems quite promising for an in-depth analysis of the banking system.</p>

**Source:** Elaborated by the author

The problem of constructing adequate methods for ranking banks is currently relevant for Republic of Moldova. In developed countries, a system for assessing financial stability and the effectiveness of banks has evolved over several decades, and its use in practice requires a certain level of managerial skill. Using any technique, the results of the analysis are subjective to one degree or another. Obviously, there is no universal methodology, and differences in approaches to building a comprehensive rating will remain. But this should be due not so much to a different level of familiarity with the technology of expert evaluation, but to differences in the rating systems of the importance of the indicators used, on the basis of which these ratings are compiled. The higher the qualifications of economists or managers, the richer and more versatile their experience in banking, the more accurate the conclusions made by them when analyzing the activities of the bank. The main direction of advancement in the field of building bank ratings is an open discussion and comparative assessment of existing methods as an effective tool for creating an adequate picture of the state of the banking industry as a whole and individual credit institutions.

The positive effect of applying the rating in the analysis of banks is obvious. Bank ratings are a factor in influencing the formation of a bank management strategy. To ensure the effectiveness of applying the rating in a study of the functioning of banks, it is necessary to highlight indicators of the quality of banking management.

**Indicators of monitoring the quality of banking management:**

1) Financial sphere

- fuzzy wording or multiplicity of floating or changing rates;
- drop in dividends or their sharp increase;
- an offer to clients to postpone the term for returning deposits without renegotiating contracts and corresponding compensations;
- very frequent issue of additional issues of securities;
- both sharp jumps and unreasonable inhibition of changes in levels of changing interest rates.

2) Operational sphere

- inability to maneuver operational rooms and personnel in extreme periods;
- large loans to enterprises under state or criminal control;
- unavailability or lack of developed schemes for overcoming problematic situations with the active participation of the bank;
- inadequate technical equipment.

3) Information sphere

- excessive confidentiality, difficulties in obtaining at least minimal information about the state of affairs in the bank;
- lack of a phased disclosure system for customers closely connected with the bank;
- with sufficient transparency of information about the bank, some of its complexity, in some cases, distortion and modification;
- requirements from customers to supply information not related to the need for a particular banking product;

- a significant discrepancy between the declared specialization of the bank and its real activities.

4) Organizational sphere

- use of exclusive charity events for advertising purposes;
- unreasonable hobby for construction and acquisition of representative assets;
- frequent changes in the composition of the board and board of directors;
- conflicts of the requirements of banking supervision rules.

The purpose of working with indicators is to get a signal about a possible problem, about the need for a modern, focused, in-depth analysis with a preliminary clarification of the essence of the situation, and at the same time initiate and activate information channels. <sup>37</sup>

As one of the directions of rating a commercial bank, we suggest using a methodology according to which factors integrated into three groups influence the comprehensive rating (CR):

- REF environmental factors (“health” of the banking system, size of the bank, resistance to macroeconomic crises, country risks);
- internal factors of RIF (market position, management, capital adequacy, profitability, asset quality, liquidity);
- factors of external support for RFOS, reflecting the likelihood of support from the state or owners in case of deterioration of the financial situation of the bank.

After calculating the main indicators of all groups, the bank is assigned a category for each of the indicators based on a comparison of the calculated values with the standard ones. Depending on the results obtained, a rating is formed. The formula for calculating a comprehensive rating is the sum of the ratings for each group of factors, taking into account their weight.

$$CR = 0.25REF + 0.65RIF + 0.10 RFOS \quad (1)$$

**Table 2. CR rating scale**

Points	Mark	Economic characteristics of the evaluated bank
5	High rating	A bank that has received this rating has a high degree of stability and the ability to timely fulfill all obligations.
4	Good rating	The bank is quite stable, the degree of financial stability is high.
3	Middle rating	The ability to timely repay your obligations is adequate. In the long run, difficulties are possible.
2	Bad rating	The financial condition of the bank is assessed satisfactorily, however, in the absence of external intervention or specific corrective measures for financial recovery, the probability of bankruptcy is high.
1	Default	The bank will soon go bankrupt or is already in the liquidation phase.

**Source:** elaborated by author on the basis of information presented in the: КУНИЦЫНА, Н.Н., Методика комплексной рейтинговой оценки коммерческих банков. Банковское дело 2014. [online]. Available: <<https://cyberleninka.ru/article/n/metodika-kompleksnoy-reytingovoy-otsenki-kommercheskih-bankov/viewer>>

<sup>37</sup> Оценка деятельности банка, рейтинговые системы. [online]. [cited 20 March 2020]. Available: <<https://www.rea.ru/ru/org/c/Kafedra-Finansovye-rynki/Documents/9.pdf>>.

Since the external environment is the economic space in which the bank operates, the following criteria are used to evaluate its factors:

- banking system health;
- relative pot size;
- economic risks of the country.

The health of the banking system is assessed by comparison with the reference indicators (in this capacity are the corresponding values of indicators in developed countries in crisis-free periods) of the following indicators:

- financing rate;
- inflation rate;
- GDP growth rate;
- percentage of liquidated banks in their total number
- dependence on other economies (defined as the ratio of external public debt to GDP).

The relative size of the bank is estimated by ranking domestic banks by quantitative indicators.

An assessment of a country's economic risks includes an assessment of capital outflows, a positive current balance, a decrease in foreign investment, and is determined based on an analysis of expert opinions according to which the country's risks grew in the period under review, which was associated with overcoming the consequences of the economic crisis. In conclusion, a composite rating of environmental factors is calculated - REF, which is an arithmetic average of the ratings of all indicators.

Internal factors can be divided into:

- 1) Quantitative financial
- 2) Qualitative non-financial

The financial indicators include standard indicators for the analysis of financial stability that characterize: bank capital adequacy, quality of its assets, profitability, liquidity.

Depending on the size of each indicator, it belongs to one of five groups, each of which is assigned a certain number of points (1-5). Ratings on indicators of capital adequacy and liquidity are assigned according to assessments of the level of mandatory ratios. An analysis of the quality of assets was carried out by comparing the volume of overdue assets to their total size.

To assess profitability, the following coefficients are used: ROE and ROA.

Qualitative indicators of the bank's activities include such basic characteristics as market positions, bank policy in the field of risk management.

For a rating assessment of a bank's market position, it is necessary to take into account market share and the development of a network of departments.

Assessment of the quality of risk management will depend on the magnitude of the various types of risks (according to the CAMELS methodology) in each of the analyzed periods

In conclusion, it is necessary to calculate the rating of internal factors - RIF, which is the arithmetic average of the ratings of all indicators.

The criteria for evaluating external support include:

- the amount of state funds held in bank accounts - funds from budgets of various levels;
- the share of funds invested in state financial instruments in income-generating assets;

- the share of funds received from counterparty banks in the form of interbank loans and deposits in attracted funds.

Thus, the proposed rating methodology allows you to calculate ratings taking into account environmental factors.

Ratings are a tool for timely diagnosis and analysis of the dynamics of the bank and contribute to:

- timely reduction of social and economic costs of crises;
- development of measures for their prevention and overcoming situations of instability;
- achieving and maintaining sustainability.<sup>38</sup>

At present, Moldavian methods are sometimes far from perfect: often use controversial judgments about the quality of a particular indicator, the analytical apparatus is not correctly applied, in general, many methods have a number of significant drawbacks.

In this regard, further research and development of rating assessment methods are important elements of the banking sector management system. Ratings are valuable not only for internal users, but also for external users, allowing them to realize the degree of reliability, stability, and trust in the bank.

#### **4. Conclusions**

The article is related to improvement of bank rating prudential supervision of the Republic of Moldova through EU best practices. Shortcomings of the Moldavian methodology for assessing the rating of banks and directions for improvement of rating methods used in prudential supervision. The following conclusions are presented:

- Prudential supervision presents one of the most important mechanisms by which national authorities contribute to ensuring financial stability, implicitly the banking one. Mission of the supervisory is to prevent the manifestation of systemic risk through careful and efficient monitoring of banks, in order to ensure the stability and viability of the banking sector as a whole.
- Some principles of good rating system are derived: comprehensiveness, completeness, complexity, pod-definition, monotonicity, fineness, reliability, back-testing, informational efficiency, system development, data management, incentive compatibility, internal compliance, external compliance.
- Shortcomings for the Moldavian methodology for assessing the rating of banks: lack of reliable information, the complexity of forming the optimal scorecard, construction of forecast values, application of an adequate grouping of banks, the bulkiness of the calculations.
- To ensure the effectiveness of applying the rating in a study of the functioning of banks, it is necessary to highlight indicators of the quality of banking management (financial sphere, operational sphere, information sphere, organizational sphere). As one of the directions of rating a commercial bank, we suggest using a methodology according to which factors integrated into

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<sup>38</sup> КУНИЦЫНА, Н.Н., Методика комплексной рейтинговой оценки коммерческих банков. Банковское дело. 2014. [online]. [cited 20 March 2020]. Available: <<https://cyberleninka.ru/article/n/metodika-kompleksnoy-reytingovoy-otsenki-kommercheskih-bankov/viewer>>.

three groups influence the comprehensive rating (CR): environmental factors, internal factors of and factors of external support.

Banking sector is one of the large sectors in the Republic of Moldova. Today's banking sector becoming more complex. Evaluating Moldavian banking sector was not an easy task. There are so many factors, which where need to be taken to differentiate banks.

One of the major objectives of a central bank is to prevent systemic risk by promoting efficient banking monitoring, which will contribute to achieving the stability and viability of the entire financial system. When applying the rating method, the supervisor uses information of a qualitative and quantitative nature to assign a rating to the bank, which will make it possible to predict the ability of the bank to fulfill its obligations in the future. It is necessary to solve the problem of ensuring the reliability and uniformity of the information used in determining the ratings of banks.

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## THE ROLE OF FINANCIAL ENGINEERING IN BANKING

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***Abstract:** This article analyzes financial engineering from the point of view of its place and role in the development and optimization of the banking system from the perspective of increasing the efficiency of its activities. As a methodological basis, a set of general scientific logical and heuristic methods was used - analysis and synthesis, induction and deduction, the principle of interdependence; as well as a comparative method that allows a synthetic study of economic concept of "financial engineering". Also, this article mentions the need to use financial engineering products and useful tools in banking, as they allow increasing of liquidity, reducing activity risks and attracting new customers. The impediments to the development of financial engineering in the banking system of the Republic of Moldova are analyzed.*

**Keywords:** banks, financial engineering, innovative banking, efficiency of banking system.

**JEL Classification:** G15, G21

**Introduction.** The development of technology in the 21st century is carried out exponentially. Technology and customer needs in the financial sector are changing rapidly at both the micro and macro levels, as evidenced by the development of industries such as financial engineering. We live in a time of total data collection, the skillful use of which can lead to an improvement in the quality of life for all people, as well as bring huge profits to those who can use it. The tools of computer science, economics, finance and engineering are merging on an unprecedented scale. The importance of financial engineering in the modern world is growing. It is used by investors and major financial institutions such as banks, insurance companies, etc. Choosing the right financing model for a new project today can decide the fate of billions of dollars of investment.

One of the factors that contribute to the development of the banking system is the development and implementation of new banking technologies. However, innovations in banking include not only technical developments, but also the introduction of new forms of business, methods of working on the market, new products and services, new financial instruments, that is, all the results and products of financial engineering.

Many key points of financial engineering have not yet been explored. So, although there is no evaluation of the economic efficiency of financial engineering in banking, there is no consensus on the goals, principles, functions of financial engineering and clear recommendations for the formulation of the concept of financial engineering, which indicates the lack of a developed methodological basis for the development and implementation of financial engineering products in banking practice.

All these points confirm the relevance of the research subject and its disputability.

**Subject.** According to some opinions, financial engineering is a derivative concept in relation to engineering and is closely related to innovations in the financial management of the company.

According to D. Finnerty, financial engineering includes the design, development and formation of a creative individual solution to problems in the field of finance (Finnerty, J.D., 1988).

D. F. Marshall and W.K. Bansal mentions that "Financial engineering includes the design, development and implementation of innovative financial tools and processes, as well as the search for new approaches to solving financial problems" (Marshall, D.F. *et al.*, 1998).

From the point of view of the financial market, the term "financial engineering" is used to describe the analysis of data collected on this market through the scientific approach (Hoda, A. I., 2013).

According to the International Association of Financial Engineers (IAFE), financial engineering is defined as the application of mathematical methods to solve problems in the field of finance (Koo, H.K. 2011).

I. A. Blank defines financial engineering as a process of developing new financial instruments or new procedures for carrying out financial transactions (Blank, I. A., 1998).

According to Russian researchers, financial engineering means the development of a financial management system and the minimization of financial risks ( Ropoport, B.M. *et al.*, 2001).

S. Ross noted that financial engineering is a technology for managing financial risks on the futures stock market with the help of hedging operations (Ross, S., 2000). In addition, financial engineering is understood as the combination or separation of existing financial instruments for the purpose of creating new financial products.

Modern approach define financial engineering or as "solving the problems of improving the efficiency of financial activity and reducing financial risks through not only the design of new products, but also the effective use of various combinations of existing financial instruments to achieve the goals set in the interests of the participants." in financial relations, regardless of the organizational legal form and the scope of their activities" (Bařînkina, H.P., 2000) or as "a process that adapts existing financial instruments and processes and creates new ones to allow financial market entities to adapt most effectively to a changing environment" (Ivanova, O.V., 2011).

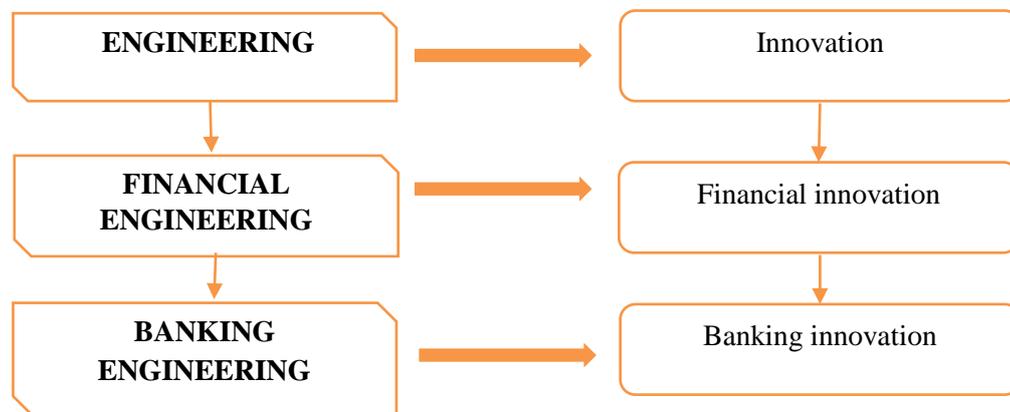
So, researchers in the field have been addressing the issue of determining the essence of financial engineering since 1985, and this topic has not lost its relevance to this day.

The analysis of the existing concepts of financial engineering allows us to distinguish two types of activity inherent in it:

- development of new financial products;
- improving the efficiency of financial activities, including by minimizing risks.

Given the events of recent years, it can be argued that financial engineering is of particular interest to banking institutions. Financial innovation in the form of new financial and investment products and the development of effective risk management procedures are essential for the viability of banking institutions in the light of recent developments.

According to the analysis of literary sources, in foreign practice, as a rule, they do not highlight a separate concept of "banking engineering". According to Fig. 1, banking engineering is considered as a derivative of financial engineering.



**Figure 1. Connection and links between engineering and innovation**

According to Figure 1, banking innovations are analyzed as a separate group arising from financial ones, which is true, since banks are financial institutions that develop and implement financial products, including innovative ones.

In our opinion, separating the category "banking engineering" from financial engineering, we observe a specific concept with its own unique structure and composition. After all, on the one hand, banks are active participants in the financial market and use the tools of the stock, foreign exchange and money markets to minimize risks and maximize profits at least by reducing costs, which is essentially the purpose of banking engineering, and on the other hand, banks have specific products that can be generated and implemented exclusively by them, and therefore we can highlight a particular theoretical methodology and practical outline for their implementation, which confirms the existence of a special field of knowledge such as engineering banking.

The design of new banking products to meet the increased requirements of banks and their counterparties in terms of profitability, liquidity and risk management seems to be the dominant direction in the development of the banking system at the current stage.

Banking engineering as an economic concept reflects, on the one hand, the process of design, development and practical implementation of innovative competitive business tools, products and processes, and on the other hand, mastering the method of a systematic approach to economic processes in the context of creative search and solving the relevant problems of banking practice. The essence of banking engineering is the creation of innovative banking products and services that are used by banks to redistribute financial resources, risks, liquidity, profitability and information in accordance with their own interests, the specific needs of counterparties and macro-level changes and the bank's environment.

The main goal of banking engineering is to extract additional profit based on the skillful use of market "white spots" (free segments and imperfections) by achieving an optimal balance between competing characteristics (risk, profitability and liquidity) in innovative banking products.

Thus, banking engineering faces the target tasks of designing such parameters of a banking product, in which, on the one hand, the structure of the banking product and the cash flows generated by it correspond to the greatest extent to the main interests of the issuer, and on the

other hand, the maximum possible investment attractiveness of the product is guaranteed, which is ensured by the best ratio of risk, profitability and liquidity of the product created. This goal is achieved through a reasonable choice and careful design of each individual parameter of a banking product, which requires the skillful application of certain banking engineering methods and the use of its tools.

Based on the identified objectives of banking engineering, its areas of functional responsibility are segments of banking activities related to risk management, development and implementation of speculative strategies when trading securities, financial derivatives and, most importantly, innovative banking products.

Banking engineering, acting as the art of creating innovative products, expands the possibilities of managing liquidity, risk and profitability of banking operations. This is a multifaceted way of solving problematic tasks related to the formation and movement of monetary capital.

Banking innovation justifies its design if it satisfies the interests and needs of at least one of the parties - the buyer or the seller. It can be a higher return for an investor or a lower cost of capital for an issuer, a reduction in the tax base, circumvention of regulatory requirements, hedging of risk - in a word, all those aspects related to intra-banking activities. At the same time, the benefit of the innovation should exceed the costs of its creation and promotion, or at least be equal to them.

In the banking market, investors' doubts are even more acute: firstly, in the absence of a circulation history of any innovative banking product, the expected credit risk for it is high; even a good reputation as a borrower does not always mean minimal credit risk; secondly, in the early stages, the liquidity of the innovation market is very low: what kind of liquidity can we talk about if the market is just forming? In addition, many banking innovations are difficult for potential investors to understand. First, it can be difficult for an investor to assess the benefits of using a novelty; second, to understand the honesty of the transaction, to assess the risks assumed as a result of such a transaction. Often an investor or issuer does not use an innovation simply because they are not aware that they could achieve the same financial results at a lower cost. Investment banks are not, in principle, obliged to inform clients about the best investment alternatives (in particular the alternatives of their competitors). In many cases, companies could find a better investment solution, but face transaction costs, information gathering costs, and legal restrictions that prevent them from taking advantage of the better opportunity. These circumstances make it possible for banking innovations to be called an experience commodity. Innovations must be used before their benefits become apparent to most consumers.

The guarantee of the effectiveness of banking engineering is adapted to the conditions of banking realities, considering its consideration as a process that successively goes through the following stages:

**Following the first stage**, the issuing bank of an innovative product must determine the target settings for which the banking "magic" is performed. These may include, first of all, the mundane extraction of additional profit in various forms (margin, issue premium, commissions for opening and maintaining a credit account, etc.). By "launching" an innovative banking product, targets for improving the liquidity management of the issuing bank, accumulating additional loanable resources and increasing the bank's capitalization can be achieved. The bank can also, as

a sub-objective of the introduction of a new product, propose the securitization of the most problematic assets to "disperse" credit risks to third-party investors.

**At the second stage**, the specific needs of potential counterparties are analyzed, which can be expressed in the following forms: the need for attracted borrowed resources; reduction of different types of risk; ensuring the liquidity of the counterparty's debts and assets; optimization of equity management (attracting new capital investors, maintaining a controlling stake, mergers and acquisitions of new enterprises); making a profit through a highly profitable asset allocation; taking into account legislative restrictions in banking activities (legal reduction of the tax base, exceeding restrictions in settlements with counterparties, exceeding restrictions in the circulation of capital).

**The third stage** of the banking engineering process provides for a complete risk assessment by type, level, required assessment methods and financial consequences for the bank and counterparty from the introduction of an innovative banking product. To implement the requirements of this stage, a group of methods is used. The assessment of the possibility of losses, based on the theory of probability and extrapolation of past events (past experience) to the future, has become widespread.

**In the fourth stage**, one or more alternative banking products (or their various combinations) are selected. As a rule, at this stage, several banking products (financial instruments) are selected, their various modifications are taken (or an "idea" is created that includes what a new banking product should be, how it should work and what tasks they should solve).

**The fifth stage** of banking engineering is designed to solve the problem of compliance of the innovative banking product with the procedures and methods of internal risk control in the bank, i.e. testing "coexistence" with the system of banking relationships. Based on the analysis carried out, certain adjustments are made either to the instruments of the newly created banking product or to banking risk management. As a rule, banking engineering tools depend on the bank's risk management strategy. Risk tolerance can be aggressive, moderate or conservative, which sets certain limits when creating an innovative banking product.

**At the sixth stage** of banking engineering, the problem of assessing the ratio between risk, profitability, liquidity and opportunity costs is solved when choosing the necessary banking instruments. Regarding the loan portfolio, relatively speaking, the most suitable, most diversified portfolio of assets is selected from a variety of reporting options. Possible opportunity costs are taken into account when creating an efficient portfolio (for example, obtaining loans from various credit institutions). The "time horizon" of the portfolio and its liquidity opportunities in the event of a change in the economic situation (errors in the choice of a portfolio, increased costs, etc.) are analyzed. If we are talking, for example, about a loan portfolio, the possibility of its securitization is taken into account.

**The seventh stage** provides a scenario analysis of the introduction of an innovative banking product. Banking activity is subject to the influence of several factors, which predetermine the multivariate nature of its development. Therefore, the bank must be able to predict the future of the newly created product when the external environment changes.

**In the eighth stage**, the alternative consideration of financial derivatives ends with the final choice of a banking product. Most often, this choice is made by a group of experts who evaluate

various factors and test a new banking product. Then the final decision is taken by a series of collegial bodies of the bank: legal, technological, credit, investment and financial committees.

**The ninth stage** of banking engineering involves organizational measures within the bank to create an innovative banking product: the allocation of financial and labor resources; the selection of authorized departments of the bank for the creation of a new product, the approval of their interaction procedure in the areas of responsibility of each one; drawing up a work program for the creation of an innovative banking product; drawing up the necessary documentation and accounting "schemes"; the "launch" of the newly created product in the current banking practice.

**The tenth stage** of bank engineering (selling), due to its record, should not be considered.

**At the eleventh stage**, the banking product is supported, its market is supported. There are times when a product needs to be supported in the market, for example, the share price, through a quotation system, a sales support system. Therefore, the bank is obliged to monitor the product on the market and, if necessary, make adjustments to it, of course, if possible.

Thus, the proposed banking engineering methodology is based on the sequential passage of eleven stages and can be used in all spectrums of banking activities for the production of a bank-specific "product" - an innovative banking product.

**Conclusions.** Today, in the economy of the Republic of Moldova, the banking sector is the key institution that can give a tangible boost to the innovative development of the country's economy.

Since the process of generating innovations is constant and practically continuous, we cannot talk about the list of innovative products of domestic or foreign banks as some kind of constant. Moreover, the banking systems of some countries are at different stages of development; therefore, innovations for some may be the services and products of other, more economically developed countries, which have long been used in banking practice and have become traditional.

Currently, in the domestic banking system, the use of financial engineering is at an embryonic and practical stage for risk assessment, asset and liability management, financial planning, portfolio optimization, etc. Therefore, a unified approach is required to ensure real and stable growth of the banking industry, which becomes possible due to the merging of financial engineering methods with the basic principles and strategies of banking management.

However, there is no single methodological framework regarding the development, training and implementation of banking innovations. And this creates problems and hinders the development of internal banking engineering. In our opinion, the reasons that prevent the development of financial engineering in the country can be divided into 3 groups:

- social (low level of real income; low interest in savings; low level of financial literacy and low susceptibility to learning; increase in the proportion of citizens of retirement age, etc.);
- economic (price volatility, economic stagnation, contradictory and declarative provisions of strategies and concepts of economic growth for the future, etc.);
- legal (weak regulatory framework for the protection of property rights; the need to optimize the financial law system, etc.).

According to the study, financial engineering is a process of producing financial innovations and banking engineering is a process of producing and adapting banking innovations. Obviously, it is impossible to produce banking innovations without affecting the financial sphere of relations,

which once again confirms the conclusion about the derivative nature of banking engineering in relation to financial.

Consequently, national banks must more actively implement the results of financial engineering in their current activities.

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## TRENDS IN THE DEVELOPMENT OF THE WORLD BANKING SYSTEM IN THE CONTEXT OF GLOBALIZATION

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**Abstract:** *At the beginning of the 21st century, the world economy entered a qualitatively new stage of its development, one of the main characteristics of which is the active development of the processes of financial globalization and integration of financial markets. The interdependence of the financial and banking systems of different countries is increasing significantly, which makes them more open and at the same time vulnerable to global crises.*

*The aim of the research is to analyze the changes made in the banking system following the globalization process and their usefulness for increasing the competitiveness of commercial banks.*

*Research methods. A systematic approach and economic-statistical methods were used.*

*In the context of the globalization of the world economy, banks with competitive advantages, experience and financial capabilities are expanding abroad, contributing to the transnationalization of banking activities and bank capital, the consolidation of financial and credit institutions and the increase of competition in the banking sector.*

**Keywords:** banking business, digital transformation, globalization, commercial banks, financial ecosystems, fintech companies

**JEL Classification:** M40, G21, F62

### 1 INTRODUCTION

The transformation of banks took place throughout the entire period of their development, but in recent years, the changes in banking business under the influence of digital technologies have become the most radical.

The trends of recent years have generated the transformation of leading innovative banks into the largest IT companies. In this regard, banks are willing to drop the use of the word "bank" in their name (although this is contrary to current legislation). The management of the bank justifies this step by saying that the activity of their credit institutions no longer corresponds to the traditional concept of a bank.

In the definitions of the concept of "bank" in the economic literature (table 1), the uniqueness of the bank is presented, the exclusivity of its role on the market of financial services, including its special

role for the entire state, consisting in the redistribution of capital from surplus centers, in rare cases, with a significant reduction in transaction costs (speaking of the bank, as a financial intermediary).

**Table 1 The conceptual approach of the "bank"**

Authors	The essence of the concept
<p>Portfolio theory in relation to the study of the essence of banks is reflected in the works of J. Wood, T. Avrileschi and R. Schweitzer, F. Edwards.</p>	<p>Banks in the portfolio theory are producers and sellers of financial services. According to this concept, banking products and services form a portfolio of the following main components:</p> <ul style="list-style-type: none"> <li>– transactional services — settlement services for economic agents and economic turnover;</li> <li>– deposit and credit services;</li> <li>– investment services, including asset management services;</li> <li>– documentary and guarantee operations.</li> </ul> <p>Portfolio theory is based on the idea of diversifying investments between deposit-loan and investment products, taking into account the inverse relationship between the market interest rate and the yield on fixed-rate debt securities. The desire of banks to diversify their asset portfolio when conducting their activities in various sectors of the financial market leads to a reduction in the risks of working through intermediaries.</p>
<p>De Kussergue</p>	<p>A bank is "a kind of universal category that combines an enterprise or institution, a field of activity, a sector of the economy and a special profession".</p> <p>De Kussergue characterizes the bank as a kind of superstructure in the economy, endowing it with features of universality, without mixing with all other market participants, going even further than E. Reed (and his statements about banks as a "banking industry"), highlights banks as a separate sector of the economy.</p>
<p>J. Sinki</p>	<p>J. Sinki considers the essence of a commercial bank as an information processor, that is, an information processor. This view is due to the fact that, in the course of their activities, for a better placement of their assets, banks must collect and analyze sufficiently complete information about their potential borrowers. Furthermore, Sinki believes that "in fact, the existence of commercial banks can be explained by their ability to efficiently extract information about a particular borrower"</p>
<p>I. Fisher, M. Miller</p>	<p>A bank is a firm that ensures rationalization between consumption and savings, helping customers, savers and investors to implement various models of the consumer saving process, and at the same time performing an important socio-economic function.</p>

**Source:** Isaev (2011), Sinki, J. (2017)

### **MATERIAL AND METHOD**

In the modern world, the role of the bank began to gradually transform: its functions have become less exclusive. Today, banks are no longer the only holders of unique information, and thanks to the development of financial engineering and financial instruments, transactions are concluded without bank intervention, an example of which can be "full contracts" offered by non-bank financial intermediaries.

In recent decades, there has been a scientific discussion about the complete cessation of the existence of banks, and the phrase said by Bill Gates back in 1994 that the world needs banking services, but not banks itself (9), has become widely known. However, we adhere to the view that as it stands, the banks will exist and perform their functions.

Banks are not only intermediaries; they also have a reputation earned over the years and act as guarantors that the rights of their customers will not be violated. The latest trends in the interaction between banks and other economic agents serve as confirmation of the above.

The rapid development of modern digital technologies not only contributes to the emergence of new competitors on the financial market for banks - high-tech financial companies, but also forces the banks themselves to develop and implement innovative technologies, gradually turning them into IT companies with a banking license.

As Forbes magazine writes, "... new technologies will lead to a change in the role of banks themselves, which seek to become more personalized and mobile" (13). At the same time, it is emphasized that with the digital restart of financial industry institutions there should be a restructuring of business processes, as well as a change in the perspective of employees, which makes digital transformation also a professional transformation. Forbes concludes that companies should now think about transforming the culture within the organization as a whole and creating an environment of trust that strikes a balance between adequate security controls and an acceptable risk of using the latest technologies.

Moreover, not only banks, but also other economic entities face the need to rethink their activities.

Klaus Schwab believes that the basic principles of the fourth industrial revolution should be the investment in knowledge and people, as well as the application of new management approaches (Schwab, K. 2016, p. 266). In addition, he notes the following areas relevant for development:

- development and implementation of technologies taking into account promising opportunities;
- interacting with service consumers and regulators to create a future that takes into account the interests of all stakeholders.

All this can be fully attributed to the bank, because a modern bank is a commercial enterprise that produces specific financial products. However, some scholars attribute the role of innovators to banks. In particular, scientists from the Swiss Institute for Financial Education demonstrate that as society began to rely on information technology, the development of industries such as banking became a locomotive and growth potential for the entire global economy in the century XXI. At the moment, in the context of the transition to the digital economy, the role of banks becomes even more important: they, according to Western economists (Auge-Dickhut, S., Koye, B., Liebertrau, A. 2016), are able to ensure global economic growth. They support their arguments with the fact that, in the theory of Kondratiev cycles, the greatest economic growth, at each stage of the development of the world economy, has been provided by technological innovations.

Consequently, the question arises about the need to clarify the very concept of "bank". The bank at the current stage of development is a technology company that has a license to carry out

banking activities, which actively enters into dialogue and cooperation with partners that perform similar functions or hold the same consumer segment in the financial market.

At the same time, we understand that not all medium-sized banks or small banks can follow the path of large banks that create financial ecosystems and turn into IT companies, but they can enter into partnerships with other banks and fintech companies.

The founder of the modern concept of banking transformation is B. King, a recognized American banker-innovator. In his book "Bank 2.0. How consumer behavior and technology will change the future of financial services" (King, B. 2010) predicted the end of the era of traditional (classical) banks. Subsequently, the concept of banking transformation was developed in his next book "Bank 3.0" (King, B. 2012).

The second study by King B. showed the unlimited possibilities of modern technologies, their availability to many participants in the financial market, who become full competitors of commercial banks in the field of creation and promotion of innovative financial services and products.

The concept analyzed by B. King is reflected in methodological and methodical developments of scientists and practitioners involved in problems of transformation of the bank's business model, management model and problems of creating the bank's financial ecosystem. For example, Isaev R. A. approaches the definition of the activities of a modern bank from the position of business modeling, Vasilyeva T. A. considers the relationship of the external environment with the activities of the bank, emphasizing the expansion of channels of interaction with customers as technologies develop (see table 2).

**Table 2 Characteristics of bank activity: conceptual approaches**

Bank type	Activity characteristics		
	King B.	Isaev R. A.	Vasilyeva T. A.
"Bank 1.0"	It is a financial institution with a traditional organizational structure based on a network of branches. At the same time, the Internet, call centers and ATMs are considered "alternative" channels related to the bank's non-strategic functional divisions.	A traditional or conservative bank that does not sufficiently practice the application of modern technologies, methods and standards. The management system lacks a description of business processes and a detailed long-term development strategy. Risk management is ineffective. Automation is not used. Distribution channels and products are not designed around customer needs. There is no incentive system.	A bank that uses a classic business model that focuses on close customer relationships and involves serving them in branches. The bank offers standard services such as checking an account and withdrawing cash, accepting deposits and granting loans.
"Bank 2.0"	A financial institution whose activities are based on a deep study of the consumer behavior of customers and the use of innovative technologies aimed at maximizing their satisfaction.	A credit institution with an average level of development, in which all business processes are described, a management system is in place, market trends are taken into account and technologies are introduced. The staff is motivated. In general, the level of service meets customer needs and existing standards.	A bank whose services are associated with the use of an online environment that can offer virtual services that significantly increase the gap between it and the consumer of banking services.

"Bank 3.0"	The new model of the bank as a combination of three main aspects: <ul style="list-style-type: none"> <li>• mobile technologies,</li> <li>• social networks,</li> <li>• behavioral game models.</li> </ul>	A bank that has moved on to innovative development, serving its customers at the highest level. There is a full-fledged systematization of business processes; the strategy has been developed in detail at all levels. Technologies are constantly being developed and implemented. The KPI system is used. Management actively encourages employee initiatives.	A bank that has made a digital transformation, including automating processes and moving from front-end activity to digital channels.
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**Source:** Isaev, R.A. (2011), King, B. 2018, Vasilyeva, T.A. (2016)

Taking into account the technological drivers for changing banking concepts and supplementing the study of Vasilyeva T. A., taking into account the release of the final book in the digital banking series by King B. "Bank 4.0. Banking everywhere, but not in banks" (King, B. 2018), we confirm the inevitability of a complete transformation of banking activities in an unstable global environment, which becomes an increase in the consumer's digital life and moves from the multi-channel principle to the omni channel principles, that is, the large-scale distribution of banking services and integration into the customer's life for to meet his financial needs (see table 1.2.)

**Table 3 Technological drivers and transformation of banking services**

The concept	Period	Technological drivers	Banking services
"Bank 2.0"	1970-1980	ATMs	– cash withdrawal and execution of standard banking operations by ATM; – ATM distribution in cities. The masses are beginning to interact with a machine instead of a person to receive banking services.
	1990-2000	Internet	– it becomes possible to use remote access to accounts – reliable and user-friendly interfaces appear Eliminates the need to leave home for a variety of banking services and transactions
"Bank 3.0"	2000-present	Smartphones that support banking transactions Cloud technologies, big data, Internet of Things	– applications for payments, transfers and account access (details); – some banks offer deposits by providing a photo from a mobile camera; – applications act as ATMs. Further elimination of the need to visit bank branches to use banking products and services.
"Bank 4.0"	Future time (next decade)	Artificial intelligence, augmented reality.	– with the help of artificial intelligence, banks become financial advisors and assistants to their clients; - the use of augmented reality technology in the banking field. Full integration of banking services into a person's life by adding to their digital life; ubiquitous channels of communication with the client.

**Source:** elaborated by author based on King, B. (2010, 2012, 2018)

## RESULTS AND DISCUSSION

The key trend in the development of modern banking services is internet platforms that allow managing the purchase (sale) of financial products without visiting a bank office. Today's customers do not want to contact the bank, they include communication with the bank in the process of obtaining real products and services, focusing on the convenience of its mobile applications, access through them to certain stores, etc.

Accordingly, the transformation of banking in the transition from Bank 2.0 to Bank 3.0 lies in the fact that customers choose a bank that they can completely entrust with the provision of their financial transactions, while not contacting it directly. That is, the main task of the bank is to establish contacts with partners and adjust the technology of the transaction processes of their common customers. With the transition to Bank 4.0, the transformation takes the form of a qualitative leap in the development of mankind and comes close to solving the problem of creating and interacting with artificial intelligence.

The author's view on the characteristics of banking activities when changing the above named concepts is presented in table 4.

**Table 4 Characteristics of the bank's activities in a global environment**

Bank type	Activity characteristics
"Bank 1.0"	The bank uses a traditional business model and is based on classic management principles. It plays the role of the most important financial intermediary and ensures the needs of the state, corporations and the population, providing standard services.
"Bank 2.0"	The bank is still based on classic principles, but is expanding its channels to bring its services to the consumer through the development of online and mobile banking.
"Bank 3.0"	The bank begins to interact with partners, forming ecosystems and building a value chain around the customer, and also increases the efficiency of its activities by automating processes.
"Bank 4.0"	A bank is a tool embedded with the help of technology in the daily life of a customer to meet his financial needs. The involvement of the bank in the consumer's life helps him make informed financial decisions, including with the help of artificial intelligence (in the future).

**Source:** elaborated by author based on King, B. (2018)

It is possible to distinguish the following advantages of globalization for the economy and business (12):

- liberalization of external economic ties;
- transnationalization of capital and production;
- regional economic integration;
- internationalization of economic life;
- unification of rules of economic life, creation of a system of international regulation of international relations.

The concept of globalization 4.0 was created by Klaus Schwab – German economist, founder and long-term president of the World Economic Forum in Davos. The introduction of this concept is connected with the transition to Industry 4.0 (due to the IV industrial revolution, which

opens the possibility of digital production, controlled by artificial intelligence and not limited to the scale of one enterprise) (Schwab, K. 2016).

Globalization 4.0 must offer a new idea to replace the aggressive neoliberalism of the last few decades. Necessary more cooperation between governments to rewrite the rules of trade, wages and taxation. Only then can it be guaranteed that globalization 4.0 will benefit ordinary people (11).

Finance, according to McKinsey (10), occupies the third place after information and communication technologies as an area that demonstrates a fundamental change due to the action of a paradigm shift, and Big data played an important role here. The fundamental nature of changes in finance under the influence of Big data is based, in particular, on the demonopolization of the financial sector, connected, among other things, with the appearance of new participants in the financial market, who today have access to such data, which, it would seem, were the exclusive property of traditional players financial market. Necessity of decentralization of regulation of the financial market under the influence of blockchain technology, which is also connected with Big data, is the second cause of fundamental changes in this area.

Let us give specific examples of changes in the banking business under the influence of Big data. These are primarily the following areas:

- open banking (Open Banking);
- remote identification of clients and biometrics;
- development of interbank communications: for example, the introduction of new messaging standards by the SWIFT interbank payment system in 2018-2019, associated with an attempt to increase competitiveness in the context of the development of cloud technologies and blockchain.

Thus, both at the level of individual industries, considered on the example of banking, and at the level of countries and economic associations, instability reigns. Globalization, coupled with the information revolution, increases the influence of political factors, namely, each political decision on the economies of countries through international business and exchange rates. In addition, the economies of countries (including the area of finance) are also interdependent, which creates additional risks. Moreover, today countries are faced with completely new phenomena and challenges, such as big data processing, the emergence of new participants in the financial market, which are also sources of risk, including due to the fact that there is still no experience in mastering these phenomena.

The transformation of a bank is a complex and expensive process that requires additional investments from the owners of a credit institution and high professionalism of the bank's management.

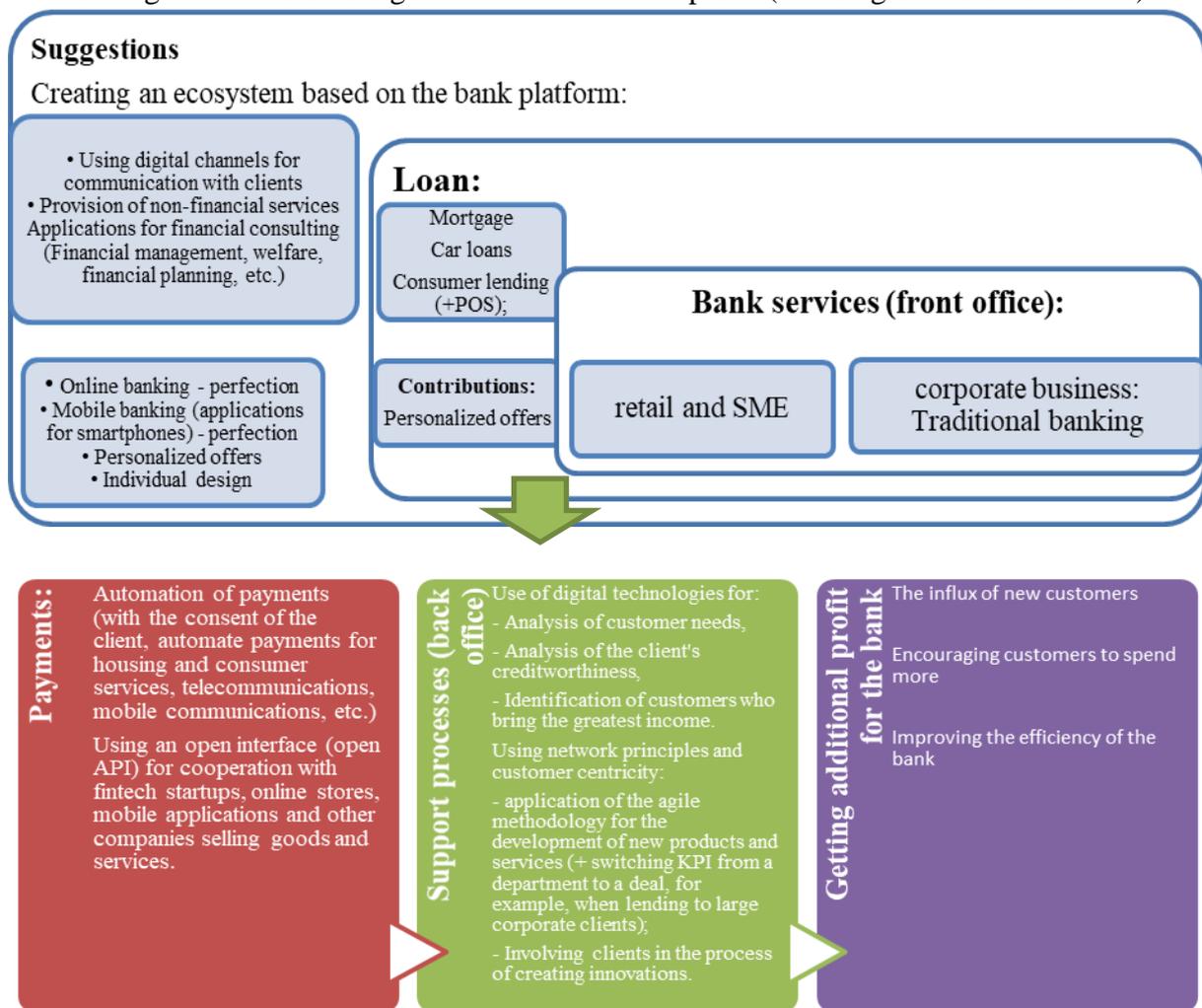
We aim to achieve digital transformation both in the bank's front and back office. Since most lenders are universally licensed banks, it is recommended to start with the retail and SME segment to access the niche most affected by digital trends, but without taking significant risks.

In figure 1 it is presents the proposals for using digital technologies to increase customer loyalty towards banking services.

Digitization of support processes will help the bank increase efficiency by using digital technologies when analyzing customer data, and an open interface will bring new customers to fintech companies. Thus, digital transformation is capable of turning competitors for banks into partners.

Obtaining additional profit is achieved by the bank through:

- a) attracting new customers (customers of partner companies, fintech startups, application users);
- b) encouraging the customer to consume more (apps, car payments, online platforms);
- c) improving the efficiency of the bank by reducing transaction costs for staff, reducing outstanding debts through a more accurate analysis of the customer's creditworthiness and understanding which customers generate the maximum profit (focusing on these customers).



**Figure 1.** The proposals for using digital technologies to increase customer loyalty

**Source:** elaborated by author

## CONCLUSIONS

Today, there is an active implementation of the "Industry 4.0" concept in the banking sector, manifested in the creation and development of banking ecosystems. This direction has more effective prerequisites for development than in many other national sectors of the economy, so it is the banking sector that has all the grounds for strengthening existing trends in the implementation of the elements of "Industry 4.0" and the formation of positive experience in the organization of highly effective digital management systems. However, along with the advantages obtained from the creation of ecosystems by banks, there are a number of problematic points that require control and regulation already at the state level to preserve market conditions in the banking sector.

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## **BASEL IV —THE NEW PARADIGM OF BANKING MANAGEMENT**

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***Abstract.** The purpose of international banking regulations is to provide bank management with guidance on ensuring financial stability. This can be achieved by increasing the bank's financial capacity and by forming the bank's financial reserve base. All of this is aimed at covering possible losses that may occur at the bank and avoiding damage to the banking clientele and the entire banking system. The research methods will be description, comparison, synthesis. As a result, we will elucidate the impact of Basel IV on banks.*

**Keywords:** banks, customers, regulation.

**JEL Classification:** D02; G21; G28.

### **INTRODUCTION**

Banking crises are often systemic in nature caused by the interconnection of financial institutions and mechanisms, including banks, derivatives, counterparties, direct link to consumption, investment decisions, public spending, organizations and individuals.

Banking crises are usually associated with severe economic shocks and recessions. This is why the state regulates the amount of capital that banks are obligated to hold and maintain, and demands prudential requirements on bank corporate governance, including liquidity management, accounting, auditing and lending practices.

The global economic crisis of 2007-2009 bankrupted several major global banking players, suffice to remember the investment bank Bear Stearns or Lehman Brothers. Many world-renowned banks have needed recovery plans, we can mention just a few of them: Freddie Mac, AIG and Fannie Mae.

In response to the financial markets crisis, which began in 2007, the Basel Committee on Banking Supervision has substantially revised its existing regulatory, supervisory and risk management framework for the banking sector.

As a result, the crisis transformed and forced banks to rapidly restructure their business models, and changes and adjustments to the Basel Accords have become imperative.

The first stage of changes are significant modifications to legislation.

The second stage of transformation relates to the rapid development of technology. The gap between banks is widening as new technologies are introduced and staff are transformed to meet customer requirements.

Banks, in recent years, have been focused on regulatory capital requirements based on the risks they take. This has strengthened banks' balance sheets as they have been forced to change the nature of their risk-taking and refocus on other activities.

Banks also need to have sufficient liquid assets to withstand longer periods of stress, i.e. a more stable funding base, new liquidity metrics - LCR and NFS - are introduced.

Banks are supposed to more rigorous monitoring by supervisors and must develop recovery plans (scenarios) for potential crises.

Banks emphasize and further separate the corporate and retail segments of their business models to protect the interests of depositors.

And customers can see the changes taking place in various areas. Banks are relying more on electronic channels, which are also being forced by the consequences of the COVID-19 pandemic crisis. There is a decline in the volume of transactions at the bank counter, which led several banks to close more branches. Thus, as a result of the changes it is attested that due to the reduction of bank counter operations, the number of bank front office staff has been reduced, instead the number of staff dealing with control, technology and compliance has increased.

Another change related to the activity of banks, especially those in the Republic of Moldova, is that banks, in their asset portfolio, focus not only on lending operations, but also invest in government bonds.

Start-ups - technologically advanced fintech companies - are emerging on the market, becoming strong competitors to banks and offering quality services at lower costs. Other fintechs are interested in partnering with banks where they come up with solutions to various narrow but pressing problems.

To face their competitors, banks will have to go through a significant transformation and develop new skills.

Banks will have to retrain their staff, including by improving technological skills, because all the attractive offers to customers will be online, and a good banking specialist will need to have not only sales and trading skills but also quite advanced technical skills.

Banks are automating tasks and processes to increase efficiency, will adopt cloud technologies and Big Data (including using artificial or augmented intelligence to meet customer needs).

Banks with inflexible organizational structures, a lack of strategic and coherent management, and limited technology budgets could face serious problems.

Crises are changing the banking industry, and technologies could bring even more fundamental changes. Considering these changes, either banks or their customers need to be prepared for them.

#### **THE FACTORS WHICH DETERMINED THE EMERGENCE OF BASEL IV**

In recent years, banks, especially those in the Republic of Moldova, have focused on complying with new regulatory requirements, in particular those related to convergence to risk provisioning and the exit from unprofitable activities.

The indicator that characterises how bank capital is restructured is ROE - return on equity, which characterises how much profit is provided by a unit of capital.

Table 1 shows the ROE indicator by country, according to each country's position.

The latest data presented are for 2020, on a sample of 125 countries.

Analyzing Table 1 we see that the country with the highest ROE in 2020 was Syria and the country with the lowest indicator was Angola, with a negative value, out of the 125 countries analyzed.

The average return on equity of European banks is 12.96% at 31 March 2022 for UBS Group AC, in the top 15 banks in Europe, and 2.95% for Deutsche Bank, which ends the top 15. [Statista, 2022]. This indicator for the same period at Bank of America is 10.9% [Macrotrends, 2022].

The Republic of Moldova records a middle position with 8.52%, along with Switzerland and the USA, in March 2022, in the Republic of Moldova, the ROE was 15.97% for the entire banking system, the bank with the best result was BC „MOLDOVA-AGROINDBANK” S.A. with 18.75%, and the most modest result was recorded by BC „EuroCreditBank” S.A. with 7.62% [National Bank of Moldova, 2022].

In other words, the return on capital in the Republic of Moldova is higher than in many countries in the world.

**Table 1. Bank return on equity, in percent, 2020 - Country rankings**

Countries	Return on equity, 2020, %	Global rank	Available data
Syria	77,7	1	2005-2020
Guinea	42,21	2	2011-2020
Burundi	32,54	3	2000-2020
Ghana	29,23	4	2006-2020
Pakistan	28,52	5	2000-2020
Ukraine	13,02	30	2000-2020
China	11,73	36	2000-2020
Russia	9,43	48	2000-2020
Switzerland	8,68	58	2000-2020
Moldova	8,52	60	2000-2020
USA	8,38	61	2000-2020
Italy	7,87	67	2000-2020
France	7,84	68	2000-2020
Germany	7,66	70	2000-2020
Romania	3,31	106	2000-2020
UK	3,26	107	2000-2020
Netherlands	0,31	121	2000-2020
Bahmas	-0,1	122	2000-2020
Buthan	-4,48	123	2014-2020
DR Congo	-7,03	124	2001-2020
Angola	-16,61	125	2002-2020

**Source:** based on The global economy.com. Business and economic data for 200 countries (2021)

Today, all banks have to operate in a changing market environment. The development of digital technologies and online platforms is driving the need to change the traditional banking business. The benefit of technologies will also be materialized by significant cost reduction as data processing will be automated. In other words, all banks face new challenges.

Over time, banks will find it increasingly difficult to retain customers as the sale of banking products, and even some banking services, shift to online services with the appearance of new products and services.

Online platforms aim to provide a single point of access to the market for financial products, especially in the area of lending.

The EU Payment Services Directive (PSD2) will further weaken banks' control over customer data by requiring financial institutions to allow third parties access to their customers' account and payment data (Payment services (PSD2) - Directive (EU) 2015/236).

Aggregator-providers allow customers to compare the terms offered and use products from different providers. Fintech companies are looking for profitable, low-investment niches, reducing the role of banks to that of a financier.

Opening accounts or analyzing a borrower's creditworthiness used to be painstaking and time-consuming to process, but thanks to technology they are automated and become virtually instantaneous. This also allows costs to be reduced.

The future of banking involves not only asset restructuring and rebranding, but also changing the banking business model.

Below we highlight some challenges for the banking sector.

### **BANKING MARKET CONCENTRATION**

Most banks operate in a national market because their banking license is obtained within the geographical area of a country. This is also due to the prudential requirements put forward by supervisory authorities.

In addition, if we talk about the banking system in the Republic of Moldova, the National Bank of Moldova has introduced such a reporting position as "limits of dominant position in the banking market", where it presents two indicators: the first indicator "total bank assets/total assets by banking sector" and the second indicator - total deposits of individuals in banks/total deposits of individuals by banking sector". Each bank should not exceed 35% of the registered values for the banking system [National Bank of Moldova, 2022].

The banking system of the Republic of Moldova is highly concentrated, BC "MOLDOVA-AGROINDBANK" S.A. holds 32.5% after the first indicator and 34.45% after the second indicator, according to data for September 2022. The first four banks hold 80% of the total assets of the banking system and 84.69% of the total deposits of individuals.

### **DIGITAL TRANSFORMATION OF BANKS**

Digital transformation has a positive impact on the quality of banking services for customers and a key cost optimisation tool. One impediment to cost reduction is outdated systems and infrastructure.

Banks are adopting different solutions. Some banks are developing completely new proprietary IT and technology systems or purchasing them from third parties. Others are introducing cloud banking, which enables the digitisation of the bank. All these upgrades allow banks to achieve significant economies of scale over time, but considerable upfront investment.

Other banks cannot afford to renew their entire software system, but apply the changes modularly, gradually replacing parts of the system and then integrating them via an application-programming interface (API). This option is accessible to banks with smaller budgets.

The introduction of digital technologies allows the banking industry to become more flexible and reduce its costs.

### **RECONFIGURATION OF BANK STAFF**

The banking industry is changing, and with it comes the need for new skills and for current and future banking staff.

The technologies and innovations implemented will affect not only the number of bank employees, but also their structure and skill requirements. Automation of processes will leave many employees out of work, because their efficiency is much lower than technology.

Nowadays, bank customers need personalised services. Requirements and skills towards bank staff are being reconfigured. There is now a growing emphasis on personal qualities, digital and data processing skills and teamwork. The customer-bank relationship is becoming more human.

The „shelf life of a banking product or service" is decreasing and banks feel the need for creative, resourceful and dedicated staff. Digital specialists do not prefer the banking industry, they are moving to other, better-paid fields.

In addition, many employees, especially younger ones, are demanding more flexible or home-based working hours, which makes the turnover of executives in banks quite high.

According to ISO 9001, banks must monitor not only customer satisfaction, but also employee satisfaction, taking into account their needs.

### **THE EMERGENCE OF PLATFORMS FOR AGGREGATING CUSTOMER AND SUPPLIER DATA**

The banking industry needs to become modular.

Aggregation platforms are emerging, where customers can compare, buy and use banking products from different providers. This will over time bring considerable benefits both for aggregators (in terms of turnover) and for customers, who will get the service they want at the best quality, at the lowest price and virtually instantly.

Aggregators and aggregation platform providers are thus gradually taking over the distribution function, weakening the link between the consumer and the bank, which is the creator of the product or service.

The PSD2 Directive (Payment services (PSD2) - Directive (EU) 2015/236) and the General Data Protection Regulation (REGULATION (EU) 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, repeal the exclusive right of banks to access their customers' data.

Banks are also building aggregators and platforms and/or creating new partnerships to resist change.

This transition is happening slowly, as many customers still prefer to use traditional banking services and submit their personal data, which they obtain from reputable banks, rather than from fintech companies that specialise in information technology or provide information.

### **SOCIAL INCLUSION**

Digital technology is increasing the role of banks in society, more and more opportunities are emerging to achieve this.

However, over-automation of banks can also come with shortcomings, as the use of Big Data analytics to make some decisions can lead to discrimination against some customers.

Many banks have launched social responsibility programmes. Such programmes include fundraising for charities and employees dedicating their time to volunteer activities.

Banks are not only socially responsible companies, but also initiate various social projects, for example, free cards for certain socially vulnerable people.

Another segment of involvement is financial education for students and the elderly.

Attention is also paid to bank staff through various loyalty programmes and social packages.

Another segment of collaboration is the partnership with the local communities in various programmes, including environmental protection.

Implementing these programmes would not only improve a bank's reputation but also the banking industry as a whole.

### **THE NEED TO INTRODUCE BASEL IV**

To address the crises and transformations that banks are currently undergoing, the Basel Committee has developed a new set of documents that provide a framework for banking regulatory and supervisory reform.

However, the implementation process of Basel III has identified serious problems in its application:

- 1) Basel III did not solve the fundamental problem of bank regulation as banks migrated to other sectors that were less regulated;
- 2) It increases non-transparent activity by banks;
- 3) low leverage ratios set by regulators as the main capital management tool and loan portfolio requirements force banks to hold more capital than the „maximum required“;
- 4) Identified deficiencies in the credit risk-weighted asset (RWA) structure.

The solution to these problems is facilitated by the implementation of Basel IV.

Changes to international banking standards were agreed in 2016-2017. Basel IV complements and amends the banking standards - Basel III.

Basel IV introduces changes that limit the reduction of bank capital:

- 1) Setting a minimum of 72.5% of the capital requirement under the standardised approach.
- The implementation of Basel IV would require banks to build up additional capital, at the same time, there is a risk that the reality may differ completely from what the Committee proposes.

Basel IV compliance limits banks' ability to multiply their lending, which would reduce aggregate demand, primarily consumer demand, and thus have a negative impact on the economic

situation. Small banks will most likely disappear from the market and an imbalance in the competitive environment will arise, credit volumes will shrink and interest rates will rise;

2) Reduction of risk weights for low-risk mortgages;

3) Leverage ratios for banks will increase;

4) Higher leverage ratios for systemically important banks. Systemically important banks are considered banks with the following characteristics: significant number of counterparties in the interbank market; significant share of interbank market transactions in a bank's balance sheet; other banking institutions among the main counterparties.

Particularly strict supervision will be imposed on systemically important banks, which carry out financial intermediation on the capital market, as they accumulate large amounts of funds held by natural and legal persons. The failure of such banks to meet their obligations inevitably causes serious problems for counterparties as well.

Systemically important banks have a direct impact on the situation of the banking system as a whole and are necessary for the development of any economy, and once they are in crisis, they have a hard time recovering, which is why the state should come up with measures to support them;

5) The establishment of a capital conservation buffer of at least 2.5% of risk-weighted assets,

6) Detailed presentation of reserves and other financial statistics.

The requirements of the Basel Accord will not enter into force until they are integrated into national and European legislation.

These proposed changes will take effect from 1 January 2023 [BIS, 2022].

#### **BASEL IV PERSPECTIVES**

A package of new Basel standards - Basel IV - is claimed to be the most comprehensive package of changes in the history of banking supervision.

The innovations in the Basel IV package are gradually being transposed into binding EU law. However, many economists believe the banking industry will face serious problems in implementing these new rules.

Initially, Basel IV implementation was to start on 1 January 2022, with a phasing-in of the minimum return threshold by 1 January 2027. In March 2020, due to COVID 19, BCBS postponed Basel IV by 12 months, from 1 January 2022 to 1 January 2023 [KPMG, 2021].

Although the implementation of Basel IV from 1 January 2023 is announced, EU, UK and US banks are waiting to find out what is required of them. Some banks question the timing. Implementation has been delayed once because of the pandemic and could be delayed further because of the regulatory process [KPMG, 2021].

While there is broad consensus among regulators and bankers on the implementation date for Basel IV, banks must now move forward with the final Basel 3 reforms, variously referred to as Basel 3.1 or Basel IV.

Here too, opinions were divided: regulators insist that implementation must proceed according to the BCBS timetable. Banks argue that additional stress, additional capital requirements, minimum performance levels and country specificity must be taken into account.

EU and UK central banks have supported the remaining reforms and the BCBS timetable.

The US is targeting January 2023, although final capital requirements have not yet been set [KPMG, 2021].

It is possible that the implementation date will be extended again, but this will be more due to the regulatory process [KPMG, 2021].

It is also likely that the regulation will have different approaches in different countries. This will affect banks with international operations will have to consider different requirements in each country and adapt.

Whatever the final deadlines and proposals, banks must commit to and implement Basel IV requirements.

Banks during the COVID-19 pandemic demonstrated that they are better capitalised and have more liquidity than in other crises. Nevertheless, this was also due to support from governments, without which capital buffers probably could not have absorbed the shock. Hence the need for even tougher Basel reforms.

Basel IV provides for even stricter capital requirements for banks, increased risk management oversight, disclosure requirements, which should strengthen the stability of the financial system.

## **CONCLUSIONS**

The main conclusions are presented below:

- Over the past decade, many changes have taken place as banks have struggled with the consequences of the financial crisis;
- The Basel standards on banking supervision were the international regulators' response to the global financial and economic crises;
- The Basel Committee on Banking Supervision is pursuing reform of the international regulatory system for capital adequacy and liquidity, and aims to strengthen the position of banks and improve the banking sector's ability to cope with financial and economic stress and crises;
- the global banking system is moving towards supervisory rigidity;
- recent crises have led to the formation of a position on the creation of new and modified standards - Basel IV;
- significant resources and time have been spent on restructuring and transforming businesses;
- however, the difficulties banks will face are likely to directly affect their business model;
- many banks are still in the process of restructuring, although it is time to change their business model;
- banks are facing new challenges - changes driven by customer needs, technology, innovation and ongoing crises are just some of them;
- banks that can fully focus on the transformation process will have a significant advantage over their competitors in the future;
- banks need to pay adequate attention to training and retraining their staff;

- the ability of banks to develop new products and services, concepts and resources, as well as partnerships, must also consider social inclusion.

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## PARTICULARITIES OF STATE SOCIAL INSURANCE BUDGET PLANNING IN THE REPUBLIC OF MOLDOVA

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**Abstract:** *The budget represents a public management plan, an important landmark of highlighting the degree to which the state is involved in the economy and social life, as well as the way in which it manages to manage them. Therefore, planning a budget realistically is a first step towards good governance.*

*The state social insurance budget represents the totality of revenues, expenses and funding sources intended for the performance of functions and the management of the public social insurance system, so its planning also has specific peculiarities. The planning of the state social insurance budget is carried out based on the forecast of macroeconomic indicators; the limits of interbudgetary transfers; the policy priorities stipulated in the sectoral spending strategy; trends in demographic indicators and other indicators regarding the number of beneficiaries of social benefits; other specific features contained in the circular regarding the development of the state social insurance budget.*

*The purpose of the research is to highlight the peculiarities of the state social insurance budget planning in the Republic of Moldova. The central public authority in the field of social protection is responsible for developing policies in the field of state social insurance and social assistance and presents forecasts and other information necessary for the development of the medium-term budget framework, promotes the draft law on the state social insurance budget, monitors and analyzes its execution, as well as the performance within the programs, puts forward proposals in order to ensure the financial stability of the public social insurance system.*

*The methods applied in the research process are: dynamic analysis, comparison, observation, deduction. The results of the research reflect the planning of the state social insurance budget in the period 2017-2021. Another aspect of the research is the executed/approved analysis of the state social insurance budget and through the prism of the medium-term budgetary framework.*

**Keywords:** budgetary planning, budget, social insurance, income, expenditure.

**JEL Classification:** H53, H61, H75

### 1 Introduction

The budget planning literature describes these approaches using various terms, such as "revenue and expenditure planning and forecasting" and "multi-year budgeting". Forecasting involves estimating future budgetary resources and expenditure needs, while planning involves formulating goals and policies. The objective of "planning and forecasting" in the medium term is to increase discipline over expenses.

The budget is a fundamental category of the science of finance, because it is the financial expression of the state's action program for the period of one year.

So, the budget is, first of all, a public management plan, a series of instruments of a fiscal or budgetary nature, used by the state authorities to influence the socio-economic life of the state and orient it in the desired strategic direction for the future. It is an important benchmark for signaling

the degree to which the state is involved in the economy and social life, the capacity of the national economy to contribute to the creation of financial resources available to the state, as well as the way in which it understands how to manage them. This is why planning a realistic state budget is a first step towards good governance of the country.

Management by objectives, programs and budgeting represent methods of quantifying budget revenues and expenses, which emphasizes the identification of sources of revenues and purposes for each field of activity. Thus, each administrator of the public money establishes his own objectives, which will contribute to the achievement of the proposed goals.

This method was designed in the context of a medium-term global planning, so as to allow the coordination of objectives between ministries. (OECD, 1997).

The precise determination of the objectives, as well as the correlation of the partial objectives with the final ones, is reflected in the budget planning.

The budget based on the program or the program budget is a way of preparing and presenting budgets, starting from the objectives pursued and not from the organization of the administration.

Emphasis is placed on the objectives to be achieved and on determining the set of means used to achieve them.

Thus, the program budget becomes a useful and original tool for budget programming and its correlation with a specific plan.

In this sense, it is allowed for each relevant ministry to establish the relative priorities, and as a result, the choice of priority actions from a given budgetary framework; affecting budget allocations and comparing with results; the analysis of objectivity and effectiveness based on the comparison between the costs involved in the results obtained; avoiding the coverage by budgetary funding of some inopportune actions, especially those that are not the subject of this funding.

The quality of the budget depends, to a large extent, on the form and effectiveness of the coordination established between different institutional actors.

The distribution of responsibilities in the preparation of the budget must correspond to the distribution of responsibilities within the government. There must be clear and indisputable rules for compliance and responsibility in the execution of the budget, defined in the legislation. The state social insurance budget is an integral part of the national public budget and is administered independently of other component budgets of the national public budget. As a result, within the Ministry of Labor and Social Protection, there is a re-discussion of the objectives, as well as the coordination of the objectives and resources intended for the social protection system. It also allows the identification of horizontal options regarding the differentiation of the size of budget credits distributed between ministries.

## **2 Planning the state social insurance budget through the medium-term budgetary framework**

In general, multi-year estimates are rolled over each year. The first year is totally consistent with the annual budget, and the expenditure forecasts for the other years are indicative. The planning period is usually three to five years. while in some countries the development of multi-year estimates has become an integral part of annual budget formulation and is seen as a key tool

for controlling expenditure, in others multi-year estimates provide only basic information for decision-making of politics. (Allen. R., Tommasi, D., 2001)

In principle, multi-year estimates must show:

1. the current level of expenses,
2. the additional expenses necessary to provide the same level and quality of services in the future
3. additional expenses or savings, if the level or type of services changes.

Elements 1 and 2 can be described as existing/continuing policies and element 3 as new policies or policy changes.

The 2021-2023 medium-term budget framework was developed against the background of the unprecedented impact of the COVID-19 pandemic and natural disasters on the national economy, exacerbating the already existing vulnerabilities. (*Medium-term budgetary framework 2021-2023*)

The aggravating circumstances related to the COVID-19 pandemic and the drought, the economic uncertainty and the difficulty of producing a definite macroeconomic and budgetary forecast in the medium term determined the modification of the standard content of the document, having a format adjusted to current conditions.

In the field of social protection, the coverage area of unemployment insurance was extended, and the amount of unemployment aid for existing beneficiaries was increased; the coverage area and the amount of aid within the Social Aid Program were increased; transfers from the state budget to the state social insurance budget were increased to compensate for the reduction in income from contributions.

In this context, the measures to support the population can be specified:

a) increasing the volume of the unemployment fund by about 3 times, simultaneously with increasing the amount of unemployment aid for existing beneficiaries up to 2775 lei during the state of emergency and granting unemployment aid in the amount of 2775 lei for people who register with status unemployed, but who do not meet the criteria for granting this status (expansion of the number of beneficiary persons) during the state of emergency - 83.0 million lei;

b) supplementing the budget of the Ministry of Labor and Social Protection for proactive employment measures in the labor field - 10.0 million lei;

c) the increase of allowances by 28% for social assistance in connection with the increase in the number of beneficiaries, simultaneously with: the increase of the guaranteed minimum monthly income from 1107 lei to 1300 lei, during the state of emergency, and with the increase of the amount of the minimum monthly income guaranteed for each child from 50% (553 lei) to 75% (975 lei) – 139.6 million lei;

d) strengthening the income of the Population Support Fund by introducing additional sources of income (the application of the portability tax (50%) and the airport tax (50%)), granted in the form of transfers to local public authorities from the mentioned fund;

e) grant of single support in the amount of 900 lei to beneficiaries of state pensions and social allowances whose amount does not exceed 3000 lei - 599.5 million lei.

The social measures are implemented through the state social insurance budget, and the state budget bears the costs by increasing the transfers to the state social insurance budget, in parallel

with the compensation of the lost revenues of this budget, following their reassessment in the conditions of the economic crisis.

In the field of social assistance, the objective is to continue addressing the problems of people from risk groups within the limits of the state's financial capacities, including in terms of social integration and poverty.

The main priorities include:

- the employment policy, whose importance, in the current economic conditions and the expected increase in unemployment, is highlighted again;
- maintaining and expanding measures in the fields of social assistance and combating poverty;
- maintaining the level of support for people with disabilities, who are one of the most vulnerable social groups.

### **3 Tactical planning of the state social insurance budget**

Annually, in accordance with the budget calendar, the central public authority specialized in the field of social protection, prepares the circular regarding the drafting of the state social insurance budget for the following budget year and sends it to the National Social Insurance House and other interested public authorities or institutions.

When preparing this document, the specialized central public authority in the field of social protection is guided by the provisions of the Medium-Term Budgetary Framework, the circular of the Ministry of Finance regarding the preparation of proposals for the draft state budget and the methodology provided in the Methodological Set regarding the preparation, approval and modification of the budget. (*Annex to the order of the Minister of Finance, 2015*)

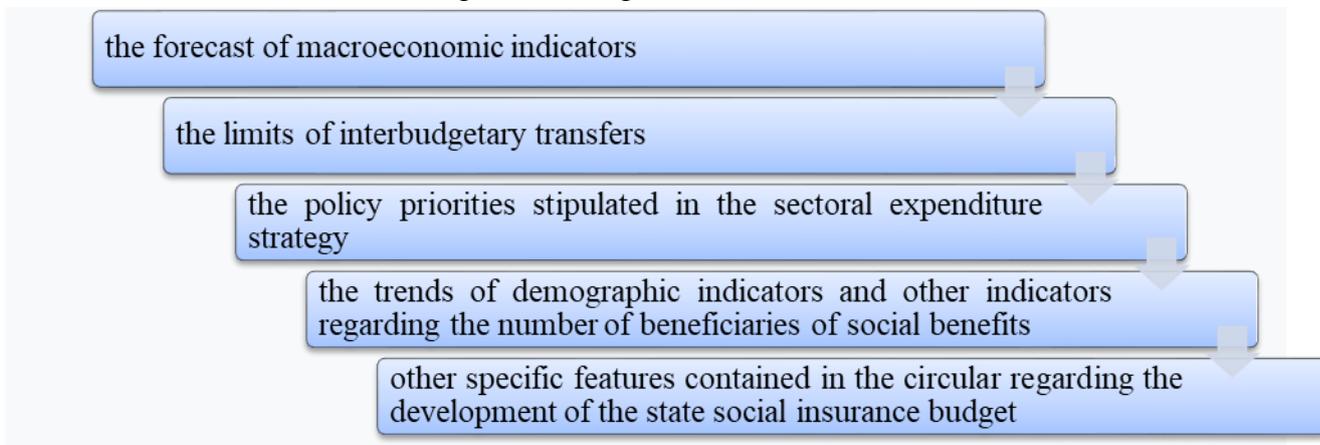
In terms of content, the circular regarding the drafting of the state social insurance budget includes:

- a) general provisions, which provide reference to the legal and normative framework regarding the process of drawing up the state social insurance budget, as well as the deadlines for making decisions and carrying out the exchange of information between the central public authorities specialized in the field of social protection and other interested public authorities/institutions;
- b) the forecast of the main macroeconomic indicators in the medium term;
- c) fiscal policy objectives regarding mandatory state social insurance contributions;
- d) summary of policy priorities in the field of social protection with impact on the state social insurance budget, based on the spending strategy in the field of social protection;
- e) specific particularities and additional requirements regarding the elaboration and presentation of the state social insurance budget project.

The central public authority specialized in the field of social protection, based on the internal action plan, organizes and ensures the elaboration and presentation of the state social insurance budget draft in the established terms. (*Vişanu, T., 2015*)

In accordance with the annual circular regarding the drafting of the state social insurance budget, the National Social Insurance House prepares and presents to the central public authority specialized in the field of social protection the preliminary draft of the state social insurance budget for the following year. Simultaneously with the state social insurance budget draft, the

National Social Insurance House also presents the draft information note, as well as other information to substantiate the budget draft. (Figure 1)



**Figure 1. Basic information for the development of the state social insurance budget project**

Source: developed by the author on the basis of the Methodological Set regarding the development, approval and modification of the budget (2015)

The actual process of drawing up the state social insurance budget project involves the following activities:

a) the specialized central public authority in the field of social protection analyzes the evolution of the general indicators of the state social insurance budget and the performance of the expenditure programs, determines jointly with the National Social Insurance House the structure of the programs and completes the general information about them (purpose, objectives, identifies list of performance indicators);

b) The National Social Insurance Agency estimates the resources of the state social insurance budget and distributes the expenses by programs, in accordance with the priorities of the sectoral policy and taking into account the limit of intrabudgetary transfers. It will also complement the value of the product and efficiency indicators of the programs;

c) The National Social Insurance House prepares the draft state social insurance budget, which it presents to the Ministry of Labor and Social Protection for coordination;

d) the specialized central public authority in the field of social protection examines the draft of the state social insurance budget from the point of view of consistency with the priorities of the sectoral expenditure strategy, including the performance of the programs, and presents it for examination to the Ministry of Finance in accordance with the established requirements and in compliance the deadlines provided in the budget calendar;

e) The National Social Insurance House ensures the finalization of the state social insurance budget project, taking into account the results of consultations with the Ministry of Labor and Social Protection and the Ministry of Finance;

f) The Ministry of Labor and Social Protection ensures the consultation of the draft state social insurance budget with other interested public authorities and the social partners, after which it presents the draft of the annual state social insurance budget law to the Government.

The Ministry of Finance ensures the integration of the state social insurance budget project in order to strengthen the national public budget. When drawing up the state social insurance budget project, the program budgeting methodology and the guidance on cost estimation, as well as other relevant instructions, are consulted.

The process of elaborating the forecast of the revenues and expenses of the state social insurance budget for the following year will include the analysis of the execution of these budget compartments for a period of at least 2 years prior to the projected budget year, the determination of the priorities in the field of social insurance to be financially supported in the following year and in at least 2 subsequent years and the development of the income and expenditure plan for each item according to the budget classification.

The Ministry of Finance examines the draft state social insurance budget for the following year, taking into account:

a) the analysis of the general indicators of the state social insurance budget in terms of the implications on the medium-term macro-budgetary limits and the financial sustainability of the public social insurance system;

b) the estimates of revenues and expenses of the state social insurance budget and the correlation with the priorities established in the Medium-Term Budget Framework and the sectoral spending strategy;

c) the performance of expenditure programs financed from the state social insurance budget, including from the account of transfers from the state budget.

The relations between the state budget and the state social insurance budget are realized through:

a) transfers with a special destination for granting social benefits and for other expenses, which according to the legislation in force, are borne from the state budget through the state social insurance budget;

b) transfers from the state budget to cover the insufficiency of the revenues of the state social insurance budget, if the resources of the state social insurance budget do not cover its expenses.

The volume of transfers with special purpose is estimated based on the proposals of the administrator of the state social insurance budget in accordance with the legislation in force on types of social benefits, resulting from the established size of social benefits and the number of beneficiaries estimated for the respective period.

The volume of transfers to cover the insufficient income of the state social insurance budget is calculated as the difference between the resources and own expenses of the state social insurance budget from the mandatory state social insurance contributions, the balance of funds in the account of the state social insurance budget at the end of the previous year, as well as transfers from the state budget for compensating the tariff difference of state social insurance contributions in the agricultural sector and compensating the canceled amounts of mandatory state social insurance contributions. (*Law of public finances and budgetary-fiscal responsibility, 2014*)

The own expenses of the state social insurance budget are the expenses of the state social insurance budget, with the exception of special purpose transfers from the state budget.

The formula for calculating the revenue shortfall of the state social insurance budget is:

The revenue shortfall of the state social insurance budget = Own revenues of the state social insurance budget + the balance of funds in the state social insurance budget account at the end of the previous year + Transfers from the state budget for the tariff difference of state social insurance contributions - own expenses of the state social insurance budget.

The divergences related to the state social insurance budget project, including regarding the establishment of interbudgetary relations with the state budget, are resolved within the special consultation organized with the participation of the leadership of the Ministry of Finance, the Ministry of Labor and Social Protection and the National House of Social Insurance.

During the consultation meeting, the representatives of the Ministry of Labor and Social Protection, assisted by the representatives of the National Social Insurance House, present their own arguments to the Ministry of Finance.

The Ministry of Finance analyzes the proposals through the prism of their justifications, makes suggestions or may request the re-evaluation of the draft budget, with the drafting of the respective opinion on the draft law of the state social insurance budget.

The state social insurance budget law contains general provisions regarding the approval of the main indicators of the corresponding budgets and regulations specific to the respective budget year, as well as annexes. The annexes to the state social insurance budget law include:

- a) synthesis of the state social insurance budget;
- b) expenditure programs of the state social insurance budget;
- c) other relevant data.

The Parliament examines and adopts the state social insurance budget law for the respective year within the term provided by the budget calendar.

The Parliament's permanent committee in the field of budget and finance is responsible for examining the draft annual budget laws in the Parliament.

The state social insurance budget law is examined and adopted in two readings:

- a) first reading: the report on the draft budget is heard, the general indicators of the budget are examined and approved (revenues, expenses and budget balance);
- b) second reading: the draft law is examined and voted on by articles or, as the case may be, as a whole.

The amendments proposed by the Parliament to the draft law of the state social insurance budget must be in accordance with the principles and budgetary-fiscal rules established by law.

**Table 1. Synthesis of the state social insurance budget approved in 2017-2022, million lei**

Indicators	2017	2018	2019	2020	2021	2022
I. Revenue, total	<b>17513,7</b>	<b>19312,5</b>	<b>21427,4</b>	<b>23491,0</b>	<b>27629,1</b>	<b>33042,3</b>
including transfers from the state budget	6105,2	6758,5	8575,3	8560,5	11067,9	14207,1
II. Expenses, total	<b>17513,7</b>	<b>19312,5</b>	<b>21427,4</b>	<b>23491,0</b>	<b>27629,1</b>	<b>33042,3</b>
III. Budget balance	<b>0,0</b>	<b>0,0</b>	<b>0,0</b>	<b>0,0</b>	<b>0,0</b>	<b>0,0</b>
IV. Funding sources	<b>0,0</b>	<b>0,0</b>	<b>0,0</b>	<b>0,0</b>	<b>0,0</b>	<b>0,0</b>

Source: prepared by the author based on the Social Insurance Budget Law for the years 2017-2022

From the data in table 1, for the years 2017-2020, a volume of approved revenues equal to that of approved expenses can be observed, and as a result the approved budget balance is zero. For the year 2017, a budget was approved with expenses in the amount of 17,513.7 million lei, which were equal to the revenues approved in the same amount. The approved funding sources constituted 0.0 million lei for the entire analyzed period.

**Table 2. Expenditure subprograms of the state social insurance budget in the period 2021-2022, million lei**

Code	Program name	2021			2022		
		Total	The state social insurance budget	The state budget	Total	The state social insurance budget	The state budget
	<b>Expenses, total</b>	<b>27629,1</b>	<b>19474,4</b>	<b>8154,7</b>	<b>33042,3</b>	<b>23958,6</b>	<b>9083,7</b>
90	<b>Social protection</b>	<b>27629,1</b>	<b>19474,4</b>	<b>8154,7</b>	<b>33042,3</b>	<b>23958,6</b>	<b>9083,7</b>
9002	Administration of the public social insurance system	245,1	245,1	x	258,5	258,5	x
9003	Protection in case of temporary incapacity for work	997,4	997,4	x	1009,6	1009,6	x
9004	Protection of the elderly	16852,4	13623,8	3228,6	21848,5	17404,3	4444,2
9005	Loss of maintainer protection	381,5	298,9	82,6	460,2	375,8	84,4
9006	Family and child protection	2870,1	2143,7	726,4	3190,7	2461,3	729,4
9008	Protection of the unemployed	75,1	59,6	15,5	60,7	58,6	2,1
9010	Social protection of people with disabilities	3144,7	2075,9	1068,8	3956,1	2360,5	1595,6
9011	Additional support for some categories of the population	1176,8	x	1176,8	224,7	x	224,7
9012	Social protection in exceptional cases	1360,3	x	1360,3	1378,6	x	1378,6
9019	Social protection of some categories of citizens	525,6	30,0	495,6	654,7	30,0	324,7

Source: prepared by the author based on Annex 2 of the Social Insurance Budget Law in 2021-2022

From the information systematized in table 2, it can be noted that in the 2021-2022 period, out of the 26 existing sub-programs in the nomenclature, 10 sub-programs are financed for the entire period.

#### **4 Public authorities and institutions responsible for the state social insurance budget**

In the field of public finances, the central public authority in the field of social protection has the following basic competences and responsibilities:

a) elaborates the policies in the field of state social insurance and social assistance and presents to the Ministry of Finance, based on the proposals of the National Social Insurance House, forecasts of the state social insurance budget and other information necessary for the elaboration of the medium-term budgetary framework;

b) presents and promotes, in the process of consultations with the Ministry of Finance, the Government and the Parliament, the draft law of the state social insurance budget for the respective year and, in case of necessity, draft laws regarding the modification of the budget in question;

c) monitor and analyze the execution of the state social insurance budget, as well as the performance within the programs;

d) submit proposals to the Government in order to ensure the financial stability of the public social insurance system;

e) exercise other powers and responsibilities provided for by legislation.

The National Social Insurance House has the following basic competences and responsibilities:

a) elaborates and presents to the central public authority in the field of social protection forecasts of the state social insurance budget and other information necessary for the elaboration of the medium-term budgetary framework;

b) draws up and submits to the central public authority in the field of social protection the draft of the annual law on the state social insurance budget and, if necessary, proposals for amending the state social insurance budget, as well as providing the necessary information for their substantiation;

c) participate in the process of consultation and promotion of the annual draft law of the state social insurance budget at the Ministry of Finance, Government and Parliament;

d) administers the state social insurance budget and implements the programs in accordance with the assumed objectives and performance indicators;

e) ensures the management of the means of the state social insurance budget and the administration of the public patrimony under management, in accordance with the principles of good governance;

f) presents to the Government, the central public authority in the field of social protection and the Ministry of Finance reports on the execution of the state social insurance budget, including on the performance within the programs, and ensures their publication;

g) exercise other powers and responsibilities provided for by legislation.

The general direction of budget planning within the National Social Insurance House performs the following main functions:

➤ organization and coordination of the drafting process of the annual state social insurance budget law, and, in case of necessity, of proposals to amend the budget law, in accordance with the normative framework and internal regulations;

➤ elaboration and presentation of state social insurance budget forecasts for the elaboration of the medium-term budgetary framework;

➤ participation in the promotion of the draft law of the annual state social insurance budget;

- monitoring, analysis and evaluation of the execution of the state social insurance budget;
- preparing and presenting the annual report on the execution of the state social insurance budget (narrative description) and ensuring its publication, as well as participating in the preparation of periodic reports on the execution of the budget, including the performance of the subprograms of the state social insurance budget;
- maintaining and strengthening the financial and budgetary management of the institution.

## **5 Conclusion**

Some of the main tasks in the process of elaborating multi-year estimates:

- updating the costs of estimates developed in the previous year,
- elaborating the medium-term fiscal framework and expenditure forecasts,
- establishing expenditure ceilings under the projected level of total expenditure, with a view to setting aside a contingency reserve for the first year of the long-term planning period and a policy and contingency reserve for subsequent years,
- identifying savings in ongoing programs
- scheduling and budgeting under the double constraint of spending ceilings and the cost of existing policies.

Two other important issues in designing multi-year estimates concern the size of the long-term planning horizon and the price basis of the estimates. On the one hand, uncertainty makes it difficult to make estimates for too long a period of time. On the other hand, the planning period must be long enough to allow a meaningful assessment of the government's policy priorities. If the processes are disciplined and there is reasonable stability in the macroeconomic position and policy priorities of the government, a period of three or four years is an acceptable compromise.

The strategic planning of the state social insurance budget could be defined as:

- planning process of budget revenues and expenses for a future period which estimates the financial impact of the current policy program, but also of developments possible economic effects on society;
- a new way of managing the state social insurance budget with two basic elements of reform in the field of budget planning: results-oriented planning and planning in the medium term of the budget.

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## **REPUBLIC OF MOLDOVA: COVID-19 AND ITS IMPACT ON POLICIES TO ENSURE GENDER EQUALITY**

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***Abstract.** The purpose of this research is to reflect the issue of gender equality in general aspects and in particular an approach is made to equality between women and men through the lens of the Covid-19 pandemic crisis.*

*I am going to discuss the efforts of the authorities, civil society, development partners that have been channeled in the fight against the challenges and consequences of the new pandemic.*

*This research incorporates a synthesis, a study containing analytical notes and measures in the context of the impact of the Covid-19 pandemic on the various spheres of life through the lens of gender equality.*

**Key words:** Covid-19, gender equality, Republic of Moldova

**JEL Classification:** H11, H12, H75, I14, I18, I38, J16, J88

### **1. Introduction**

Gender involves socially constructed roles, responsibilities, constraints, and privileges that are assigned or imposed on women and men in a particular culture. Attitudes and characteristics regarding gender, the role played by men and women and the expectations regarding them vary from one society to another and change from one era to another.

The fact that attitudes towards gender are constructed by society also means that they can change in such a way as to lead to the creation of a more equitable and just society and a gender-balanced democracy.

Gender equality must be a central objective of any democratic society that wants to create full and equal human rights for all and is intrinsically linked to its sustainable development, being vital for the implementation of human rights.

We can say that there is equality between women and men when both sexes are able to:

- equally share power and influence;
- to have equal opportunities in terms of financial independence through work and by establishing one's own business;
- to enjoy equal access to education and the opportunity to develop their skills and talents;
- share responsibility for the home and children and be free from any kind of coercion, intimidation and acts of gender-related violence both at home and at work.

Since the year 2020 was characterized by an unprecedented health context marked by the Covid-19 pandemic that determined a series of changes and effects on the population, these being internalized differently by women and men, it was observed that the effects of the

situation influenced directly gender equality both economically and socially both at the country level and at the global level.

In the mission of dealing with the problem of Covid-19 and its impact on policies to ensure gender equality in the case of the Republic of Moldova, I intend to analyze the activities that have been reoriented towards reducing the consequences, strengthening resilience and above all, identifying solutions and strategies to make against the health crisis that affected different spheres, including the issue of gender equality.

## **2. General aspects regarding ensuring gender equality in the Republic of Moldova**

Gender equality is based on the premise that men and women should be treated the same. Gender equality is a right whereby every person is free to develop their own skills and express their choices, without being influenced by the particularities of their sex. The different behaviors, aspirations and needs of women and men must be equally appreciated and promoted.

All people are born free and equal in rights, regardless of race, ethnicity, age, gender, religion, sexual orientation, etc. Even if international and national documents recognize this fact, in reality, every second, a person is discriminated against on the basis of one or more criteria. One of the most common forms is discrimination based on gender or discrimination against women for being women.[5]

Gender equality is ensured by a set of national laws and international conventions, which the Republic of Moldova has signed and ratified. This set of documents forms the legal and normative framework through which the rights of women and men are protected and promoted.

With the signing and ratification of international conventions and treaties, the Republic of Moldova has made firm commitments to ensure equal rights, opportunities, opportunities and freedoms for men and women, to eliminate all forms of discrimination against women, to prevent and combat violence against women and domestic violence.

The most important law, the Constitution of the Republic of Moldova, says that: "in the Republic of Moldova, women and men benefit from equal rights and freedoms, and they are guaranteed equal opportunities to exercise them". Although the Constitution specifies that women enjoy the same rights as men, in reality, due to existing stereotypes in society, there are inequalities between women and men, starting from access to the labor market, salary earnings, representation of women in decision-making forums, etc.[6]

In the Republic of Moldova, equal opportunities between women and men are regulated by Law No. 5 of 09.02.2006 regarding ensuring equal opportunities between women and men. The law presents the general notions and areas in which measures are applied to promote equal opportunities and treatment between women and men and to eliminate all forms of discrimination based on gender. These areas are workplace, education, health, politics and participation in decision-making.

"Gender-based discrimination is the unfair and different treatment of women in relation to men, which manifests itself by limiting rights and opportunities, differentiating, rejecting or excluding them and consequently limiting or canceling fundamental rights and freedoms".[7]

The analysis of the situation in the Republic of Moldova regarding the issue of equality between women and men highlights the fact that the most problematic aspects are: the

empowerment of women in the political, economic, social fields and family violence. In order to improve the situation, the Government, civil society and development partners have carried out and supported multiple initiatives and projects to promote equality between women and men.

During the last years, certain progress has been registered: increasing the number of women in decision-making positions, opening up citizens to support women in politics and decision-making positions, including the gender dimension in some sectoral policies, increasing the level of information and awareness, as well as improving the skills of specialists from the field etc.

### **3. Main consequences of the Covid-19 pandemic in the Republic of Moldova from gender equality perspective**

Any crisis affects women and men differently, and COVID-19 is no exception. The pandemic has revealed and, at the same time, exacerbated existing gender inequalities, both in terms of the severity of the consequences and their impact in the short, medium and long term.

The COVID-19 pandemic demonstrated once more the need to collect extensive statistical data disaggregated by sex, in order to be able to treat each category appropriately. For example, while the mortality rate among men is higher, women and girls are more affected by the economic and social consequences of the pandemic. According to an analysis by UN Women and UNDP, the cost of living for approximately 435 million women and girls in 2021 was less than \$1.90 a day, with 47 million women falling below the poverty line [1].

Global and regional reports highlighted a number of issues that affected women more than men.

*First of all*, there were more women than men in the front line of the fight against the pandemic. For example, women represent 76% of the approximately 49 million healthcare workers in the EU. This means that predominantly women fought on the front lines against the COVID-19 pandemic, providing care to those infected. About 10-11% of COVID-19 infections are in healthcare workers. [2] Women not only make up the majority of the care sector (including aged care, social care, disability care, childcare, domestic help and housekeeping). These jobs present an increased risk of exposure to COVID-19 infection due to close physical contact.

Other essential workers, also predominantly women, are more affected by the virus. For example, women are over-represented in food production/processing, school and pre-school education, sales and retail. Women are disproportionately employed in work sectors with increased risk of exposure to COVID-19, such as housekeeping and personal care. These categories of employees often have unsafe working conditions, low wages and require direct physical contact.

*Secondly*, women not only delivered care formally as health workers, but also absorbed most of the informal and unpaid care. As quarantine and self-isolation rules came into force, and schools and kindergartens were closed, women increased the time they spent on domestic duties. In two-parent families, women's domestic work increased more than men's (this despite the fact that women were already devoting significantly more hours of invisible/unpaid work in the pre-pandemic period). For some women, this meant they had to take unpaid leave or dramatically reduce their working hours. These trends were perceived more acutely among single-parent households. Changing work practices have a significant impact on incomes and raise concerns

about job security in the post-pandemic period. Women, who need to take care of their children thus reducing their workload, may be treated by employers as 'non-essential' workers [2].

As job cuts and recession are expected on a global scale, this could put women at greater risk of layoffs and unemployment compared to men. Employers need to recognize the distribution of domestic work within households and how this affects paid work. Women must be mandatorily protected against forced redundancies due to the need to care for children. As remote work and quarantine can continue for months on end, governments need to ensure social and financial protection through different tools: child benefits, allowances or paid parental leave. Data on layoffs and job losses must be disaggregated by sex.

**Thirdly, a significant issue during the COVID-19 lockdown was domestic violence. Most cases of physical abuse occur inside homes, so the need for people to stay at home to avoid the spread of COVID-19** has, surprisingly, led to an increase in the rate of violence. The incidence of domestic abuse is difficult to measure because victims often do not report it. However, during the pandemic, calls to assistance centers increased by around 20-60% across the EU, posing a challenge to society and government [2]. EU governments have made efforts to reduce risks to women, including by increasing funding for helplines, subsidizing hotel rooms for women at risk and introducing mechanisms for women to report violence confidentially.

**Fourthly, women's economic empowerment will be significantly affected due to the impact of COVID-19 on the economy. HoReCa, tourism and education/child care are the sectors that suffer the most from the pandemic. These sectors are highly feminized** so as organizations become insolvent, this presents a significant risk of unemployment among women. Unlike regular recessions, which tend to affect traditionally male sectors (construction and manufacturing), this COVID-19 recession has been called the "shecession" (female recession). [2].

We propose to analyze the impact of the pandemic from a gender perspective in the Republic of Moldova based on the studies carried out by the UNDP in partnership with PwC Moldova, UN-Women Moldova and the statistical data provided by the NBS.

During the pandemic, isolation measures were imposed and people had to change their living habits to protect themselves and their families from infection with the new coronavirus. These changes were more demanding for women than men in terms of time, because the view in the country is that women should be responsible for housekeeping and childcare. Women allocated more time to housework than men, as well as to supervising and assisting children in distance learning. This has had a direct impact on women's work and careers, as the National Bureau of Statistics found 24.4% of the total employed population was affected by the COVID-19 pandemic, of which 60.5% were women [3]. Another vulnerability among the female population stems from the fact that a large proportion of them depend on social benefits and remittances as sources of income. While social benefits may not be enough to provide a comfort level for women to protect them during a crisis, 30% of respondents said they lost remittances due to the pandemic (according to a survey conducted by the NBS, remittances are forecast to drop significantly due to the COVID-19 crisis, an estimated 24-40% in 2020 compared to 2019. The exact data will be revealed in the 2021 statistical yearbook).

The pressure was more acute for women, as they typically devote more time to childcare than men, while also taking on the burden of the most difficult housework: cleaning, cooking.

According to a survey conducted by UNDP in partnership with PwC to assess the impact of COVID-19 on gender inequality, 97.27% of the employed female population worked remotely, compared to only 14% of male employees. At the same time, the share of housework performed by women was higher compared to men: 40% of women reported an increase in time spent on care work, and 79% of women reported an increase in time spent on unpaid housework vs. by 68% of men. According to the survey carried out by PwC. [4]

#### **4. Improving gender equality policies under the conditions of COVID-19**

The COVID-19 pandemic has exposed the vulnerabilities of social, political and economic systems throughout the world, the Republic of Moldova not being an exception. Resilience measures have required a shift in priorities and funding in the public and private sectors, with far-reaching effects on the well-being of women and girls. Thus, women must be both the architects and beneficiaries of recovery efforts.

COVID-19 has infected and affected men and women differently. Women have been disproportionately affected by both the implications of the pandemic and governments' response to the outbreak. This is an important distinction to make: it is not the virus itself that causes socio-economic impacts on women, but rather the mechanisms put in place by administrations to mitigate disease transmission, which cause downstream effects, disproportionately affecting women. Most acutely, women faced risks to their physical safety, with domestic violence on the rise across the EU and globally.

Women's economic security and participation in economic life have also been affected by COVID-19, both at the macro and micro levels. At the macro level, the sectors of the economy that predominantly employ women have been the most disrupted by national gridlock. These sectors included education, healthcare, childcare, hospitality (HoReCa). Many women either lost their jobs or took government-funded support packages. Within the workforce, women are also disproportionately represented as healthcare workers, working on the front lines of the COVID-19 crisis, putting themselves or their families at risk of infection, additional workloads for caseload management and increased violence and health tensions. This must be recognized and accounted for. Women also had changes to their paid work due to the additional demands placed on them by school closures and unpaid care, which increased significantly in households. Women absorbed more of this care than men, resulting in the need to identify their own resources for combining paid and unpaid work with the impact of greater psychological and mental health issues.[8]

Women's limited access to infrastructure, land, financial capital and other assets prevents them from facing a crisis, recovering and rebuilding their small businesses. Emerging evidence from UN Women's Operational Assessment Surveys in Europe and Central Asia highlights the differential impact on self-employed women and men. While men are more likely to see their working time reduced (54% of men vs. 50% of women), more women have lost their jobs or businesses as a result of COVID-19 (25% of women vs. 17% of men).[9] Women-owned businesses need grants and other incentive funds specifically targeted at them. Furthermore, governments must protect the health, safety and incomes of vulnerable workers, including those in the informal sector. These efforts should be supported, expanded and anchored in the legal and financial framework.

Smart investments and sound policies will be crucial to eradicating extreme poverty. The cumulative cost of these activities by 2030 was about \$2 trillion in purchasing power parity, or just 0.14% of global GDP. As more women than men live in poverty, reducing the gender poverty gap must be a vital part of a broader poverty eradication strategy. A policy simulation analysis resulting from the Futures International Model estimates that more than 100 million women and girls could be lifted out of poverty if governments implement a comprehensive strategy to improve access to education and family planning, fair and equal wages and the expansion of social transfers.[10] Applying a gender lens to the design of fiscal stimulus packages of social assistance programs is crucial to building a more prosperous, equal, inclusive and resilient society.

Care work – typically devalued by markets inadequately supported by governments – has taken center stage during the pandemic. While governments have taken unprecedented steps to address the economic consequences, relatively few measures have been directed at supporting families to reconcile paid and unpaid work, including care needs. Based on a quick assessment of the initial social protection measures adopted by governments around the world to combat the COVID-19 crisis, less than 1 in 5 were gender sensitive.[10] Governments must ensure open and functional shelters as essential services or convert unused spaces to provide shelter for women and girls who are forced to flee their homes to escape abuse. Additionally, shelters need more resources so they can expand to meet quarantine needs and increased demand. Greater support is also needed for helplines and women's rights organizations working on the front lines. Government responses to the rise in violence against women, however, have been uneven.

Another absolutely necessary measure is the disaggregation of statistics by gender. Timely and appropriate gender data and statistics must be fully prioritized as part of the COVID-19 policy response. Through the Women Count programme, UN Women is working with partners in 62 countries to launch rapid gender assessment surveys to gain much-needed information on the impact of the pandemic. The results of these surveys help countries prioritize the rights of women and girls. But more is needed to fully understand the scale and impact of the crisis on women and girls, namely by collecting real-time COVID-19 data on incidence, hospitalization, testing and mortality.

At the European level, a set of recommendations was also formulated to avoid the repercussions of the pandemic crisis, including the gender perspective [8]:

- 1) The gendered nature of the health workforce must be recognized, and additional risks for frontline women must be mitigated through access to personal protective equipment and improved personal financial security so that they can perform work in safe conditions;
- 2) In order to stimulate employment and ensure continuity, it is necessary to ensure a social package for women employed in the care sector;
- 3) Employers must recognize the distribution of domestic work within the family and how it affects paid work;
- 4) Women must be insured against dismissal due to childcare responsibilities;
- 5) Since working at home and the quarantine imposed by COVID-19 can extend for an indefinite period of time, it is necessary to ensure the social and financial protection of families (child allowances or parental leave for a longer duration);
- 6) Data on layoffs and job losses must be disaggregated by sex;

7) Governments must reduce risks for women through increased domestic violence reporting mechanisms, the creation of subsidized safe spaces for women in need of shelter and the strengthening of telephone helplines;

8) Governments must focus on stimulus and/or recovery packages in those sectors of the economy that have been disproportionately affected by COVID-19.

9) The childcare sector must become a priority in the pandemic and post-pandemic period, as a facilitating factor for the inclusion of women in the labor market.

## **5. Conclusions**

The issue of gender equality affects all spheres of economic and social life and continues to develop in the sense of a multidimensional perspective of implementing the principle put into practice in the Republic of Moldova. The necessary actions to reduce inequalities are directed, emerging from the Strategy for ensuring gender equality between women and men for the years 2017-2021, towards ensuring representation from a gender perspective in the political sphere, in decision-making processes in all spheres and at all levels, career advancement and occupying leadership positions, combating violence, education and combating perceptions and stereotypes present in society regarding the role of women in society, financial independence and economic empowerment, ensuring fair working conditions for men and women.

In the research, gaps were identified regarding the practical application of the principles of gender-responsive budgeting, or the integration of the gender dimension in the budget policies of the Republic of Moldova does not register progress. The actions of the Republic of Moldova in the field of the integration of the gender dimension in the budget policy up to the present time have focused more on the strengthening of capacities and the training of officials in the field of gender-responsive budgeting.

The integration of the gender aspect in the process of developing public policies in the Republic of Moldova is at an early stage. As we were able to convince ourselves, most public policies, especially in the economic field, remain gender-neutral or gender-blind.

Until the spread of the pandemic virus Covid-19, the integration of the gender dimension in the process of developing public policies is not always an imperative condition. However, the pandemic has exposed the vulnerabilities of social, political and economic systems throughout the world, the Republic of Moldova not being an exception. Resilience measures have forced a shift in priorities and funding in the public-private sectors, with far-reaching effects on the well-being of women and girls.

Covid-19 has infected and affected men and women differently. Women have been disproportionately affected, both by the implications of the pandemic and by the Government's response measures to reduce the risks of infection of the population. This is an important distinction to make: It was not the virus itself that caused the negative socio-economic impact on women, but rather the mechanisms put in place by the administration to mitigate the transmission of the infection disproportionately affected women. Thus, women must be both the architects and beneficiaries of recovery efforts.

In our opinion, the subject of ensuring the promotion of gender equality should have enjoyed more attention and recognition in the Republic of Moldova. Regrettably, however, the biggest

challenge lies not in the development of legislation or measures to formally ensure gender equality, but in the eradication of harmful stereotypes and negative preconceptions deeply rooted in the collective consciousness.

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## **GENDER MAPPING OF ONGOING REFORMS IN THE REPUBLIC OF MOLDOVA**

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**Abstract.** *On September 2015, the Republic of Moldova, along with other 192 members of the UN, committed to the implementation of the 2030 Agenda for Sustainable Development, by adopting the Declaration of the Summit on Sustainable Development. The national policy agenda is only partially aligned to the Sustainable Development Goals (SDGs), and one third of SDGs targets are not included in any of the national policy papers. Based on SDGs, the Government developed, approved and submitted to Parliament the National Development Strategy “European Moldova 2030”. At the same time, a number of sectorial strategies and programs were approved for the period until 2021 or 2022, which also provides for the adoption of urgent measures to revise them for the next period.*

*[Successful implementation of SDGs](#) depends on how flexible the strategic planning framework is, that is now quite problematic in Moldova. Republic of Moldova has too many policy papers, which often overlap and contradict each other, are not properly monitored and assessed, and the responsibilities among implementing partners are not clearly shared and integrated into the budgetary planning processes. One of the possibilities to mainstream gender aspects in national reforms is modification of current national legislation, which would oblige public authorities (central and local) to develop and promote their strategic documents with taking into account women’s rights. The research examines the sector of public policy reform in the Republic of Moldova by mapping existing public policy documents – strategies and programs – through the lens of gender.*

**Key words:** *public policy, gender mapping, budgetary-fiscal policy, reforms, Sustainable Development Goals*

**JEL:** A13, E62, H52, H53, H61, H75, I18, I28, I38, J16, J88, O11

### **Introduction**

While gender equality is an overarching policy goal in many countries, gender mainstreaming is more narrowly defined as a context-specific and strategic approach that comprises technical and institutional processes, adopted to achieve that goal [1, p.5].

Significant efforts were made to mainstream gender perspective into different policy areas and laws in the European Union, and the European Commission has expressed its intentions to enhance gender mainstreaming by systematically including a gender perspective in all stages of policy design in all EU policy areas, internal and external [2].

Pursuant to Law no. 5/2006 on ensuring equal opportunities for women and men [3], the principle of gender equality is to be integrated into policies and programs from all spheres and at all levels of adoption and implementation of decisions in the Republic of Moldova. This law has promoted awareness of the importance of integrating gender by empowering the Government to (a) ensure integration of the principle of equality between women and men into policies, strategies, programs, normative acts and financial investments, (b) approve national plans and programs regarding equality between women and men and monitoring their implementation, (3) submit periodically to the Parliament reports on the situation and activity in the field.

In the Republic of Moldova there are too many policy papers, which are part of the government's reform agenda, which is prioritized based on the key development goals in the framework of various commitments on the international level and is coordinated on a regular basis with the development partners providing budget support for effective leverage over key policies. At the same time, there is no reform support programme that can support public authorities in the Republic of Moldova in mainstreaming gender in public administration, state budgeting and financial management.

The purpose of this paper is to analyze the reform agenda at the national level through the lens of gender, using the gender mapping instrument of public policy documents. Chapter 2 provides an overview of the commitments of the Republic of Moldova to conduct reforms, including a context documenting the national framework for reform, which aims to highlight existing gender dimensions in public policies in the Republic of Moldova. Chapter 3 discusses the integration of gender dimension on public policies in the Republic of Moldova. The concluding remarks summarize a set of good practices related to the implementation of reform from a gender perspective.

### **Commitments of the Government of the Republic of Moldova to conduct reforms**

On June 27, 2014, the Republic of Moldova signed the [Association Agreement](#) [4] with the European Union and the European Atomic Energy Community, which entered into force on 1 July 2016. The Association Agreement [replaces the previous Partnership and Cooperation Agreement](#), which had been in force since July 1998.

The Association Agreement establishes a new [legal framework](#) [5] for the advancement of relations between Moldova and the EU towards a higher quality level – political association and economic integration with the EU.

Initially, there was developed and launched a visa liberalization Action Plan in the framework of the European Neighbourhood Policy. Then, there was adopted the Association Agenda<sup>39</sup>, which replaced the EU-Moldova European Neighbourhood Policy Action Plan. As it is [mentioned](#) in the Association Agenda, both parties must be involved in its implementing, in full respect of the principles of ownership, transparency, accountability and inclusiveness. The priorities of the Association Agenda reflect the responsibility of the EU and the Republic of

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<sup>39</sup> On 27 June 2014, the European Union, its member states and the Republic of Moldova signed an ambitious and innovative Association Agreement (AA), including a Deep and Comprehensive Free Trade Area (DCFTA). <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A22017D1489>

Moldova to fully implement the provisions of their Association Agreement now that it has fully entered into force.

Among the priorities in the Association Agenda, the following [reform actions](#) should be addressed as a matter of priority for the purposes of:

*Strengthening institutions and good governance:*

1. Independence of the judiciary
2. Prevention and fight against corruption, fraud and conflict of interest
3. Asset recovery and investigation on the banking fraud
4. Public administration reform, including public financial management
5. Fundamental freedoms
6. Transnistrian conflict settlement

*Economic development and market opportunities:*

7. Improved business environment and investment climate
8. Agriculture and rural development
9. Trade related reforms: Technical regulations, standardization and related infrastructure, and customs and trade facilitation

*Connectivity, energy efficiency, environment and climate action:*

10. Energy security and energy efficiency
11. Transport
12. Environment and climate action

*Mobility and people to people contacts:*

13. Education, training, and youth

A closer integration with the European Union has anchored successive governments' policy reform agendas, but many [reforms that look good on paper](#) have yet to be implemented. The pandemic, and most recently, energy and refugee crisis, are Moldova's current challenges.

To achieve the twin goals of ending extreme poverty and boosting shared prosperity, the World Bank Group is helping Moldova improve economic governance, fight corruption, modernize services, enhance the business environment, and invest in employable skills.

Improving the governance and quality of public services, enhancing the business environment for private sector development and firm productivity, support the transformation of the energy and agriculture sectors, build the country's crisis preparedness and early response system, and support human capital development and inclusive education are the country's key goals [6].

[The Country Partnership Framework \(CPF\)](#) for the years 2018-2021 [7] supports Moldova's transition to a new, more sustainable, and inclusive development and growth model through a mix of analytics, advice, financing, and partnerships. The CPF is grounded in the National Development Strategy, takes into account outcomes of the FY14–17 Country Partnership Strategy, and incorporates the three topmost priorities of the Systematic Country Diagnostic, namely:

- strengthening the rule of law and accountability in economic institutions.
- improving inclusive access to and the efficiency and quality of public services.
- enhancing the quality and relevance of education and training for job-relevant skills.

These three priorities define and inform the CPF’s three focus areas of (i) economic governance, (ii) service governance, and (iii) skills development. A mid-term strategy assessment - the Performance and Learning Review - validates these focus areas, with adjustments for the country’s evolving context and priorities, including, but not limited to, building momentum for sound economic governance, maintaining and enhancing progress under service governance, shifting focus toward higher education under the ever-important skills agenda, and mainstreaming climate change across the Bank-supported program.

The World Bank and the International Finance Corporation work together to help Moldova achieve its [development goals](#) through improving governance, institutions, and the quality of public services; enhancing the business environment, private sector development, and firm productivity and quality; and deepening investments in human capital, job creation, and infrastructure, including in the energy, information and communications technology (ICT), and transport sectors.

The Bank repurposed part of the resources in the existing portfolio and advisory service and analytics to respond to COVID-19 by: (i) enabling digital access and remote learning and teaching; (ii) supporting economic recovery and longer-term revenue mobilization through sustaining employment and ensuring business survival; and (iii) fast-tracking the digitization and reengineering of public services.

The World Bank’s next five-year CPF (FY2023-27) will be aligned to the National Development Plan undertaken by the Moldovan Government and will address the structural constraints identified by the Systematic Country Diagnostic update [8].

On September 2015, the Republic of Moldova, along with other 192 members of the UN, committed to the implementation of the 2030 Agenda for Sustainable Development, by adopting the Declaration of the Summit on Sustainable Development.

The national policy agenda is only partially aligned to the Sustainable Development Goals (SDGs), and one third of SDGs targets are not included in any of the national policy papers. At the same time, a large part of targets are irrelevant to the Republic of Moldova and, hence, are not aligned to the domestic policy document (for example, SDG 14, 17, some of SDGs 3 and 5 targets). In order to monitor SDGs of the 2030 Agenda, a set of 241 indicators was approved at the global level, on which basis each country will be assessed at the regional and global level [9, p.3].

[The main differences](#) between national policy agenda and SDG targets are caused mainly by the national specifics, lack of vision in some important areas reflected by SDGs, different optics of public policies and the different degree of disaggregation of the beneficiaries targeted by public policies.

### **Gender mainstreaming in policies in the Republic of Moldova**

Like in many other countries, the core challenges affecting the Republic of Moldova today have a gender dimension. Nevertheless, the inclusion of a gender perspective in all national policies and processes in the Republic of Moldova is still problematic.

For comparison, a gender perspective will be integrated in all major initiatives of the European Commission during the current mandate, facilitated by the appointment of the first Commissioner for Equality, as a stand-alone portfolio, and by creating a Task Force for Equality

composed of representatives of all Commission services and of the European External Action Service [10]. The Task Force is mandated to ensure the implementation of equality mainstreaming, including gender equality, at operational and technical level.

In line with the Sustainable Development Goals, the Government of the Republic of Moldova developed, approved and submitted to the Parliament the National Development Strategy “Moldova 2030” (Government Decision no.1083/2018). However, due to political circumstances, the Government withdrew it from the Parliament (Government Decision no. 401/2019). This influenced the development and approval process of most of the subsequent national strategies and programs.

The erupted political crisis, which persisted until the dissolution of the Parliament on 28 April 2021, paralyzed the activities of state bodies responsible for the development, approval and implementation of reforms in various sectors. This phenomenon was aggravated by the COVID-19 coronavirus pandemic, which led to the introduction of quarantine measures in the form of various restrictions, including the presence of a limited number of employees in the workplace and the holding of certain types of events with the presence of a large number of participants.

Currently, out of forty-five analyzed policy documents there are at least thirty-one national strategies and programs in place for the next period for the following sectors (most of them are gender-sensitive): education, health care, social protection, social inclusion, justice, human rights, economy and business, agriculture and rural development, infrastructure, environment (Annex 1).

In order to carry out the gender analysis of the current sectoral strategies in the Republic of Moldova, based on the gender classification of public policies, they will be classified into the following categories:

- Gender-aware: recognize that women, like men, are actors of development.
- Does not distinguish between gender (gender-blind policies): does not differentiate between women and men [15, p.64].

The programs and strategies of the Republic of Moldova were analyzed and systematized through the prism of the following factors:

- Sector.
- Aim of reform.
- Implementation period.
- Whether reform is gender-sensitive or gender-blind, in terms of how gender is integrated if reform is gender-sensitive (in strategic document/legislation/procedures).
- Possibility of gender mainstreaming in ongoing reform (if it is gender blind).

The results of the research showed that based on the above factors, 29 reforms are gender-sensitive, which govern the reform sector of social protection, environment and sustainable development, health reform and human rights, public administration, health and social inclusion, health / infrastructure / environment, justice and police, civil society, and human rights. Sixteen reform policy documents are gender-blind in the following sectors: public administration, transport and infrastructure, economy and business development, innovations / science, digitization, health reform / human rights, agriculture.

In this regard, many national strategies and programs that were envisaged for the period until 2021 have not been revised and reapproved for the next periods. This also applies to the

National Development Strategy, which underlies the sectorial strategies. In fact, the main document that sets out policy objectives and key actions for the period until 2021 in the field of gender equality in the Republic of Moldova – the [Strategy for ensuring equality between women and men for 2017-2021 and the Action Plan for its implementation \(Government Decision no. 259/2017\)](#), has not been revised since it expired in 2021.

At the same time, a number of sectorial national strategies and programs were approved for the period until the current 2022, which also calls for the adoption of urgent measures to revise them for the next period.

Currently no gender mapping of how public policies and their implementation respond to the specific needs and circumstances of women and girls in different groups in the Republic of Moldova exists. Also, no information is available on how many of the reform policies are gender blind and gender sensitive, that is why a gender mapping of reforms was necessary to assess the level and the quality of gender mainstreaming into the national policy framework.

These conjectures are justified in light of the fact that when it comes to gender mainstreaming, it does not refer to mere inclusion of terms “gender” or “gender equality” in already existing public policies and programs [1, p.15]. It refers to the inclusion of experiences, knowledge and interests of both women and men within the policy creation, as part of specific legislative process. Specifically, it refers to a set of guidelines that sets a framework for analyzing the impact of policies on men and women’s lives and integrating the gender perspective into the lawmaking process [11]. Therefore, a set of conceptual principles for mainstreaming gender perspective in the policy framework of a country are needed to be put in place in the case of the Republic of Moldova.

In addition, Government Decision *on planning, development, approval, implementation, monitoring and evaluation of public policy documents*, no. 386/2020 and the Methodological Guide on Integration of the Provisions of the National Development Strategy into planning documents and public policy documents at the national level [12], that ministries must consult for support during the planning process, do not contain prerequisites for gender mainstreaming.

Following a European Commission recommendation, Moldova was awarded a status of EU candidate. In addition to the Government of Moldova political determination to implement the European ambitions, by way of accelerating reform in order to effectively fulfill the criteria for EU membership, the reform agenda will have to also mainstream the diversity issues into the design of reforms undertaken that are to be approved for the next period.

## **Conclusions**

[The successful implementation of SDGs](#) depends on how dynamic is the strategic planning framework, which is now problematic in Moldova. The Republic of Moldova has too many policy papers, which often overlap and contradict each other, are not properly monitored and assessed, and the responsibilities among implementing partners are not clearly shared and integrated into the budgetary planning processes.

To ensure correlation and synergy between policy documents on one hand, and a systemic approach between various policy areas, to align them with the budgetary framework, it is

recommended to rationalize the number of sectoral policy documents, and develop strategies as a rule only for the areas indicated in Law no. 136/2017 on the Government [13, p.70].

[Republic of Moldova needs a reformed strategic planning framework](#). First, it needs a long-term national vision on the document, which will include the priority targets of the global nationalized 2030 Agenda (i.e. National Strategy for Sustainable Development). Second, the sectorial planning papers of the line ministries should be simplified and formulated under strict principles and requirements, focusing on securing the implementation of national agenda for sustainable development. They should be evidence-based and contain clear objectives, measurable and concrete progress and impact indicators, as well as reporting requirements. Third, the medium-term expenditure framework should be fully linked to the national strategy for sustainable development and sectorial planning papers to ensure that target achievement comports with the financial sustainability.

The Government has already enforced its capacities by re-examining and approving the National Development Strategy (NDS) “European Moldova 2030” (Government Decision No. 653/2022) as a basic political document, which would be used for the development and approval of sectorial national strategies and programs. The law for the approval of the National Development Strategy was approved in the first reading by the Parliament on October 13, 2022.

Thus, in line with NDS “European Moldova 2030”, many national sectorial strategies and programs that were in force for the period until 2021 have to be revised and reapproved for the next period. As well, a number of national sectorial strategies and programs, which are approved for the period until the current 2022, need the adoption of urgent measures to revise them for the next period.

The public authorities have to develop and approve the development of fundamental national strategies and programs for next periods for the following global spheres (most of them are gender-sensitive):

- education sector
- health care sector
- pharmaceutical safety sector
- innovation sector
- vocational education sector
- culture sector
- tourism sector
- public order sector
- agriculture and rural development sector
- police sector
- justice sector
- migration and asylum sector
- SME sector
- digitalization sector
- public administration sector
- internal trade sector
- youth sector
- entrepreneurial activity sector
- statistics sector
- civil society sector
- regional development and decentralization sector
- energy sector
- environment sector

One of the ways to mainstream gender aspects in national reforms is to amend national legislation, which would oblige public authorities (central and local) to develop and promote their strategic documents taking into account women’s rights. There are a lot of fundamental laws and normative acts that could be amended by mainstreaming gender into its principles.

The Government Decision on planning, development, approval, implementation, monitoring and evaluation of public policy documents, no. 386/2020 in the part of component parts and principles of the elaboration of policy documents process should be accordingly amended.

The reforms in following domains that have to be more relevant to mainstream gender dimension:

- Public Finance Management (introduction of GRB) - as a cornerstone direction for gender mainstreaming for all public sector.
- Statistics - as a ground for development of database, which could be used for any gender analysis.
- SME development - as a fundamental gender-sensitive area (since small business is more likely to meet women's needs at labour market which creates basis for socio-economic development of whole country).

Launching an audit by the Court of Accounts on gender mainstreaming in the budget to promote equality can contribute to the process of improving gender mainstreaming in the country's budget process, policy design and resources allocation to gender equality objectives.

Currently, a set of Council of Europe's cooperation priorities for the Republic of Moldova for 2021-2024 has been presented [14]. Although the Action Plan declares that promoting gender equality remains a priority and gender mainstreaming will help to better address the needs of individuals in the Republic of Moldova in order to enhance the quality and effectiveness of the respective planning document, there are no mentioned spheres from above, but they could be considered crucial for long-term objective to reduce gender gaps.

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Annex 1

**List of public policy documents in the Republic of Moldova**

	Public policy document	Normative act	Classification
<b>Sector: Health and Human Rights reform</b>			
1.	National child protection Program for the years 2022-2026 and the Action Plan for its implementation ( <i>new</i> )	Government Decision no. 347/2022	Gender-sensitive
2.	Support Program for the Roma population in the Republic of Moldova for the years 2022-2025 ( <i>new</i> )	Government Decision no. 576/2022	Gender-sensitive
3.	<a href="#">National Program for the Social Integration of Persons with Disabilities for 2017-2022</a>	Government Decision no. 723/2017	Gender-sensitive
<b>Sector: Health Care and Social Inclusion</b>			
4.	National Program for the prevention and control of HIV/AIDS infection and sexually transmitted infections for the years 2020-2025 ( <i>new</i> )	Government Decision no. 134/2020	Gender-sensitive
5.	National Response Program to tuberculosis for the years 2020-2025 ( <i>new</i> )	Government Decision no. 107/2020	Gender-sensitive
6.	<a href="#">National Cancer Control Program in the Republic of Moldova for 2016-2025</a>	Government Decision no. 1291/2016	Gender-sensitive
7.	<a href="#">National Program in the field of sexual and reproductive health and rights for 2018-2022</a>	Government Decision no. 681/2018	Gender-sensitive
8.	<a href="#">Strategy for the development of human resources in the health care system for 2016-2025</a>	Government Decision no. 452/2016	Gender-sensitive
9.	<a href="#">National Program for the Deinstitutionalization of Persons with Intellectual and Psychosocial Disabilities from residential institutions managed by the National Agency for Social Assistance for 2018-2026 and the Action Plan for implementation</a>	Government Decision no. 893/2018	Gender-sensitive
10.	National Mental Health Program for 2017-2021 and the Action Plan for its implementation ( <i>expired</i> )	Government Decision no. 337/2017	Gender-sensitive
11.	National Program for the Prevention and Control of Diabetes Mellitus for 2017-2021 and the Action Plan for implementation ( <i>expired</i> )	Government Decision no. 1030/2017	Gender-sensitive
12.	National Program for Tobacco Control for 2017-2021 and the Action Plan for its implementation ( <i>expired</i> )	Government Decision no. 1015/2017	Gender-sensitive
13.	National program of transfusion safety and self-sufficiency of the country with blood products for 2017-2021 ( <i>expired</i> )	Government Decision no. 657/2017	Gender-sensitive
14.	National Program to Combat Viral Hepatitis B, C and D for 2017-2021 ( <i>expired</i> )	Government Decision no. 342/2017	Gender-blind
<b>Sector: Health Care / Infrastructure / Environment</b>			
15.	<a href="#">National Program for the Implementation of the Protocol on Water and Health in the Republic of Moldova for 2016-2025</a>	Government Decision no. 1063/2016	Gender-sensitive
<b>Sector: Agriculture</b>			
16.	Land Improvement Program for the purpose of ensuring sustainable management of soil resources for the years 2020-2025 and the Action Plan for the years 2021-2023 for implementation	Government Decision no. 864/2020	Gender-blind
17.	Horticulture Development Program for years 2021-2025 and the Action Plan regarding its implementation	Government Decision no. 840/2021	Gender-blind
18.	<a href="#">National Program for the Development of Beekeeping in the Republic of Moldova for 2021-2025</a>	Government Decision no. 768/2021	Gender-blind

	<a href="#">Republic of Moldova for 2021-2025 and the Action Plan 2021-2022 for its implementation</a>		
19.	<a href="#">National Program for Integrated Plant Protection for 2018-2022 and the Action Plan for its implementation</a>	Government Decision no. 123/2018	Gender-blind
20.	<a href="#">Strategy for the development of advisory services in rural areas in 2012-2022</a>	Government Decision no. 486/2012	Gender-blind
<b>Sector: Justice and Police</b>			
21.	Strategy for ensuring the independence and integrity of justice sector for the years 2022-2025 and the Action Plan for implementation ( <i>new</i> )	Law no. 211/2021	Gender-sensitive
22.	National Strategy for the Prevention and Combating of Money Laundering and the Financing of Terrorism for the years 2020-2025 and the Action Plan for the implementation of the National Strategy for the Prevention and Combating of Money Laundering and the Financing of Terrorism for the years 2020-2025	Parliament Decision no. 239/2020	Gender-blind
23.	<a href="#">National Strategy for the Prevention and Suppression of Trafficking in Human Beings for 2018-2023 and the Action Plan for 2018-2020 for its implementation</a>	Government Decision no. 461/2018	Gender-sensitive
24.	National Integrity and Anti-corruption Strategy for the years 2017-2023	Parliament Decision no. 56/2017	Gender-blind
<b>Sector: Economy and Business Development</b>			
25.	<a href="#">Program to support businesses with high growth potential in its internationalization</a>	Government Decision no. 439/2018	Gender-blind
26.	<a href="#">Strategy for the Development of the Non-Banking Financial Market for 2018-2022 and the Action Plan for its Implementation</a>	Law no. 129/2018	Gender-blind
27.	National Employment Strategy for 2017-2021 ( <i>expired</i> )	Government Decision no. 1473/2017	Gender-sensitive
<b>Sector: Civil Society and Human Rights</b>			
28.	<a href="#">National Strategy to Prevent and Combat Violence against Women and Domestic Violence for 2018-2023 and the Action Plan for 2018-2020 for its implementation</a>	Government Decision no. 281/2018	Gender-sensitive
29.	<a href="#">Strategy for Strengthening Interethnic Relations in the Republic of Moldova for 2017-2027</a>	Government Decision no. 1464/2017	Gender-sensitive
30.	Strategy for ensuring equality between women and men in the Republic of Moldova for 2017-2021 and the Action Plan for its implementation ( <i>expired</i> )	Government Decision no. 259/2017	Gender-sensitive
31.	National Program for the Implementation of UN Security Council Resolution 1325 on Women, Peace and Security for 2018-2021 and the Action Plan for its implementation ( <i>expired</i> )	Government Decision no. 259/2017	Gender-sensitive
<b>Sector: National Security</b>			
32.	<a href="#">National Strategy for Integrated Management of the State Border for 2018-2023 and the Action Plan for the period 2018-2020 for its implementation</a>	Government Decision no. 1101/2018	Gender-sensitive
<b>Sector: Public Administration</b>			
33.	<a href="#">Strategy for the Development of Public Finance Management for 2013-2022</a>	Government Decision no. 573/2013	Gender-blind
34.	<a href="#">Central Public Administration Reform Strategy in the Republic of Moldova</a>	Government Decision no. 1402/2012	Gender-sensitive

<b>Sector: Social Protection</b>			
35.	<a href="#">Law on the state pension system</a> <a href="#">Strategy for the reform of the pension system in the Republic of Moldova</a> <a href="#">Concept of reforming the pension system in the Republic of Moldova</a>	Law no. 156/1998 Parliament Decision no. 141/1998 Government Order no. 116-d/05.08.2016	Gender-sensitive
36.	<a href="#">Strategy for Reforming the Social Assistance System</a>	Parliament Decision no. 416/1999	Gender-sensitive
37.	Program for the creation and development of the National Reference Mechanism for the protection and assistance of crime victims for the years 2022-2026 and the Action Plan for the years 2022-2024 regarding its implementation ( <i>new</i> )	Government Decision no. 182/2022	Gender-sensitive
<b>Sector: Environment and Sustainable Development</b>			
38.	<a href="#">Strategy for water supply and sanitation (2014-2030)</a>	Government Decision no. 199/2014	Gender-sensitive
<b>Sector: Transport and Infrastructure</b>			
39.	<a href="#">Transport and Logistics Strategy for 2013-2022</a>	Government Decision no. 827/2013	Gender-blind
40.	<a href="#">Waste Management Strategy in the Republic of Moldova, 2013-2027</a>	Government Decision no. 248/2013	Gender-blind
41.	National Program for the Development of Pole Cities of Growth in the Republic of Moldova for 2021-2027	Government Decision no. 916/2021	Gender-sensitive
<b>Sector: Culture, Science and Education</b>			
42.	<a href="#">Intersectoral Strategy for the Development of Parenting Skills and Competencies for 2016-2022</a>	Government Decision no. 1106/2016	Gender-sensitive
<b>Sector: Innovation / Science</b>			
43.	<a href="#">National Program in the fields of research and innovation, 2020-2023 and the Action Plan for its implementation</a>	Government Decision no. 381/2020	Gender-blind
<b>Sector: Digitalization</b>			
44.	<a href="#">Strategy for the Development of the Information Technology Industry and the Digital Innovation Ecosystem for 2018-2022 and the Action Plan for its implementation</a>	Government Decision no. 904/2018	Gender-blind
45.	<a href="#">Information Security Strategy of the Republic of Moldova, 2019-2024 and the Action Plan for its implementation</a>	Parliament Decision no. 257/2019	Gender-blind

**Source:** *Elaborated by the authors based on the e-Lex and MoldLex databases of normative acts of the Republic of Moldova*

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## **ON THE CRISES THAT AFFECTED FINANCIAL SITUATION IN THE FIELD OF HEALTH CARE IN THE REPUBLIC OF MOLDOVA, IN RECENT DECADES**

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***Abstract.** The large-scale transformations in the health care system have been conditioned by the important changes in the provision of health services and their organization in recent decades. The Republic of Moldova suffered enormously from the internal political, global financial and pandemic crises from 2008-2021. Thus, the purpose of this study is a pertinent one, especially in the current context of financially constrained health care system. However, despite of the recent economic downturns, many countries have raised health spending dramatically. The analysis carried out reveals that, in the last decade, the stipulated objectives have remained the same, despite periods of instability. Current study investigates the level of raising of health care expenditures, the structure and the impact of the political, financial and pandemic crisis on health care system. The methods used in the evaluation, such as the review of relevant documents, the collection and analysis of data, contributed to the identification of aspects that have an impact on the performance of the healthcare system in the Republic of Moldova. Therefore, each country must perceive that the provision of health care is important for improving a population's health, which in turn can lead to more productivity, better economic performance, and then more fiscal resources.*

**Keywords:** health system, expenditures, financial, political, pandemic, crisis

**JEL Classification:** I10, I11, I13, I15, I18

### **Introduction**

The healthcare system from the Republic of Moldova has undergone large-scale transformations following internal political, financial, pandemic and, more recently, refugee crises. Their impact conditioned important changes in the provision of health services and their organization. In this context, the article does not present an analysis of the shortcomings that are manifested in the field of health protection, but the directions in which action must be taken are highlighted and suggested, in order to improve the level of the healthcare system in the Republic of Moldova [1].

The interpretation of the information presented in this article, which is based on a careful study of the situation of the sanitary system in the Republic of Moldova, will lead to a series of conclusions, because it is revealed that the sanitary system has not benefited for years in a row from that increased attention that a priority activity must have it. The study highlights that health was, remains and especially will be an absolute priority, so as to ensure the security and health of the population within a well-founded and financed health system.

### **The political crisis**

The political class placed a special emphasis on the health field, this fact being probably determined by the problematic situation in this sector. The legislative framework, namely the Law on compulsory healthcare insurance and the Law on the size, manner and terms of payment of compulsory healthcare insurance premiums, adopted in 1998 and 2002, respectively, revolutionized the Health system in Republic of Moldova. These two laws constituted the foundation of a viable system that could maintain itself and develop.

But after more than two decades, such a promising reform has remained overshadowed by the narrow interest of politicians – funding is not based on clear economic criteria, the patient's need is neglected. In a constant political instability, Health financing decisions are made according to political expediency and electoral interest. A study by the Center for Health Policy and Analysis, which focused on the development of the health system in the more than 20 years since the introduction of health insurance, shows that a series of legislative changes and political inconsistencies have generated an inequitable and unavailable medical system for every citizen, especially for the poorest, a system that covers a small part of people's real health needs and fragile state services that give way to the private offer - more expensive, but safer [10].

In general, political instability is a serious problem for the development, modernization and implementation of reforms in the field of health, because the focus of politics in the Republic of Moldova is oriented towards political fights, scandals, etc. Respectively, this instability is an impediment in the activity of the health system in the country. Moreover, external partners do not know how to react to the political situation in the Republic of Moldova, and some projects could be put on hold or canceled. So, it is clear that during a period of political instability, momentum is lost, but the real possibilities also become smaller.

*Therefore, the political crisis seems to generate particularly deep problems in the health system. According to the study, this has become the most problematic factor in the development of the health system, precisely because of the influence it has. This situation amplifies the instability of health financing decisions, which are made in political interest and do not take into account the needs of the people or the reality of the system, but also of the legislative and normative framework in the field.*

### **The economic-financial crisis**

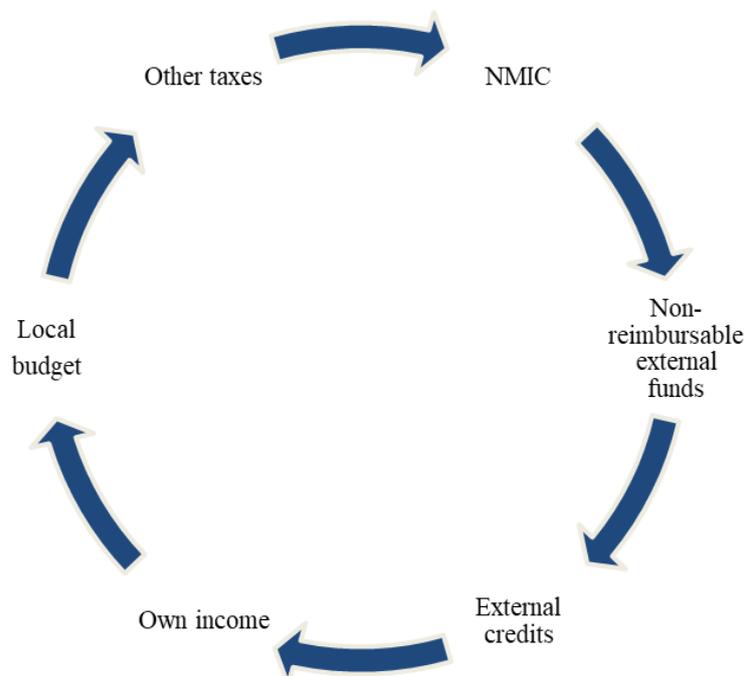
The economic crisis is a phrase that appears more and more in the debates of economic and political analysts in most states of the world, especially where its consequences make their presence felt [8]. The health system has always been a sensitive subject in the Republic of Moldova because for years it has been underfunded and influenced by poor, if not corrupt, management. This resulted in a much weakened system, unable to cope with current requirements.

However, once the economic situation in the country worsened, the pressure on the system increased even more. The medical system, as it is currently structured, is highly centralized, with most important decisions being taken at the level of the Ministry of Health. The allocation of resources is still done in a discretionary way without being based on criteria accepted at the national or international level. In fact, in the absence of these differentiating

criteria on the basis of which decisions can be made, it is impossible to provide a basis for decision-making.

An attempt to decentralize the activity of the Ministry of Health was the creation of the health insurance system with the aim of clarifying the role of the National Medical Insurance Company (NMIC). However, this attempt failed, and in the end the NMIC was subordinated to the Ministry of Health and the Ministry of Public Finance.

Financing has always been a major problem for the health system. This started with the period before 1990, when this sector was considered unproductive and therefore had a low priority. Thus, for a long time, the financing was not only below the European average, but also below the average of the former communist countries. Later, the situation improved, but without major changes (figure 1).



**Figure 1. Financing at the level of the Ministry of Health**

*Source: Developed by the authors based on the processed information*

The imbalances of an economic crisis are so complex that the generation of a problem attracts a series of other problems with the respective effects. The health system is one of the systems that were directly affected and which, in turn, produced negative effects on the human resource, the main element for activating a healthy economy [9]. People are the key to the health system, and yet there is no clearly formulated human resources policy, which creates problems with staff motivation and retention, ultimately leading to serious imbalances.

The impact that the economic decline of 2008 had on health was reflected in most of the countries of Central and Eastern Europe. The states had to endure the measures to restore the economic balance, having to juggle new budget formulas. Thus, the health problems of European citizens have worsened, requiring the rapid finding of economic solutions, which, on the other hand, can produce imbalances at the budgetary level, forming a vicious circle [9].

In Central and Eastern Europe, the health system has always been a sensitive subject. Funding has always been a major problem for it, as even before 1990, this sector was perceived as unproductive and therefore had a low priority. Thus, for a long time, financing was below the European average and below the average of former communist countries. Poorly funded and with very few effective regulations, it has become an extremely weakened system, unable to face new challenges or even current requirements. Moreover, a possible crisis in this field is predicted, already marked by the massive migration of medical personnel, which causes effects such as overcrowding and fatigue of the remaining doctors, as well as an increase in the number of malpractice cases [9].

Thus, among the recent problems encountered by the medical system, the insufficient funding of the system has been reported, this being the main problem for many years now, the improvement of the procurement system, the redefinition of the basic package, the problem of informal payments (which can be solved through - a substantial increase in doctors' salaries, possibly), the investment in communication and in the computerization of the system [9].

Another problem is the continued use of an implementation system based on warnings, sanctions and obligation, in contrast to other approaches that implement IT systems offering incentives, ample communication and total transparency [9].

In the health budget, both salary and funding reductions were made as a result of the economic crisis in: Hungary, Estonia, Greece, Latvia, Romania, the Republic of Moldova as well as in Italy, Portugal, Spain, but the impact it is considered higher in Central and Eastern European countries. In Bulgaria and Latvia, the budget was reduced by 20% [9]. Thus, another first problem is given by the salary level. At the international level, practice is in favor of the idea that an acceptable salary for a doctor should be about three times higher than the average salary at the level of the economy.

It was found that the reductions were triggered, rather, by the increase in the unemployment rate which considerably decreased the contributions to the state budget in Bulgaria, Estonia, Hungary, Romania, while, in other countries, social insurance expenditures were increased, to as well as the incomes of socially assisted persons. The budget was increased in Austria, France, Denmark. Latvia received a State Budget grant for health from the World Bank. Decisions to cut or increase the Health Budget appear depending on political guidelines and national technical considerations. Greece and Portugal had to implement such reductions as a result of the conditions imposed by the European Community for the application of support policies [9].

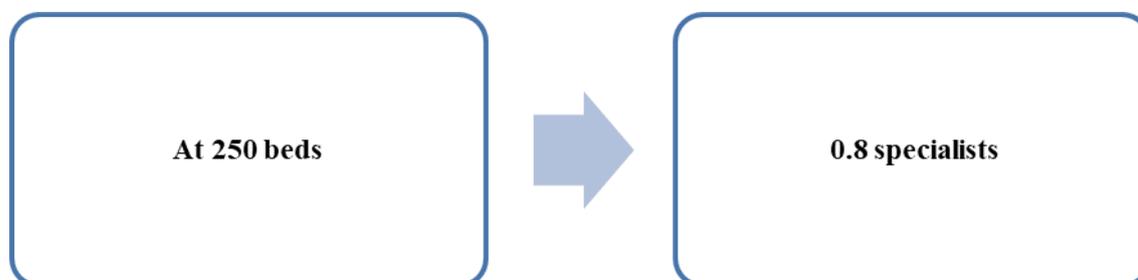
*Therefore, the economic and financial crisis has exposed the structural cracks in our society and the huge inequalities that affect the most vulnerable the most, and the recovery must be based on several key principles. At the central level, there are no systems aimed at quality assurance, patient safety and risk management, and despite the fact that patient safety and the quality of the medical act should be constantly monitored, they usually take second place.*

### **The pandemic crisis**

*For the first time in human history, a health crisis has shut down the economies of countries globally and painfully demonstrated how interdependent the economy and health are.*

*In the Republic of Moldova, we quickly felt the impact of the pandemic. Unfortunately, our health system has been in transition for many years, with many problems and shortcomings, both material and human. The COVID-19 pandemic has once again demonstrated the need for resilient health systems that can quickly adapt to new realities. Also, the pandemic has repeatedly demonstrated the importance of human resources for the health system. In health emergencies, the life and health of the patients depend on the qualification of the medical staff. Now, all over the world, public attention is turning to health systems, which are a key element of national security. An element that must be developed and strengthened permanently. This is one of the biggest challenges, faced and faced not only by the Republic of Moldova, but also by other countries that are in the process of transition.*

*This pandemic was a test of endurance for all of us and a test of professionalism, when we were practically fighting an "enemy" that we did not know until the end. In fact, COVID-19 was that test that showed us all the shortcomings of the system, all the critical points and problems that need to be solved. First of all, health must become a priority on the agenda of the political class. Secondly, the vision for the development of the health system must be adopted through a consensus, so that, in the coming years, the much needed reforms, regardless of the government, are implemented. Thirdly, the appreciation and support of medical personnel should not only be during the pandemic, here it is about decent salaries for medical personnel and normal working conditions. Fourthly, equipping and equipping hospital institutions so that medical workers can do their duty – to save lives (figure 2).*



**Figure 2. The number of infection control specialists**

*Source: Developed by the authors based on the processed information*

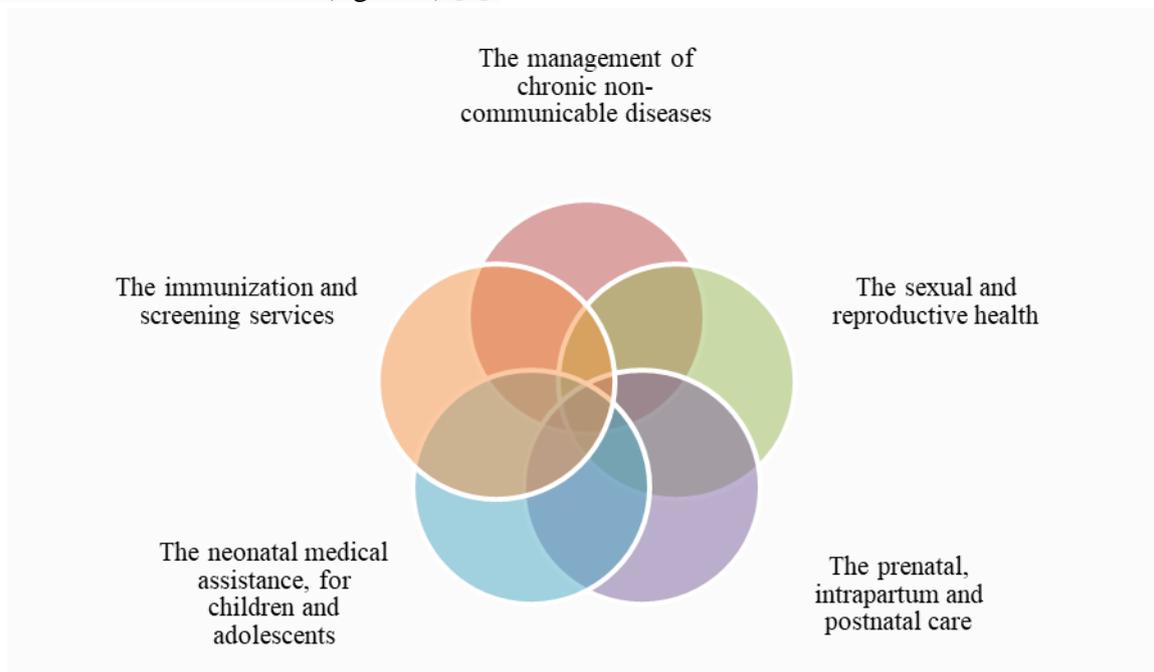
There is a general shortage of medical personnel, especially in rural areas. Young professionals are leaving the country because they are not motivated by the working conditions and salaries. The number of family doctors is decreasing every year. The COVID-19 preparedness and response plan highlights the specific shortage of doctors and nurses specializing in epidemiology and infection prevention and control. Overall, 71.6% of hospitals have no epidemiologists and there are only 0.8 infection control specialists (including 0.3 infection control physicians) per 250 beds [4].

Impact on other health services: Initially, clinical case management of COVID-19 took place only in designated hospitals, with other hospitals continuing to provide ordinary medical care. However, as the pandemic progressed, hospital capacity for other services was reduced and

ordinary health services were suspended to avoid personal contact and focus resources on the pandemic. This has caused delays and even lack of care for a large part of the population [4].

In the Republic of Moldova, after the outbreak of the pandemic, the situation, in general, became serious, the medical staff being physically and mentally exhausted, and the number of those infected increasing. At the same time, with the worsening of the epidemiological situation, the pressure on the medical system, on the hospital institutions also increases. But, let's not forget that, even if COVID was one of the major priorities for all health systems in the world, no one canceled emergency interventions, cardiovascular diseases, chronic diseases, etc. Basically, we found ourselves in a situation when health systems, regardless of their condition, had to withstand and cope with this overload, because the life and health of patients is the most valuable thing for a society [3].

The complex effect of the pandemic on the health system will continue to affect it in the post-pandemic period. On the one hand, financial management rules have been relaxed, and if this is not reversed, it could affect the long-term resilience of the system. On the other hand, certain measures introduced during the response—such as disease surveillance, public-private partnerships, and telemedicine—have the potential to strengthen the system in the long term. The difficulties (or complete lack) of contact between doctor and patient, delays in diagnosis and lack of access to treatment, all highlight the need for the digitization of health services and the introduction of telemedicine (figure 3) [4].



**Figure 3. The most affected areas of healthcare**

*Source: Developed by the authors based on the processed information*

The duration of isolation induced by the state of emergency also had a negative effect on mental health. This has particularly affected young people, women, people with disabilities, people living with HIV and survivors of domestic violence. Women's psychological and mental health is affected at higher rates than men's (49%) due to the disproportionate impact of restrictive

measures leading to increased unpaid care work, efforts to maintain paid employment and exposure increased domestic violence. The prison population is particularly vulnerable to the spread of COVID-19 due to the high density of prison occupancy [4].

Disruption of health care was more severe in rural areas where access to health services is more limited [5]. This is partly due to the lack of medical personnel, the lack of adaptation to the new situation and the reduction or suspension of services due to the fear of contamination [6]. In addition, the isolation measures have reduced transport services that facilitate access to medical services. More than half of the women surveyed who reported a need for sexual and reproductive health services reported difficulty accessing those services. Older people, most of whom are older women, lack the financial resources they need to access medical care [4].

Economic difficulties and travel restrictions have also made it difficult for vulnerable groups to purchase medicines, even those paid for by the Government. Despite increased allocations for the compulsory health insurance system, the financial protection of the population has deteriorated over time.<sup>11</sup> While access to health services has improved, increasing people's use of medical services, it has also increased exposing them to out-of-pocket payments, especially for drugs. In the context of the COVID-19 pandemic, special attention must be paid to expanding the range of essential outpatient drugs covered by the National Medical Insurance Company (NMIC) and, at the same time, introducing co-payment exemptions for poor households and ordinary healthcare users, including the elderly, to avoid catastrophic health expenditures [4].

*Therefore, the challenges arising from the health emergency have deepened the more serious systemic and structural problems affecting the health system, such as overstretched, outdated and costly health infrastructure, reduced technical capacity and shortage of health professionals, especially in rural areas. Private providers and NGOs played only a minor role in the response to the pandemic. This virus has fundamentally changed our way of life and put both the medical and social systems and the country's economy under major pressure.*

### **The refugee crisis**

In the context of the situation in Ukraine, the medical system, weakened by the pandemic, is facing the refugee crisis.

Thus, the Government of the Republic of Moldova has mobilized medical teams at the border crossing points that ensure medical consultation of Ukrainian citizens, testing for COVID-19 of those who show specific clinical signs and transporting them to hospital institutions for complex treatment, completely free of charge. For this purpose, temporary accommodation and triage centers provided with medicines, medical equipment and disinfectant were opened and reorganized. The World Health Organization supports the efforts of the Republic of Moldova, providing triage centers with the necessary supplies. The efforts of the authorities were joined by the "Nicolae Testemițanu" State University of Medicine and Pharmacy, whose clinic provides primary and emergency medical assistance to all refugees who apply. The effort was also supported by private medical institutions that are ready to provide free medical and dental care to the refugees and supplies, as did the Synevo Laboratory that donated masks, disinfectant, etc.

The conflict in the neighboring country affects not only the health and well-being of its own people, but also the medical system in Moldova, it is not only about the overwork of the medical staff, but also the stocks of medicines (the majority being produced and imported from Ukraine). For this purpose, the Ministry of Health and the Medicines and Medical Devices Agency made an assessment of the provision of medical institutions with medicines and other consumables. The result was – essential medicines will be procured through simplified procedures, thus the risk of running out of medicines will be minimized, even in the situation where medical assistance is also provided to refugees [2].

*Therefore, we live in a world that faces numerous challenges – from ongoing political instability to the devastating effect of the situation in Ukraine. The shock of the situation triggered in the neighboring country only revealed the systemic fragility of the world economy and our society, with all the inequalities that characterize them. The results of turbulence are difficult to quantify, but methods are proposed to smooth them out.*

### **Conclusions**

From the backstage of politics to the academic platforms, the whole world is discussing crises: a political crisis, an economic-financial crisis, a pandemic crisis and a refugee crisis. Ultimately, these are all symptoms of the same problem: the unsustainable way we produce and consume.

The health problem has been aggravated by the problems existing before any crisis, therefore, it is imperative to work on the health system so that it reaches the best possible state. Thus, we envisage the perspective of a further analysis regarding the stage in which the healthcare system in the Republic of Moldova was before the outbreak of the mentioned crises. Other countries around the world also faced some shortcomings, but in our country these shortcomings were capital. It follows that never in the financing and evolution strategy of our health system, the possibility of a crisis was considered. Therefore, neither the preparations nor the existing situation at the zero moment of the outbreak of a crisis were even close to the requirements that were imposed.

At the same time, it is remarkable that, in the economic and social development programs of the Republic of Moldova, health must remain, but the fact that it is an absolute national priority must be emphasized. From this perspective, it is necessary that the allocations from the government funds, as well as from the community funds allocated to the Republic of Moldova, establish projects, initiate investments in endowments according to the needs of the population. There is no need to specify more than that, health will have to remain the absolute priority of the economy of the Republic of Moldova for long periods of time, if you want for a perpetual period.

Therefore, we conclude that the health system in Romania must be reanalyzed, reconsidered and, as a consequence, ensure the best possible conditions for bringing it up to the level of the conditions imposed by the 21st century. The measures taken by the governments are very necessary, but, considering that the population continues its dynamic path from a socio-economic point of view, they are not quite sufficient, nor can they be, if there is no coordination clearer and the rules are not respected and verified with the responsibility of long-term results.

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## FINANCIAL STRATEGY AS A COMPONENT OF THE GENERAL STRATEGY OF THE ENTERPRISE

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**Abstract.** *The article is devoted to the study of the role and significance of the financial strategy in the formation of the overall strategy of the enterprise. The principles and factors of the financial strategy of the enterprise are revealed. The financial strategy provides for the definition of long-term goals of financial activity and the choice of the most effective ways to achieve them. It is with the help of the optimally chosen financial strategy, the company gets the opportunity to successfully operate in the market and adapt to market conditions.*

*Thus, the need to develop a financial strategy is that it includes methods and practices of formation of financial resources, their planning and ensuring the stabilization and financial stability of the enterprise in the competitive market conditions of functioning. The success of financial strategy of the enterprise is guaranteed when strategic financial goals meet the real economic and financial capabilities of the enterprise, when financial management is clearly centralized, and management tools are flexible and adequate to changes in the real financial - economic situation. Implementation of financial strategy as an information product of management in the form of decisions, plans, programs is not the main goal of functioning of an enterprise.*

**Keywords:** *Financial strategy, financial resources, financial activity, economic development, strategic management, efficiency.*

**JEL Classification:** G30

### 1. Introduction

At the present stage, most enterprises are aware of the need for conscious promising management of financial activities on the basis of the scientific methodology of the foresight of its directions and forms, adaptation to the general goals of the development of the enterprise and the changing conditions of the external financial environment. [6]

The financial activity of the enterprise consists not only in satisfying the financial needs determined by the need to manage certain types of current assets, the replacement of long-term assets or their current growth in connection with the ongoing changes in the volume of economic activity. An effective tool for the promising management of the financial activities of the enterprise, subordinate to the implementation of the goals of its general development in the conditions of the ongoing significant changes in macroeconomic indicators, the system of state regulation of market processes, the conjuncture of the financial market and the associated uncertainty, is the financial strategy. [1]

The financial strategy of any enterprise is determined by the strategic goals facing the enterprise, as well as the goals of financial management itself. As you know, the main goal of financial management is to ensure the growth of the well-being of owners, maximizing the market value of the company. Consequently, the financial strategy of the enterprise is the general plan of

actions to secure the enterprise with financial resources (cash) and on their effective use for the purpose of capitalization of the company. [4]

The lack of a developed financial strategy may lead to the fact that the financial decisions of individual structural units of the enterprise will be multidirectional in nature, leading to contradictions and a decrease in the effectiveness of financial activity as a whole. On the contrary, the financial strategy developed allows us to adapt the company's financial activity to the upcoming radical changes in the possibilities of its economic development. [5]

To achieve the main strategic goal in accordance with the requirements of the market and the capabilities of the enterprise, the enterprise's general financial strategy is being developed. The financial strategy in accordance with the main strategic goal provides: [9]

1. The formation of financial resources and a centralized strategic leadership of them;
2. Identification of decisive directions and concentration of efforts on their implementation, maneuverability in the use of reserves with the financial handling of the enterprise;
3. Ranging and phased achievement of tasks;
4. Correspondence of financial actions to the economic condition and the material capabilities of the enterprise;
5. Objective accounting of the financial and economic situation and the real financial situation of the enterprise during the year, quarter, month;
6. Creation and preparation of strategic reserves;
7. Accounting for the economic and financial capabilities of the enterprise and its competitors;
8. Definition of the main threat from competitors, mobilizing forces to eliminate it and skillful choice of areas of financial actions;
9. Manifesting and the struggle for the initiative to achieve decisive superiority over competitors [3].

Features of the financial strategy determine its role in ensuring the effective functioning and development of the company. This role:

- allows you to really assess the financial capabilities of the organization;
- makes it possible to active maneuvering with financial resources;
- ensures the rapid implementation of promising investment capabilities;
- reflects the comparative advantages of the enterprise in financial activity in comparison with its competitors;
- ensures a clear relationship of strategic, current and operational management of financial activities of the enterprise;
- is one of the basic prerequisites for the strategic changes in the general organizational structure of management and culture of the organization;
- ensures the implementation of the corresponding mentality of financial behavior in the most important strategic financial decisions of the enterprise and forms the importance of the main criteria assessments of the choice of the most important financial management decisions [1]

## **2. Principles for developing the financial strategy of an enterprise**

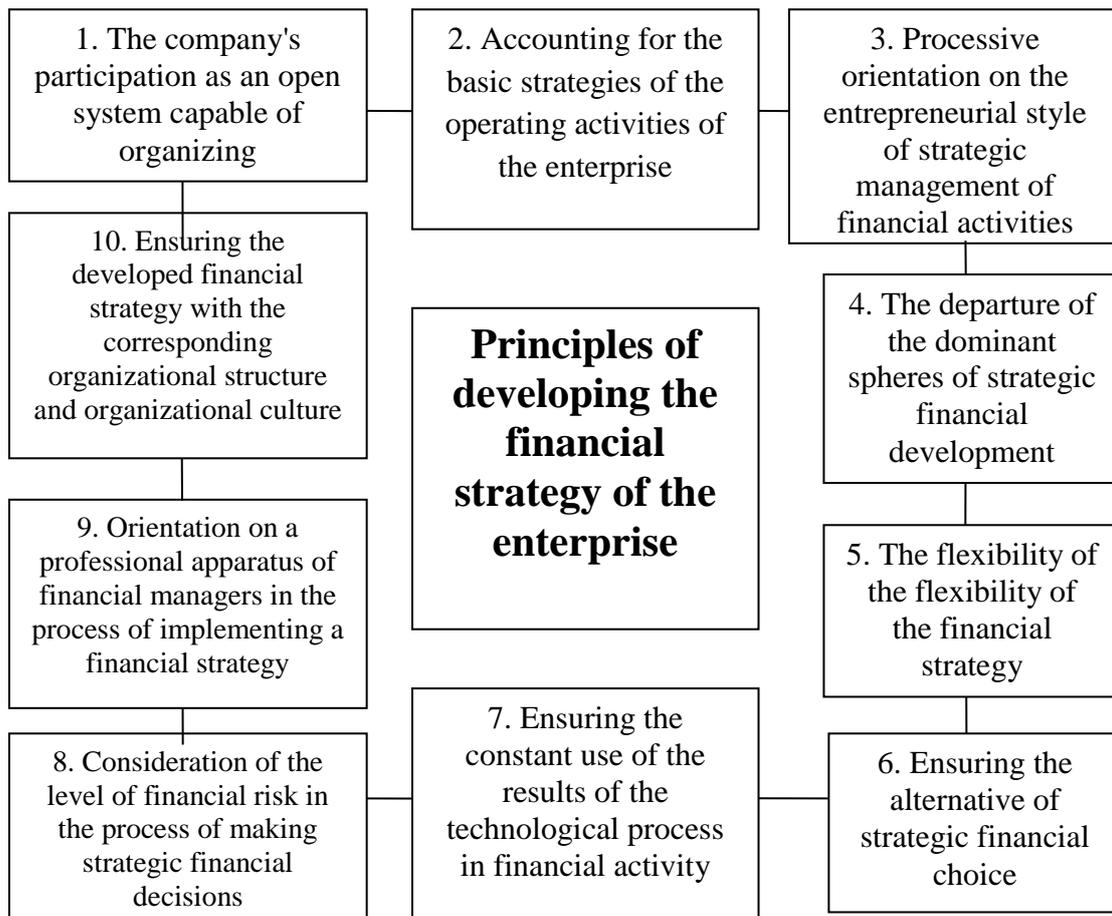
The development of the enterprise’s financial strategy is based on the principles that ensure the preparation and adoption of strategic financial decisions in the process of developing the financial strategy of the enterprise. (Figure 1)

Particular attention is paid to the development of a financial strategy:

- identification of cash income;
- mobilization of internal resources;
- maximum decrease in the cost of production;
- proper distribution and use of profit;
- determining the need for working capital;
- rational use of the capital of the enterprise [2].

The financial strategy includes the methods and practice of the formation of financial resources, their planning and ensuring the financial resistance of the enterprise. Comprehensively taking into account the financial capabilities of enterprises, objectively evaluating the nature of external and internal factors, the financial strategy ensures the compliance of the financial and economic capabilities of the enterprise with the conditions for the market, and provides for the determination of the long-term goals of financial activities, the choice of the most effective ways to achieve them.

The goals of the financial strategy should obey the overall strategy of economic development and go to maximize the profit and the market stage of the enterprise [6].



**Figure 1. The basic principles of developing the financial strategy of the enterprise.**

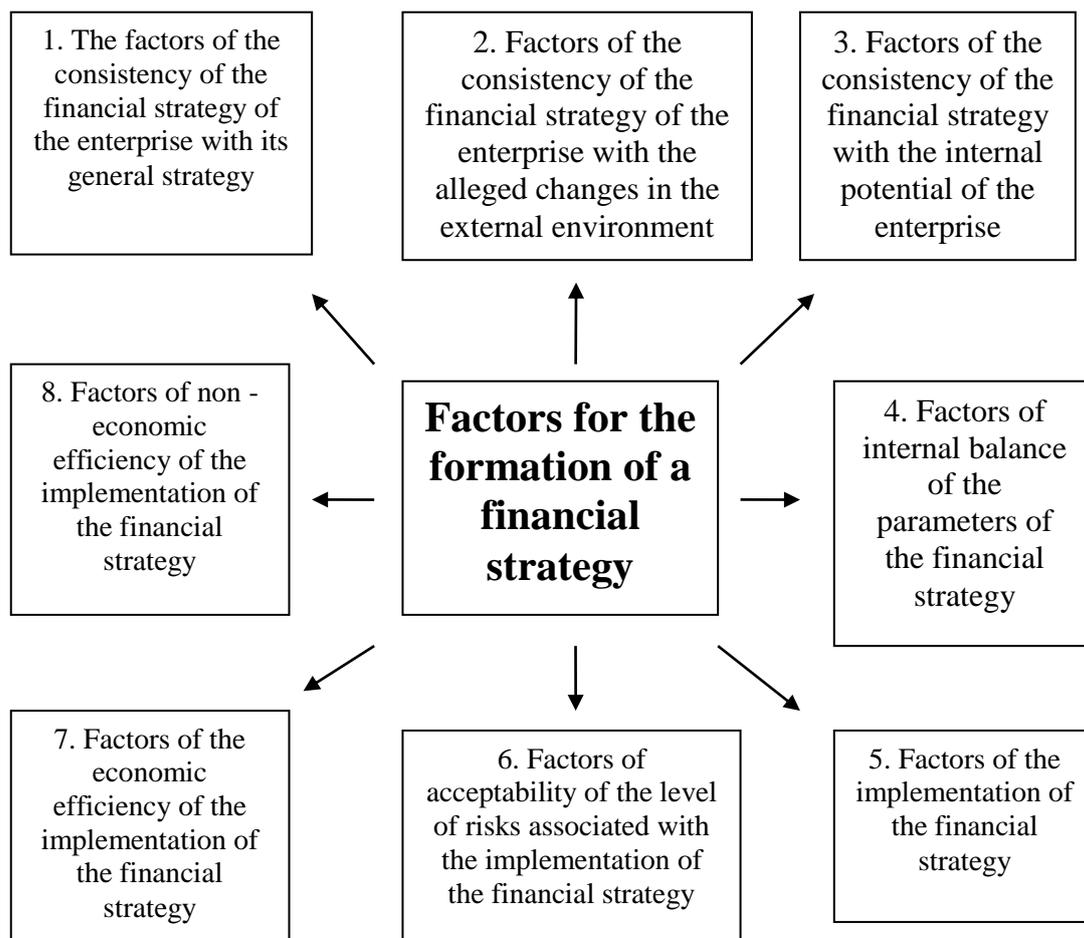
Source: [2]

Considering the financial strategy as part of the strategic management of the enterprise, it is necessary to take into account that the financial strategy itself is a product of analysis of financial indicators of past years and analyzing changes in the external and internal environment. Of particular importance for the formation of a financial strategy is the analysis of the impact of factors of the external and internal environment, since on its basis the goals and objectives are determined, alternative development options are developed and the ways to achieve the goals are considered. [7]

### 3. Factors influencing the formation of financial strategy

The whole set of internal and external factors affecting the forming of a financial strategy (Figure 2) can be divided into four main groups:

1. Factors affecting the social component of the financial strategy (for example, the predicted development of the country's economy and changing the conjuncture of the financial market in the context of its individual segments);
2. Factors affecting the environmental component of the financial strategy;



**Figure 2. Factors affecting the formation of the financial strategy of the enterprise.**

Source: [5]

3. Factors affecting the financial and economic component of the financial strategy (for example, the manufacturability of elected investment projects elected for the implementation of investment projects; a list of financial instruments that moise the formation of an effective investment portfolio, a lesson of risks for financial activities);

4. Factors affecting the institutional component of the financial strategy (for example, the business reputation of the enterprise, the level of controlled financial activities of structural units, the level of material and social satisfaction of financial managers) [5].

#### **4. Conclusions**

Currently, the need for such management of enterprises has been formed that would ensure their effective adaptation to a rapidly changing environment. Due to the high degree of instrument instration, the management process, based on the prediction of the future by extrapolation of historically established trends, is inferior to the priorities of strategic management, the main function of which is the development of a strategy. As part of this problem, it is important to formulate a clear idea of the company's strategy, it is necessary to establish the principles, components and levels of its implementation. An analysis of its component such as a financial strategy is especially important. The lack of a developed financial strategy may lead to the fact that the financial decisions of individual structural units of the enterprise will be multidirectional in nature, leading to contradictions and a decrease in the effectiveness of financial activity as a whole. On the contrary, the financial strategy developed allows us to adapt the company's financial activity to the upcoming radical changes in the possibilities of its economic development.

Thus, the need to develop a financial strategy is that it includes the methods and practice of the formation of financial resources, their planning and ensuring the stabilization and financial resistance of the enterprise in market competitive operating conditions. The success of the financial strategy of the enterprise is guaranteed when strategic financial goals meet the real economic and financial abilities of the enterprise, when finances management are clearly centralized, and the management funds are flexible and adequate changes in the real financial and economic situation. The implementation of the financial strategy as an information management product in the form of solutions, plans, programs is not the main goal of the functioning of the enterprise.

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## ANALYSIS OF AIF REGULATION IMPLEMENTATION IN THE REPUBLIC OF MOLDOVA AND THE REPUBLIC OF CYPRUS

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**Abstract.** Modern financial relationships between investors and beneficiaries evolved, seeking efficient management of financial resources. Alternative Investment Funds (AIFs) gain a greater role in international financial intermediation bringing plenty of benefits for market participants and the market as a whole: flexible investment tool, lesser administrative burden, wide diversity of asset classes, favourable taxation, market diversification and others. Legal regimes are important to promote investments and the employment of AIF as investment tools. The stable operation of AIFs in many EU countries is attributed to clear and efficient regulation. The Republic of Moldova adopted the EU AIF regulatory regime in 2020 but does not register the same success as many EU financial centres. The supposition is that the law is not being implemented as expected and that there are other structural factors requiring regulators' attention.

The aim of the paper is to compare the national AIF regime with one of the successful cases in the EU and determine which factors within the compared jurisdictions may hinder the appropriate application of AIF law in Moldova. The data used for the paper are official sources, legislation and market data. The methodology is mostly qualitative based on analysis and synthesis.

Findings suggest that the adoption of EU AIF-related legislation had a beneficial effect on modernising Cyprus AIF regulation. In order to develop the national AIF market, it is necessary for intersectoral cooperation of regulators to eliminate structural weaknesses and create incentives for AIF application.

**Keywords:** Alternative Investment Funds; Undertakings for Collective Investments; Non-UCITS; Collective Investment Vehicles; AIFs' Regulation; AIFMD; Asset Management; Structured Finance; Investment Funds; Risk-spreading Investments.

**JEL Classification:** K2, K23, K29

### 1. Introduction

In the regulated financial markets, alternative investment funds are subject to a lighter regulatory burden compared to other types of investment vehicles or investment institutions. This fact, explains the popularity of these vehicles among different types of investors, especially in the financial centres known as developed ones. There are various advantages to choosing to invest via alternative investment funds.

First of all, as named – lesser regulations give them the freedom to capitalize on a wide range of investment opportunities that are usually not available for other regulated entities, or not available until certain prudential requirements are met. Secondly, alternative funds contribute to the overall market liquidity and increase market diversity, creating a certain category of assets for

investment. Not less important, the investment activity of AIFs plays an important role in pricing, which serves further purposes of financial, economic and monetary analyses.

The reality of a growing interest in employing AIFs is explained by their practicality and potential for substantial financial returns under low-risk settings. The assets of funds are typically not associated to traditional portfolio investments, which can increase portfolio diversity, reduce total portfolio risk, and open the door to higher returns.

The purpose of analysis lies in determining whether there are any prospects to establish or enhance the national AIFs regulation or other factors hindering the employment of AIFs. The need for this study to identify best practices in AIF regulation stems from the fact that Moldova's capital market has reached a stage of development that calls for more flexible and creative investment products to encourage investments and enable the funding of the economy.

## **2. AIFS OPERATING FRAMEWORK**

### **2.1. Analysis of the national state of the art in AIFs regulation**

In the Republic of Moldova, a comprehensive AIF legal framework was adopted relatively of late, by the adoption on February 6, 2020, of the so-called *Law no. 2 regarding alternative collective investment organisms*<sup>40</sup> (hereinafter: *Law no. 2/2020*).

According to the *Law*, the so-called Alternative Organisms for Collective Placements (Abbreviation in original: *OPCA*) are investment companies organised as joint-stock or limited partnerships established by deed of incorporation and investment funds established by civil society contract, without creating a legal entity, which operate on the principle of risk sharing and whose activity consists in collecting financial resources from natural and/or legal persons, by issuing participation securities, for the purpose of their subsequent investment according to the provisions of the *law*. The *law* establishes the legal framework regarding the establishment, approval, necessary appointments and operation of alternative collective investment undertakings, the requirements for the organization, licensing and activities carried out by investment management companies, including the obligations related to the management of collective investment undertakings with risk capital and long-term investments, as well as the rules relating to depositories of assets of alternative collective investment undertakings. By the right and frequency of redemption, the *law* provides for *OPCA* of open-ended and close-ended ones. Likewise, in the EU, Moldovan AIFs shall be managed by a management company or a managing partner, depending on the form of legal organisation.

The National Financial Market Commission (hereinafter *CNPF*) is the authority empowered to implement *Law no. 2/2020* in accordance with the powers established by *Law no. 192/1998 regarding the National Commission of the Financial Market*.

It is to mention, that *Law no. 2/2020* partially transposes the provisions of the known AIFMD<sup>41</sup>, *Regulation No 1060/2009*<sup>42</sup> and *Regulation (EU) No 1095/2010*<sup>43</sup>. However, this did

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<sup>40</sup> Originally: *Legea Nr. 2 din 06-02-2020 privind organismele de plasament colectiv alternative*

<sup>41</sup> Directive 2011/61/EU of the European Parliament and of the Council of 8 June 2011 on Alternative Investment Fund Managers and amending Directives 2003/41/EC and 2009/65/EC and Regulations (EC) No 1060/2009 and (EU) No 1095/2010 Text with EEA relevance

<sup>42</sup> Regulation (EC) No 1060/2009 of the European Parliament and of the Council of 16 September 2009 on credit rating agencies (Text with EEA relevance)

not rise the same level of applicability compared to the EU market, especially in some particular countries, where AIFs are for decades been successfully used for investments. Finding all the factors conditioning the weak AIF market in Moldova require complex analysis, although many of them may seem obvious, for the purpose of this paper there would be analysed the strengths of a successful example of Cyprus, in order to formulate potential issues to improve on the national market.

## **2.2. Analysis of the Republic of Cyprus AIFs framework**

Cyprus is known as one of the most internationally active business centres for decades, and compared to other strong EU financial centres, this is one linked not only to the EU countries but has strong connections with further geographical Europe, Asia, Africa and the Middle East. The positive perception of Cyprus as a reliable and efficient financial centre of course is conditioned not only by efficient regulation, but also by such factors as: good geographical positioning, stable policy, manageable country risk, developed financial and fund services infrastructure, the relationship of business with public authorities, level of justice and transparency, taxation environment and, not least important - level of expertise of local financial specialists.

But *de facto*, regulation is a crucial component and factor of the asset management field since, in order for investors to have confidence in entrusting their money to asset managers, they must observe regulatory compliance and operate in a reliable regulatory system. Before Cyprus's accession to the EU in 2004, there was a clear and transparent regulatory framework modelled in compatibility with the UK law. After the accession, the legislation in the financial sector was harmonised with the EU regulations, which brought a wave of updating and opened the passporting opportunities. Although, once EU regulations in the financial sector were implemented across the EU this decreased the capability of particular countries to offer competitive advantages in terms of different regulatory advantages, this not only did not affect Cyprus' financial sector but contributed to its modernisation and investors protection.

The activity of AIFs in Cyprus is supervised by the Cyprus Securities and Exchange Commission (CySec). In 2014 the first AIF regime law aligned to the EU regulations was adopted. In 2018 this law was substituted by an updated version - *Law on AIFs and other related matters*<sup>44</sup>, which expanded the possible legal forms for AIFs, introduced a new type of fund, and provides for the possibility to have umbrella funds with segregates compartments.

Currently Cyprus provides three types of AIFs, with different levels of regulation burden, categories of investors and diversification rules:

- Registered Alternative Investment Fund (RAIF);
- Alternative Investment Fund with unlimited number of persons (AIFUNP);
- Alternative Investment Fund with Limited Number of Persons (AIFLNP).

As mentioned, the updates Cyprus AIF law provides an opportunity for flexibility in terms of sophistication of investors' intentions and investment strategies. Table 1 maps different combinations of types of funds with the legal forms available in Cyprus.

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<sup>43</sup> Regulation (EU) No 1095/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Securities and Markets Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/77/EC

<sup>44</sup> Alternative Investment Funds Law of 2018.

**Table 1. Types of AIFs and possible legal forms**

<b>Types of AIFs - Legal Forms</b>		
AIF	AIF For Limited Number of Persons	RAIF
Variable Capital Investment Company (VCIC)	Variable Capital Investment Company (VCIC)	Variable Capital Investment Company (VCIC)
Fixed Capital Investment Company (FCIC)	Fixed Capital Investment Company (FCIC)	Fixed Capital Investment Company (FCIC)
Limited Partnership (LP)		Limited Partnership (LP)
Common Fund (CF)		Common Fund (CF)

**Source:** Joannides+Co Ltd (2019)

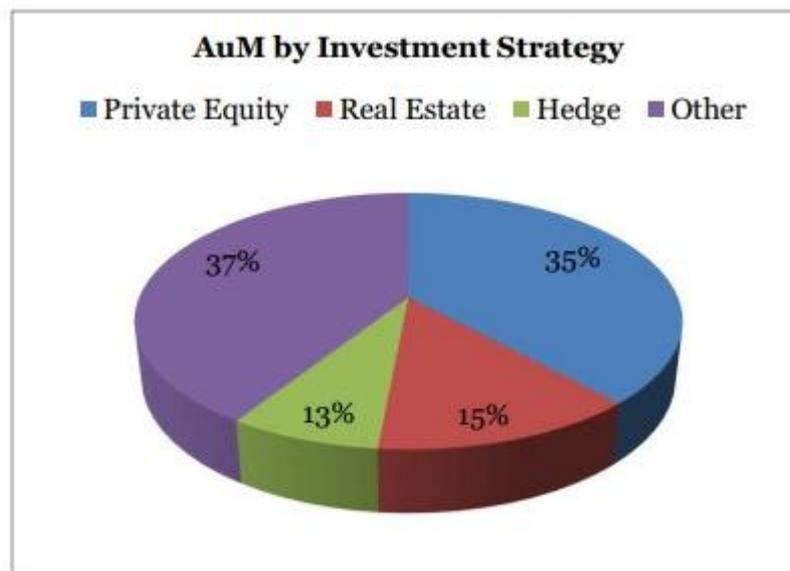
RAIF is the most time and cost-efficient fund, it is not subject to authorisation and has no minimum share capital requirement, but shall be externally managed by an authorised Alternative Investment Fund Manager (AIFM). RAIF is destined for professional and well-informed investors. AIFLNP is lightly regulated compared to the AIFUNP, but the latter can be also offered to retail investors. Both can be managed internally or externally by eligible entities. Cyprus AIFs are part of the passporting rights applicable in the EU, meaning that Cyprus funds can be marketed in the EU without additional authorisations (notification procedure).

It is to mention that Cyprus has in place an attractive tax environment, also AIF-friendly taxation. CIT in Cyprus is 12.5%, which is a little bigger than in Moldova and one of the lowest in the EU. Fund management services offered to authorised funds are in principle exempt from VAT. There is no withholding tax on interest and dividend payments to non-residents and no stamp duty on the issue of units of AIFs. Cyprus also provides possibilities for efficient tax planning, at the same time being compliant with the EU tax regulations and OECD requirements. AML legislation is also compliant with EU and FATF provisions.

Development of the AIF market in Cyprus –120 AIFs in 2020 and 34 AIFMs (CountryProfiler Ltd, 2020), benefits not only the financial sector but directly contributes to the economic growth through the investments made in specific sectors:

- Energy – EUR 111.8 million (1.40% of total Assets under Management (AuM));
- Sustainable Investments – EUR 33.4 million (0.42% of total AuM);
- Shipping- EUR 10.7 million (0.13% of total AuM);
- Fintech – EUR 23.2 million (0.29% of total AuM).

The distribution of AuM by the investment strategy can be seen in Figure1.



**Figure 1. Assets under Management by Investment Strategy on 30.06.2020.**

Source: Stelios Americanos & Co LLC (2020)

### Conclusion

Different types of both interest rates-related and non-related constraints seen in the banking sector in recent years as well as the flexibility of the fund industry conditioned significant growth of a number of funds and assets under management. AIFs gain a more important role in financial intermediation.

The Republic of Moldova’s financial sector relies heavily on the banking sector, the capital market is underdeveloped. This hinders investment flows and slows economic growth. For the Republic of Moldova, developing the AIF industry would mean diversification in the financial market, boosting investments and coming to a new level of development.

Since one of the most important factors for the fund industry to prosper is investors’ confidence in the market and jurisdiction, a credible regulatory system is a necessary attribute. A too lax regulation can give investors the feeling of uncertainty and that things may be influenced by other forces cresting uncertainty on this channel. Overregulation, on the other side, hinders investors’ plans and may have a disincentive effect. Looking at the essence of AIF, this instrument was created namely to make a trade-off and cover the needs of investors willing to have the freedom to capitalise, but still, provide a safe and relatively certain environment for investment. And this is exactly where Cyprus succeeded, for more than 20 years Cyprus has been actively involved in the fund industry.

Starting in 2014 Cyprus AIFs worked under the EU-aligned legislation. Moldova implemented the EU AIF regime in 2020 and according to available statistics, there is no single AIF registered in Moldova.

Regulation is important in funds management, but the success of a country in the efficient employment of AIFs is not determined only by regulation but by other technical and sentimental factors. The latter, being seen objectively, is also heavily influenced by the technical ones. And by the technical, at least an appropriate infrastructure is meant: sound and diverse overall financial

system (banks, custodians, depositaries, insurance companies), availability of professional knowledge, developed audit, tax advisory and other consultancy services, availability of an active rating system, efficient company and civil law, credible institutions, connectivity with other markets, public sector support. On many of these points, Moldova has a still long way to pass.

The creation of an appropriate AIF infrastructure is a long-lasting process, which may take years to build credible and sound participants necessary in an entire AIF lifecycle. It is a continuous process of regulators' hard work on structural issues in many fields (finance, taxation, AML, company and civil law); at the same time regulation could be a good start in the whole process and use them as a tool for boosting AIFs employment and taking benefits of their use.

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## **SESSION IX**

# **LEGAL CONFLICTOLOGY IN ECONOMIC LAW LEGAL RELATIONSHIPS**

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## CONTROVERSIES ON THE PROTECTION OF PRENATAL LIFE THROUGH THE PERSPECTIVE OF EUROPEAN LAW

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*Abstract:* The purpose of this article is to present the well-reasoned legal situation of abortion under European law in order to examine, from the point of view of the jurisprudence of the European Court of Human Rights (the Court), whether the conception product is the right-holder of the right to life enshrined in Article 2 of the European Convention for the Protection of Human Rights and Fundamental Freedoms (ECHR) and, on this occasion, to grasp the position of the European instance on the legality of pregnancy interruption.

**Keywords:** human rights, prenatal life, European standards, corpus of jurisprudence.

**JEL Classification:** K10, K33, K38

### Introduction

Although in the 21st century most law systems no longer absolutize the prohibition of abortion, the issue of the legality of pregnancy interruption seems inexhaustible due to the fact that, hypothetically speaking, interruption of pregnancy outlines the polarization of two diametrically opposed interests, namely: the interest of the pregnant woman and the interest of the fruit of the conception. Thus, the oscillations regarding the legality of pregnancy interruption are conditioned by the content of the conferred right to life, the difficulty deriving from the imprecision of the nature of the relationship "pregnant woman – the product of conception".

In recent years, the Court has tried on a number of cases on abortion, having provided a solid *corpus* of jurisprudence. Reflecting the variety and complexity of abortion-related situations, the cases presented to the Court are not limited by abstracted claims of the right to abortion access, but concern various issues, such as child abortions, eugenic abortions, informing and giving consent to various persons involved. Hence, one of the main difficulties for the Court is to determine how to legally handle the matter of abortion: how to introduce the practice of abortion within the internal logic of the Convention and of its case-law. The central question is whether the unborn child is a "person" within the meaning of Article 2. The Court keeps this question open in order to allow States to determine when life begins, and therefore when legal protection of life begins.

Evidently, a unitary solution is hardly possible because interruption of pregnancy is based on religious, psychological, ethical, demographic and political issues. It is worth noting that countries that maintained abortion restrictions have come under strong internal and external political pressure. However, "as soon as the State, acting within its discretion, adopts legal regulations permitting abortion in some situations" (Krzyanowska-Mierzewska, M., 2004, Pt. I(b)-(f)), then, as a matter of principle, "the legal framework designed for this purpose should be

formulated in a coherent way, which allows the various legitimate interests concerned to be taken into account adequately and in accordance with the obligations deriving from the Convention" (*P. & S. v. Poland* (2012), Para 99) evaluating the balance of interests for the issue of abortion is a difficult exercise because "it is not possible to balance one's life with the right or interest of someone else. Therefore, if the State recognises the unborn child as a person, it could balance the life of the child only with the life of another person, that of the mother. It is not possible to balance the value of the mother's will, on the one hand, and that of the unborn child's life, on the other. Neither the value of a will nor of a human life can actually be estimated, let alone be compared to each other." (Puppinck, Gr., 2013, p. 142)

Beyond this reality, at both institutional and jurisprudential European levels, pregnant women have been recognised the right to have access to termination of pregnancy under the conditions of legality and safety. However, differences arise regarding the way it is regulated. From this perspective, in the context of an intense liberalisation of the system of abortion criminalization, European legislators have reported the legality of pregnancy interruption on the ground of the gestation period system and/or the indications system. The implications of such an inclusion are far from exhausting controversies about reproductive health within the legitimacy of pregnancy interruption.

*Gosso modo*, the widespread practice of abortion on demand, constitutes the major share of consequence of the systematic failure of States to meet their obligations with regard to socio-economic rights. One of four pregnancies ends in an abortion every year, estimates the World Health Organization and the Guttmacher Institute (Institute Guttmacher, 2022). Globally, 73 million abortions take place every year. In Europe, 30% of pregnancies end up in abortion (Sedgh, G., Bearak, J., [...], 2016, p. 258). The socio-economic constraint of the mother and the family and the large number of abortions resulting from it could be limited if States endeavoured to fulfill their socio-economic obligations in which "special protection should be given to mothers during a reasonable period before and after birth" (*R.R. v. Poland* (2011), Para 187).

At present, after more than three decades later since the legalization of abortion in the European area, it seems that the viewpoint on this practice must be changed, requiring an objective and complex approach to this practice, detaching from its ideological implications. In this respect, Lord *David Steel*, the architect of the liberal law on abortion in the UK, declared that he "could not have ever imagined that there would be so many abortions" (Ward, L., Butt, R., 2007.). We support the idea that "it is no longer possible to talk about abortion in terms of progress and liberation of women" (Puppinck, Gr., 2013, p. 7). Furthermore, it is high time States implemented a "forgotten" right: the right not to abort.

### **Prenatal Life through the Perspective of International Instruments**

*Ab initio*, the right to life, survival and development is a fundamental human right, a precondition for freedom, progress, justice and creativity. It is the alpha and omega of human rights, the first and last human right, the beginning and the end, the means and the purpose of human rights, in short, it is the central right from which all others are born (Bedjaoui, M., 1991, p. 182).

The right to life, the universal right of a human, is enshrined in many international acts. Thus, the Universal Declaration of Human Rights reads that "everyone has the right to life, liberty and personal security" (UDHR, Art. 3). The International Covenant on Civil and Political Rights

promotes the same principle: "The right to life is inherent to the human person" (ICCPR, Art. 6). The syntagma of the inherent right to life requires that every State adopt constructive measures, entirely positive, intended to protect life. States will have to abstain from any actions that result in the life termination of a person. Moreover, they should take measures to protect life in general. Implicitly, the Covenant contains no mention of abortion or the exclusion of unborn children from the protection of the right to life. A fortiori, it is specified that a death penalty "is not carried out on pregnant women" (ICCPR, Para 5), implicitly acknowledging the right to life of the unborn child, or at least the value of his/her life. It should be emphasised that at the time of the adoption of the text, "death penalty was lawful in many jurisdictions, while abortion on demand was a crime in most countries of the world" (Puppink, Gr., 2013, p. 18).

The specific instrument pertaining to a child, the most dense and complete in the human rights materia which funds all the legitimacy of the institution of the international protection of the child's rights, the Convention on the Rights of the Child, defines the child as a human being under the age of 18 (CRC, Art. 1). The text leaves the issue of the childhood outset unsettled, without mentioning when it begins: at conception, at birth, or at the time between these two. It does not set a specific moment, advocating a "flexible approach" to the problem, leaving it to the discretion of States to decide, depending on their own circumstances, the conflicting rights, especially the child's right /mother's right, and the interests involved in the problems of abortion and family planning. To put it another way, this regulation in the Convention is most often criticized, being regarded as one of the most vulnerable (Hodgkin, R., Newell, P., 2007, p. 2). It should be noted that neither of the two the 1924 and 1959 children's rights Declarations define the childhood outset. However, the 1959 Declaration in its Preamble reads that "due to their physical and mental immaturity, the child needs special protection and care, including adequate legal protection, both before and after birth" (DRC, Preamble).

*In concreto*, the *European Convention* in Article 2 reads: "everyone's right to life is protected by law" (ECHR, Art. 2) and the *Court* elaborates on that as follows: "the right to life is an inalienable attribute of human beings and forms the supreme value in the hierarchy of human rights" (*Pretty v. UK* (2002), Para 65). The Convention is silent as to the temporal limitations of the right to life. "Everyone" (*Vo v. France* [G.C.] (2004), Para 75) can expect protection without any limitation or reduction of the temporal scope of the right to life. At the same time, the Court has never construed Article 2 so as to allow an implicit exception to the right to life with regard to prenatal life, or such an approach "would be at variance with both the letter and the spirit of the Article" (*Bruggemann & Scheuten v. FRG* (1981), Para 60, *Vo v. France* [G.C.] (2004), Para 78). *Ad valorem*, the Court claimed that the "embryo/foetus belongs to the human race" (*Vo v. France* [G.C.] (2004), Para 84) and that he/she needs "protection in the name of human dignity" (*Vo v. France* [G.C.] (2004), Para 84). In other words, this principle offers protection to the unborn child against violations of his/her dignity, such as inhuman or degrading treatment, which the Court cannot tolerate due to the absolute prohibition of such treatment under the Convention. Furthermore, more subtly, in practice the Court has permitted States to exclude the unborn from the protection conferred by Article 2, leaving the determination of the scope of this Article in their margin of appreciation, preferring in this way to avoid judging and making a decision on the conventionality of abortion in principle.

New medical technologies in the field of procreation have imposed legal instruments to protect human dignity and the embryo, as well as the scientific development of knowledge and practices. Many European human rights instruments relating to bioethics contain provisions on prenatal life<sup>45</sup>. Although these legal instruments do not explicitly define the "human being," they provide the embryo and/or foetus with "certain protection, depending on scientific progress and the potential consequences of research in genetic engineering, medically assisted procreation, or embryo experimentation" (*Vo v. France* [G.C.] (2004), Para 84).

A European "consensus" on a scientific and legal definition of the beginning of life was "found" by the European Court of Justice (ECJ) in its judgment of 18 October 2011 in the case of *Oliver Brüstle v. Greenpeace* (Case C-34/10 ECR I-9821). The Grand Chamber of the ECJ, interpreting the Directives 98/44/EC of the European Parliament and of the Council of 6 July 1998 on the Legal Protection of biotechnological inventions, defined the term "human embryo" as "any human ovum after fertilisation, any non-fertilised human ovum into which the cell nucleus from a mature human cell has been transplanted, and any non-fertilised human ovum whose division and further development have been stimulated by parthenogenesis" (*Oliver Brüstle v. Greenpeace* (2011), Para 15). In the ECJ's view, the principle of the person's dignity and integrity protects the human embryo and the cells derived from it at any stage of its formation or development (*Oliver Brüstle v. Greenpeace* (2011), Para 16). This is the first decision of a European instance which provides a definition of the human embryo. The Court specified that this definition is "an autonomous notion of the European Union law": the meaning and the scope of the term "human embryo" must be given a uniform and independent interpretation throughout the European Union legislation.

### **European Convention: between the Protection of Prenatal Life and the Right to Abortion**

*Ab initio*, the Convention does not contain a right to abortion. The document must be interpreted in the light of the objective for which it was created: protection of human rights, especially for vulnerable people. Excluding prenatal life from its scope, as a principle, would go against the intended aim. Moreover, recognising abortion as a right would be equivalent to overcoming the dimensions of the Convention. It would represent a mutation at the philosophical level of the Convention from the substrate of the protection of the human being in its natural structure to the protection of its autonomous will. Although "autonomy is a set of capacities whereby each person determines how to use his/her faculties and abilities..., the matrix of the decisions and actions of the person..., the source of personal freedoms" (Puppinck, Gr., 2013, p. 24), this autonomy cannot be the source of the individual's rights, for which the society would be liable. *De facto*, the so-called right to abortion implies the domination of individual will over life, subjectivity over objectivity. In this respect, the Court explicitly declared in the *Pretty v. the United Kingdom* case that "Article 2 cannot, without a language distortion, be interpreted as

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<sup>45</sup> Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine: Convention on Human Rights and Biomedicine (Oviedo 4 April 1997), Additional Protocol to the Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine, on the Prohibition of Cloning Human Beings (Paris 12 January 1998), Additional Protocol to the Convention on Human Rights and Biomedicine, concerning Biomedical Research (Strasbourg 25 January 2005).

conferring the diametrically opposed right, namely the right to die, nor can it create a right to self-determination" (*Pretty v. UK* (2002), Para 39). Similarly, the Grand Chamber of the Court declared in the *A. B. & C. v. Ireland* case that "Article 8 cannot be interpreted as conferring the right to abortion." (*A.B. & C. v. Ireland* [G.C.] (2010), Para 214) In addition to these clear statements, the Court, in the case of *Maria do Céu Silva Monteiro Martins Ribeiro v. Portugal*, declared inadmissible an application claiming a right of access to abortion on demand against the national legislation, which was considered too restrictive by the applicant.

*The Convention does not establish the right to conduct abortion.* The Court has consistently rejected requests by doctors with regard to condemning them for supporting (*Jerzy Tokarczyk v. Poland* (2002)) or performing illegal abortions (*Jean-Jacques Amy v. Belgium* (1988)). However, in the cases of *P. & S. v. Poland* and *R. R. v. Poland*, the Court acknowledges that health professionals have a right not to perform abortion (*P. & S. v. Poland* (2012), Para 206). The same position was also formulated by the Parliamentary Assembly of the Council of Europe (PACE Resolution 2010/1763) which supported "the right to conscientious objection in lawful medical care", declaring that: "no person, hospital or institution shall be coerced, held liable or discriminated against in any manner because of a refusal to perform, accommodate, assist or submit to an abortion, the performance of a human miscarriage, or euthanasia or any act which could cause the death of a human foetus or embryo, for any reason".

*Abortion is a derogation from the right to life.* Most States which allow abortion permit it as a derogation from the right to life in their national law (*Abortion Policies and Reproductive Health around the World*, 2014). *In hoc casu*, from the point of view of abortion legislation, the European Union (EU) countries are divided into 3 groups. The countries which severely restrict abortion are Malta and Poland, complemented by Northern Ireland, which is part of the UK. Malta strictly forbids abortion for any reason. In Poland and Northern Ireland, it is theoretically possible to acquire a right to abortion if pregnancy resulted from a rape, incest, if the foetus has serious malformations or if the mother's life and health are endangered; in practice, however, both specific regulations and State support in assisting women who intend to resort to termination of a pregnancy reduce the number of abortions to almost insignificant percentage. For example, in the case of Poland, the abortion rate is very low (1 / 1,000 births). The second group includes States where abortions may be accessed under certain conditions, more relaxed, financially and medically motivated: Cyprus, Finland, Luxembourg and the UK. In the rest of the EU States, abortion is available on demand. This is the situation in former communist countries, except for Poland (the Baltic countries, Bulgaria, the Czech Republic, Slovakia, Slovenia, Hungary), which have had such legislation since the "iron curtain" (which is quite explainable through the fact that the first country in the world to legalize abortion was the USSR in 1922) along with Western countries, even Catholic ones like Italy and Spain (*Abortion Policies and Reproductive Health around the World*, 2014).

Exceptions formulated by States must necessarily be prescribed by law. Hence, these States do not question the applicability of the right to life during the prenatal life, although they allow a small possibility to derogate from this rule. "This means that for all States allowing abortion as a derogation, the right to life, in principle, covers and protects life before birth." (Puppink, Gr., 2013, p. 25) *A fortiori*, being a derogation from the right to life, abortion cannot constitute a right

in itself, it cannot become an autonomous right. As a derogation, its scope is limited by the corresponding right. Furthermore, according to the doctrine of the "conditional applicability" of the Convention, once a State, acting within its limits of appreciation, adopts legal regulations permitting abortion (*R.R. v. Poland* (2011), Para 99), then a legal framework should comply with the Convention (*A.B. & C. v. Ireland* [G.C.] (2010), Para 249, *P. & S. v. Poland* (2012), Para 99, *R.R. v. Poland* (2011), Para 187). If States recognise in their internal legal order that the right to life covers, in principle, life before birth, or the reality that the embryo or foetus is a "person", the Court should apply the Convention by taking into consideration this reality, applying Article 2 with reference to the unborn child. As a result, the Court "should not only limit itself to merely observing the absence of a European consensus on the beginning of life" (Puppinck, Gr., 2013, p. 27), but should also seek to ascertain whether national legislation recognises, at least to a certain extent, the right to life of the unborn child, or whether he or she is a "person".

Moreover, the "consensus" of a substantial majority of the contracting States of the Council of Europe, towards allowing abortion in broader terms than those accorded under the national legislation of some States (*A.B. & C. v. Ireland* [G.C.] (2010), Para 235), "does not determine the narrowing of the margin of appreciation" (*A.B. & C. v. Ireland* [G.C.] (2010), Para 236), enjoyed by some States in the interpretation of the Convention. In the case of *A. B. & C. v. Ireland*, as well as in the one of *S. H. and others v. Austria*, the Court considered that "the acute sensitivity of moral and ethical issues raised by the problem of abortion or the importance of the public interest at stake" (*A.B. & C. v. Ireland* [G.C.] (2010), Para 233, *S.H. and others v. Austria* [GC] (2011), Para 97), determines the granting of a wide margin of appreciation to States. In *dissentientes sententia*, six judges (*A.B. & C. v. Ireland* [G.C.] (2010), Dissenting Opinion) of the Court considered that the existence of a consensus on abortion between the Member States of the Council of Europe should have been used to reduce the width of the margin of appreciation enjoyed by Ireland, in order to straighten the dynamic interpretation of the Convention to the development of a right to easier access to abortion (*Marckx v. Belgium* (1979), Para 41, *Dudgeon v. UK* (1981), Para 60, *Soering v. UK* (1989), Para 102). In their view, "profound moral opinions" might impede the dynamic expansion of human rights created by the Court through interpreting the provisions of the Convention. The consensus of the Member States of the Council of Europe regarding the "right of the woman" over her unborn child does not similarly represent their consensus on the right to life of the unborn child, which depends on the "the question when the right to life begins" (*A.B. & C. v. Ireland* [G.C.] (2010), Para 237). Thereafter, the Court has been unable to assess the proportionality of Irish legislation regarding abortion, having limited itself by merely considering whether there is a balance between the mother's interests and other rights and interests involved in the matter. "Such a balance is not possible if the State recognises the unborn child as a person: a balance cannot be achieved between the rights and interests of a person and the life of another" (Puppinck, Gr., 2013, p. 29). Therefore, the unborn child's legal status takes precedence to the status of the "woman's right" over the life of her unborn child. By avoiding the formulating of the answer to the question of whether the unborn child is a person protected by Article 2, the Court declared: "the margin of appreciation which is accorded to a State's protection of the unborn child necessarily translates into a margin of appreciation for the State as to how it balances the conflicting rights of the mother" (*A.B. & C. v. Ireland* [G.C.] (2010), Para 237).

*The right to life implies positive and negative obligations of the State* (*H. v. Norway* (1992), *L.C.B. v. UK* (1998), Para 36, *Pretty v. UK* (2002), Para 38). "Article 2 required the State not only to refrain from taking a person's life intentionally, but also to take appropriate steps to safeguard life" (*H. v. Norway* (1992), Para 167). In general terms, the negative obligation requires the State should absolutely refrain from taking a person's life intentionally. Meanwhile, the positive obligation outlines a margin of appreciation for the State in determining the means by which the life of those within its jurisdiction will be safeguarded.

Once the State, "acting within its limits of appreciation, adopts statutory regulations allowing abortion in some situations" (*R.R. v. Poland* (2011), Para 99), "the legal framework formed for this purpose should be shaped in a coherent manner which allows the different legitimate interests involved to be taken into account adequately and in accordance with the obligations deriving from the Convention" (*A.B. & C. v. Ireland* [G.C.] (2010), Para 249, *R.R. v. Poland* (2011), Para 187, *P. & S. v. Poland* (2012), Para 99). The derogation of a State from a right does not waive its obligations under the Convention with respect to this right and other rights affected by that measure and the "margin of appreciation is not unlimited" (*A.B. & C. v. Ireland* [G.C.] (2010), Para 238) "as to how it [the State] balances the conflicting rights of the mother" (*A.B. & C. v. Ireland* [G.C.] (2010), Para 237) with the "protection of the unborn child" (*A.B. & C. v. Ireland* [G.C.] (2010), Para 237). Therefore, in the context of the legalization of abortion, the fundamental principle the Court is guided by in classifying abortion cases is the balance between abortion regulation, in order to ensure the life and health of the mother and other competing rights and interests, including the protection of the unborn child. In this regard, the Court held that respect for the right to life compels national authorities to take positive action to protect individuals from making a hasty decision and to prevent abuse of the system (*Boso v. Italy* (2002)). Thus, even when abortion is allowed, the State must prevent the abuse of this facility, due to the State's obligation to protect life, particularly as it concerns vulnerable people. Women who undergo abortions are in distress and therefore vulnerable, especially if they are minors, disabled, face financial constraint, or seek an abortion for psychological reasons (*A.B. & C. v. Ireland* [G.C.] (2010), Para 213, *Vo v. France* [G.C.] (2004), Paras 76, 80, 82).

Concurrent rights and interests determine the position of the State while defining, within its margin of appreciation, the legal framework of abortion. In principle, a fundamental right guaranteed by the Convention, for example, the right to life, cannot be subordinated or put on an equal footing as an alleged right, not guaranteed by the Convention, but only allowed in the internal legal order, for example abortion. The Court insists that "where restrictions are imposed on a right or freedom guaranteed by the Convention in order to protect 'rights and freedoms' not, as such, enunciated therein: in such a case only indisputable imperatives can justify interference with enjoyment of a Convention right" (*Chassagnou and others v. France* [GC] (1999), Para 113). In its jurisprudence, the Court has on several occasions identified a number of "legitimate interests" justifying restrictions on the practice of abortion when abortion is lawful. Hence, along with the interest in protecting the unborn child's right to life (*H. v. Norway* (1992), *Boso v. Italy* (2002), *Vo v. France* [G.C.] (2004), Paras 86, 95), the Court recognised the legitimate interest of society in limiting the number of abortions (*Odièvre v. France* [G.C.] (2003), Para 45), the interests of the society with regard to protecting moral standards (*Open Door & Dublin Well*

*Woman v. Ireland* (1992), Para 63, *A.B. & C. v. Ireland* [G.C.] (2010), Paras 222, 227), the interest of the father (*Boso v. Italy* (2002), *X. v. UK* (1980)), the right to freedom of the conscience of health professionals (*Tysiack v. Poland* (2007)) and institutions based on ethical or religious beliefs (*Rommelfanger v. RFG* (1989)), the State's duty to properly inform women of the risks associated with abortions (*Cosma v. Romania* (2013)), the interest of the society in relation to prohibiting gender-based abortion (PACE Resolution 2011/1829), the woman's freedom and dignity (*V.C. v. Slovakia* (2011)); without casuistry being exhaustive. Forced or obliged abortion is likewise impossible to justify under the Convention as well as this is clearly a violation of both rights of the mother and of the child. The European Parliament "condemns the practice of forced abortion and sterilisations globally, especially in the context of the one-child policy" (European Parliament Resolution [2012/2712\(RSP\)](#)). The reasons given by women show that their choice of abortion is not free but, in fact, the one made under social constraint: poverty, lack of work and social security, lack of schooling or the capacity of taking care of maintenance, not willing to be a single parent or having problems with the husband or partner, etc. (*Abortion Policies and Reproductive Health around the World*, 2014). Under these circumstances, the mother's consent cannot be described as freely expressed, with the actions being comparable to forced abortion. In this regard, the causes of abortion should be seen in the light of the State's obligation to protect life, family and human dignity and to adopt positive measures to support them (UNFPA Programme, 1994).

*"Legitimate interests" that justify the lawfulness of abortion.* The polemic focused on the possibility of women to access abortion is so pervasive that most often when being reported as "solving" this problem by the State, it is considered the degree of "democratisation" of society (Romanovskiy, G.B., 2003). However, the strong argument *in favor* of abortion liberalisation appears to be related to the interests of protecting the life and health of the mother.

Undoubtedly, when pregnancy puts mother's life at risk, it makes balancing competing interests possible. However, the problem of performing abortion in order to save the life of the mother is not directly related to the existence of a "right" to abortion. A ban on abortion is not an obstacle to providing the medical treatments necessary to save the life of a pregnant woman, even if the results of the treatment lead to the loss of her unborn child's life, that is, to an unintentional interruption of pregnancy (*A.B. & C. v. Ireland* [G.C.] (2010), Para 238). *In principle*, the right of a woman which is abided through such a termination of pregnancy is not the right to abortion; it is her right to life (*A.B. & C. v. Ireland* [G.C.] (2010), Para 245). It should be noted that at the time of the signing of the Convention, the quasi-majority of the Contracting Parties States "permit abortion when it is necessary to save the life of the mother" (*X. v. UK* (1980), Para 20). Therefore, this issue was never a matter of public and ethical debate under the Convention. Moreover, when it is certified that the authorities put at risk an individual's life, including the one of the pregnant woman, by refusing to allow taking care of their health, which is the care available to the general public (*Nitecki v. Poland* (2002)), the provisions of Article 2 of the Convention are susceptible to being infringed.

Regarding the "right to health", the Convention does not form an autonomous right. The protection of "health" falls within the scope of Article 8 of the Convention, safeguard of the right to respect for private life. International norms only "recognise the right of everyone to enjoy the

highest standard of physical and mental health"(ICESCR, Art. 12) and encourage States to take action to achieve this goal. Abortion promoters insist that abortion is necessary to protect women's health and that many women die from illegal abortions. They argue that "the right to abortion should be extended so that abortion on demand or for socio-economic reasons is included and that in case of refusal it could significantly affect the physical or mental health of women" (Zampas, Ch., Gher, J. M., 2008). It is difficult to assess whether the threat to the mother's health is severe or not, and whether abortion is a reasoned request or the one of convenience.

The determination of the threshold of danger for the life or health of the woman who justifies/requires such an abortion belongs to the State. In addition, when it is established that the pregnant woman fulfils the legal conditions that allow access to abortion, the State "must not structure the legal framework in a way that would limit the real possibilities of getting the access to an abortion" (*P. & S. v. Poland* (2012), Para 99, *Tysiac v. Poland* (2007)). It should allow the pregnant woman to be able to know if her medical condition would require her pregnancy to be interrupted because it constituted a menace to her life and, therefore, to "effectively exercise her right to legally access abortion" (*P. & S. v. Poland* (2012), Para 99, *Tysiac v. Poland* (2007)). *In concreto*, the national legal framework must be outlined in a manner that clarifies the legal situation of the pregnant woman (*A.B. & C. v. Ireland* [G.C.] (2010), Pt. E 3(c)). Respecting the spirit of the Convention, States are expected to identify the circumstances in which there is "real and substantial risk for the life of the mother" (*A.B. & C. v. Ireland* [G.C.] (2010), Para 64) and provide an "accessible and effective procedure" whereby a pregnant woman can determine whether or not she fulfils the conditions for a legal abortion, namely whether the risk to her life is real and whether undergoing an abortion is necessary (*A.B. & C. v. Ireland* [G.C.] (2010), Para 267). In the language of the Court, "institutional and procedural procedures" do not mean legislation or regulations, but the commitment that the procedure should be as less complex as possible (*R.R. v. Poland* (2011), Para 191).

*Abortion on demand: uncertainty in the case-law of the Court.* *Serum veritas*, there is no direct, indirect or implicit right to abortion for socio-economic reasons, or on demand, in any international or regional treaty (Zampas, Ch., Gher, J. M., 2008, p. 287), including the Convention. In addition, "abortion on demand remains a blind spot, a dead angle, in the case-law of the Court" (Puppinc, Gr., 2013, p. 46). Until today, the Court has not directly determined whether or not the practice of abortion on demand is compatible with the Convention. The cases examined by the Court were placed under the guise of some extreme situations, such as therapeutic or eugenic abortions (*Tysiac v. Poland* (2007), *R.R. v. Poland* (2011), *A.B. & C. v. Ireland* [G.C.] (2010)) or abortions following a rape (*P. & S. v. Poland* (2012)). As a rule, requests submitted by the opponents of abortion legalisation are considered inadmissible for the lack of active processual status, *locus standi*, due to their not being direct victims of the abortion legalization (*Borre Arnold Knudsen v. Norway* (1985), *X. v. Austria* (1976)).

The conventionality of abortion practice could be analysed by the Court only in the context of the case that inclines the balance of competing interests to the detriment of the protection of the life of the unborn child. It is difficult to outline a "legitimate interest" that can be protected by an abortion argued only by the personal request. The Court, through its judgments, has never acknowledged that personal autonomy might be sufficient to justify an abortion (*A.B. & C. v. Ireland* [G.C.] (2010), Para

214). Abortion on demand, not substantiated in the terms of the Convention, affects the rights and interests recognised and guaranteed by it (*A.B. & C. v. Ireland* [G.C.] (2010), Para 249, *R.R. v. Poland* (2011), Para 187, *P. & S. v. Poland* (2012), Para 99). The "solution" would be for the Court to waive the application of the Convention for the unborn child, transforming, *de facto*, its "dead angle" into a legal goal. We note that until now, the Court has exercised its abortion law and refused to ignore the unborn child, insisting that only abortion for health or life reasons can be justified as pursuing a legitimate interest guaranteed by the Convention (*A.B. & C. v. Ireland* [G.C.] (2010)), not including abortion on demand in this category.

In the context of the balance between the life of the unborn child and the protection of other "legitimate interests", it is difficult to determine the value of this life impartially. *Ad valorem*, the right to life of the unborn child can only be balanced with the equal right to life of his/her mother. "Any other balance has an arbitrary component and is ultimately the manifestation of the power of the strong over the weak, of the domination of the born on the not-yet-born." (Puppink, Gr., 2013, p. 49).

### **Conclusion**

*Quod er demonstrandum*, European law does not recognise and much less guarantees the right to abortion. Moreover, international law guarantees the right to life for all human beings and encourages States to "limit the recourse to abortion" (U.N. Doc A/CONF.171/13/Rev 1) which should "as far as possible, be avoided" (European Parliament Resolution 2008/1607, Para 1). The ambiguous status of the product of conception follows from the fact that in Art. 2 of the Convention the notions of "life" and "person" are not juridical defined. However, the Convention does not exclude prenatal life from the scope of protection and the Court did not exclude prenatal life from its scope. The rights claimed on behalf of the foetus and those of the mother are inextricably interconnected; or, the life of the foetus is intimately linked to the life of the woman bearing it, which means that she cannot be considered separately, providing reasons from which the product of the conception is not recognised and guaranteed an absolute right to life.

The cases presented to the Court reflect the variety and increasing complexity of abortion-related situations. These cases are not limited to the abstract request of a right to access abortion but relate to various issues, such as abortions on minor, eugenic abortions, consent and divulging of information. In its judgments, the Court declared that abortion is not a right under the Convention, i.e. there is no right to access or conduct abortion. According to the jurisprudence of the Court, the Convention only enshrines the right to have access to interruption of pregnancy. In most European national legislations, abortion is a derogation from the protection accorded to the life of the unborn. Essentially, the right to life of the unborn child is not the only right guaranteed by the Convention which is affected in case of an abortion. If the State permits abortion in national law, it is compelled, under the Convention, to protect and respect competing rights and interests. These rights and interests fall upon both sides of the balance, limiting the scope of the derogation as well as supporting it. Once a State adopts the legal norms allowing interruption of pregnancy under certain circumstances, it is positively compelled to create a procedural legal framework enabling the pregnant woman to exercise access to a legal abortion, but it should also take positive measures to avoid abortion.

Finally, this analysis notices that abortion on demand is a "dead corner" in the jurisprudence of the Court and concludes that this practice violates the Convention because it harms the interests and rights guaranteed by it without any proportionate justification. While abortion is not a human right, the protection of life, dignity, physical and family integrity are inherent human rights. *In mens legis*, the State should implement the woman's "right not to abort".

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## THE IMPORTANCE OF CONTRACTS IN BUSINESS RELATIONSHIP

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***Abstract.** Sometimes the administrative side of a business can seem slightly monotonous. In reality, however, it is fundamental to the success and growth of a business. In addition to the legal entity and tax and accounting matters, contracts and their provisions are equally important. Issuing legally correct contracts ensures results as expected, performed obligations and helps in unforeseen situations.*

***The purpose of this research** is to carry out a multifaceted analysis of the subject under investigation, a contract is a legal act consisting of a will agreement concluded between two or more persons in order to create, modify or extinguish legal relationships.*

***Research methods.** The basic method used to find the sources needed for the study, as well as for the interpretation and systematization of the latest concepts and ideas was the bibliographic method. At the same time, analysis and synthesis, induction and deduction, generalization were used in the research, which created objective, true visions about the principles of legal responsibility and its functional structure. At the same time, analysis and synthesis, induction and deduction, generalization etc. used in the research created objective, true visions about the principles of legal responsibility and its functional structure.*

***Research results.** Following the research of the proposed objectives we have managed to analyze the importance of contracts in business relationship in several aspects: definition of the norm, formation, scoring of distinctive features, advantages and disadvantages.*

**Key words:** contract, business law.

### **JEL Classification: K2**

***Introduction.** In the context of economic affairs, both domestically and internationally, contracting is the most important stage in decision-making. Depending on the specifics of the business, contracts can be for sale-purchase, execution of works, brokering and commercial representation, international transport and shipping, insurance and reinsurance of goods and services, transfer of technology, capital, etc.*

Contracting is one of the most important aspects of business because it means making a decision. It is the most important stage because it involves the of market research, promotion, and negotiation, and its proper fulfillment depends further on the performance (delivery of goods and payment of them) as well as the post-contractual operations (guarantees, service, payment of credits).

The contract is one of the most important sources of obligations. It ensures the legal form and efficiency of the most diverse links between people, from the most simple to the most complex. It could be said that the whole life and activity of people, it could not be conceived outside this institution.

The contract is one of the most important institutions of civil law, a branch of law that has been said to be the expression of the conditions of a society based on the production of commodities, a company in which the products are intended both consumption and exchange.

The signing of a contract is not a mere formality and therefore account must be taken of the observance of essential conditions when concluding it, precisely in order not to be invalidated subsequently for non-compliance with these elements.

The contract can be defined in terms of Art. 992 of the Civil Code of the Republic of Moldova. It defines the concept of contract - the contract is the agreement of will made between two or more persons through which legal relations are established, modified or extinguished. The rules on the legal act shall apply to the contract.

The commercial contract is the main legal instrument with which domestic and international trade is carried out. At first glance, the commercial contract appears to be some kind of contract, similar to those covered by the Civil Code. A closer analysis of the specifics of this contract shows that it presents itself as a legal institution different in its characteristics from the civil contract. It benefits from its own rules and bears the impact of the rules of the Civil Code to the extent that trade law is insufficient to fully clarify the aspects of the EP which the reality of life highlights them in connection with these contracts.

A *commercial contract* is an agreement of will between the parties to a commercial relationship, whereby a commercial legal relationship is created, modified or extinguished.

The characteristics of the commercial contract are:

- valuable consideration: each of the parties seeks to obtain a patrimonial advantage, which can be valued in money.

- commutative contract. Both the rights and scope of the obligations arising from the commercial contract are certain from the outset.

- synallagmatic contract. It generates mutual rights and obligations, interdependent between the parties.

- consensual contract. For its completion, the agreement of the will of the parties is sufficient.

In order to invoke the existence of a valid contract concluded, the provisions of the Civil Code of the Republic of Moldova, namely the conditions of validity of the commercial contract, must be respected.

- Consent.* The Civil Code of the Republic of Moldova in Art. 312 regulates consent as an externalized manifestation of the will of the person to conclude a legal act.

Consent is valid if it comes from a person with discernment, is expressed with the intention to produce legal effects and is not vitiated. The intention to produce legal effects shall be determined from the statement or behavior of the person, as he or she has been reasonably understood by the other party to the legal acts, or, in the case of unilateral legal acts, by the person to whom the act is intended. The manifestation of the will to be received by the other party produces effects at the moment it comes to it, regardless of whether or not it has become aware of its content.

- Object of the contract* (Art. 315 of the Civil Code of the Republic of Moldova). The object of the contract is the benefits to which the contracting parties have been bound. The subject matter

of the contract must be lawful, be in civil circuit and be determined or determinable at least in its species. It may be the subject of the contract and future goods. (Popescu, D., 1996. Contractul de societate. Bucharest: Lumina Lex, pp.124)

-*Form of the contract* (Art. 316 of the Civil Code of the Republic of Moldova). The commercial contract may be concluded verbally, electronically, in writing or in authentic form. The form is a condition of validity of the contract only in cases expressly provided by law. The contract that can be concluded verbally is also considered concluded if the person's behavior clearly shows the will to conclude it. Silence is considered an expression of the will to conclude the legal act in the cases provided for by the law or by the agreement of the parties. Any modification to a contract must take the form established for that contract.

- *Verbal form of the contract*. The contract for which the law or the agreement of the parties does not establish a written or authentic form may be concluded verbally. The contract that is executed at its conclusion can be concluded verbally. Exceptions are contracts for which an authentic form is required or contracts for which the written form is required for validity.

- *Electronic form of the contract* (Art. 317 of the Civil Code of the Republic of Moldova). The contract is in electronic form if it is contained in an electronic document that meets the requirements of the law. The types of electronic signatures that can be applied to an electronic document, the degree of protection of each type and its legal value are determined by law. The contract in electronic form is equivalent to the contract in written form if it bears the electronic signature of any kind provided by law of the person concluding the contract if the agreement of the parties does not provide for the requirement to use a concrete type of electronic signature, as well as in other cases provided for by law.

- *Written form of the commercial contract* (Art. 318 of the Civil Code of the Republic of Moldova). Contracts between legal entities, between legal entities and natural persons and between natural persons must be concluded in writing if the value of the object of the legal act exceeds 1000 lei, and in the cases provided for by law, regardless of the value of the object.

If, due to a physical deficiency, illness or other causes, the person cannot sign the legal act with his own hand, then, based on his authority, the contract can be signed by another person. The signature of the third party must be legalized by the notary or by another person authorized by law showing the cause in whose virtue the one who concluded the legal act could not sign with his own hand.

*Effects of non-compliance with the written form of the legal act*. Failure to comply with the written form of the legal act causes the parties to decline the right to request, in case of dispute, evidence with witnesses to prove the contract. Failure to comply with the written form of the legal act shall result in its nullity only if this effect is expressly provided for by law or by the agreement of the parties.

The *authentic form of the legal act* (Art. 322 of the Civil Code of the Republic of Moldova). The authentic form of the legal act is mandatory.

- a) if the contract has as its object the disposal of immovable property or their encumbrance with limited rights in rem, except in cases expressly provided by law;

- b) in the cases provided for by the agreement of the parties, even if the law does not require an authentic form;

- c) in other cases established by law.

*Effects of non-compliance with the authentic form.* Failure to comply with the authentic form shall result in the nullity of the contract. If one of the parties has executed in whole or in part the contract for which authentic form is required, and the other party eludes from his notarial authentication, the court has the right, at the request of the party who executed the contract in whole or in part, to declare it valid if it does not contain elements that contravene the law. In this case, no further notarial authentication of the legal act is required.

The conclusion of contracts is one of the key elements in establishing the legal link between contractors. The conclusion of the contract implies the agreement of the parties to the will in order to establish the contractual relations.

The contract is considered concluded if the parties have reached an agreement on all its essential clauses (Art. 1027 of the Civil Code of the Republic of Moldova).

*Offer to contract.* The Art. 1029 of the Civil Code of the Republic of Moldova defines the offer to contract as the proposal, addressed to one or more persons, containing all the essential clauses of the future contract and reflecting the willingness of the tenderer to be bound by accepting the offer. (Macovei, L., 2002. *International trade law*. Chisinau: S.E.C.A. Cartea, pp.165-166). The offer shall only take effect if it has reached the recipient before it is revoked. A proposal addressed to an indeterminate circle of persons (public offering) is a call to offer if this proposal does not contain any express manifestation of the will to be bound by acceptance. (Mazilu, D., 2007. *International trade law*. Bucharest: Lumina, pp.498).

\*The offer must be firm, unequivocal, serious and complete.

*Revocation of the offer* (Art. 1031 of the Civil Code of the Republic of Moldova). An offer may be revoked unless it includes a time limit for acceptance or if it is irrevocable on other grounds. The offer, even irrevocable, can be revoked if the revocation reaches the recipient of the offer at the latest at the same time as the offer. The offer received by the recipient may not be revoked within the time limit of acceptance set out in the offer or, if this time limit is not set or is unreasonably small, within the time required for the recipient to be able express acceptance and that the answer reaches the tenderer according to the circumstances of the case, the practice established between the parties and the customs. If under the law the consumer has the right to revoke a certain type of contract, the offer made by the consumer for the conclusion of such a contract is always revocable. Any clause contrary to the provisions of this paragraph to the detriment of the consumer shall be subject to absolute nullity. (Ciobanu, N., 2013. *Business law*. Chisinau, pp.308). The offer becomes *obsolete* if it has not been accepted within the time limit or if it is rejected.

*The acceptance* (Art. 1035 of the Civil Code of the Republic of Moldova). Constitutes acceptance - the statement of the recipient of the offer or other action attesting the consent of the offer. Acceptance shall take effect from the moment it is received by the tenderer.

*Acceptance of the offer without a deadline.* An offer made to a person present can only be accepted on the spot. This rule also applies if the offer is made from man to man by means of instant communication. An offer made to an absent person may be accepted only until the tenderer can expect, under normal circumstances, having regard to the means of communication used by the tenderer, the response to be received.

*Acceptance of the offer with a deadline*, if the tenderer has set a deadline for accepting the offer, acceptance may be made only within the time limit. (Ciobanu, N., 2013. *Business law*. Chisinau, pp.311).

*Time and place of conclusion of the contract*. The contract shall be deemed to have been concluded at the time of receipt of the acceptance by the tenderer. If the place of the conclusion is not indicated in the contract, it shall be deemed to have been concluded at the domicile or premises of the tenderer. (Sitaru, D.A., 2007. *The franchise agreement in national and international law*. Bucharest: Universul Juridic, pp.264).

Therefore, a valid commercial contract concluded in accordance with the legal rules has the force of law, that is, a binding legal force for the contractors.

A commercial contract is an act by which several people bind each other to give, to do, or not to do. This pact generates rights and obligations toward the parties and covers commercial acts. The continued adaptation of the legal framework to economic reality is a principle that should govern trade relations. The frequent reproach that is brought to the legal framework is that it does not keep up with the reality it should be norming. Legislative solutions, especially if they need to be identified and implemented in a hurry, can be imperfect. Some of them, however, have the chance to correct anachronistic systems - and then temporarily adjusting to an exceptional situation can pave the way for a permanent positive change. (Grău-Panțureac, M., 2022. *Business law*. Chisinau: Print Caro, pp.187-188).

Regardless of the form and purpose of the contracts, these shall involve agreements of the will of the Contracting Parties. There are, of course, also elements of diversity between contracts that relate to the qualifications to which they may be subject.

**Conclusion.** When talking about types of commercial contracts, it is good to involve an experienced lawyer. While the internet is full of contract models, simply copying them from the internet or from an older model will not be enough to fully cover the clauses valid in the current situation you are facing. The contract was drafted and used in another situation, which only apparently resembles your situation. At this point, the intervention of a qualified person is essential. Drafting and contextual analysis of the need for which the contract is drawn up are stages that you should not skip. Any contract, as mentioned above, is an agreement between two or more parties. Once signed, you will either enjoy the resulting clauses or you may suffer from the incorrectness.

In the business world, commercial contracts have one main purpose – to make profits. Thus, in this area, you will not find almost any free contracts (such as a contract of convenience), but only contracts from which the participants aim to gain advantages. So, business contracts provide the necessary legal protections you need in any operation. Contracts not only minimize risk but protect both you and your company by helping you understand your rights and obligations under each agreement. The contract is an indispensable tool for the economic exchange of goods and services.

Contract management is important for business, as it is the procedure to supervise the implementation of contracts and the normal execution of contractual obligations. Proper contract management helps track suppliers, assess their performance on the basis of the criteria mentioned

in the contracts, and assess supplier risk. Moreover, it also acts as a mechanism for building long-term collaborative relationships with suppliers and other business partners.

*„At the end of the day, everyone is responsible for their own contracts.  
Nobody forced us to sign them” - Mats Hummels*

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## **SESSION X**

# **CONTEMPORARY LIBRARIES: CHALLENGES, TRANSFORMATIONS AND PREMISES FOR DEVELOPMENT IN THE NEW SOCIO- ECONOMIC CONTEXT**

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## OPPORTUNITIES FOR VISIBILITY OF USARB RESEARCHERS IN THE GLOBAL SCIENTIFIC COMMUNITY: 2017-2022

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**Abstract:** *In recent years, the idea that the university library would be the most appropriate and relevant in coordinating the management of research data has been increasingly discussed. The communication discusses the history of the bibliometric service of the USARB Scientific Library, the most important aspect in the activity of the modern library in assessing the quality of information related to scientific research and studying its quantitative side: promoting USARB scientific production in the USARB Institutional Repository Open Research Archive (ORA), creating profiles in Google Scholar, Orcid, Academia.edu and providing data to the National Bibliometric Instrument; information search in Webometrics, Open Ukrainian Citation Index (OUCI), Dimensions, eLIBRARY, Publish or Perish, Scopus, Web of Science.*

*The results of the analysis of the Questionnaire regarding the level of participation of the Scientific Library in informing researchers and evaluating the results of scientific activity are presented, a process that is based on bibliometric measurement methods. The scientometrics, presented in this article, carried out by the Scientific Library, reflects the evaluation in comparison of the years 2017-2022 of the scientific contributions of academic staff, highlighting the citations of the scientific results obtained.*

*In the article is provided theoretical and practical support necessary for researchers for the activity of the National Bibliometric Instrument, Google Scholar, Orcid, Academia.edu. The Scientific Library through the bibliometric service aims to connect scientists, provide them with platforms to share their research work and facilitate their tracking of articles relevant to their fields of study.*

**Keywords:** bibliometric service, evaluation of research activity, visibility of publications, RI ORA USARB, bibliometrics, scientometrics

**JEL Classification:** I23; I29; Z19

### **1 Introduction**

The scientific research activity in libraries has the mission of continuous training of staff, problem-solving techniques and methods: new decisions, services, functions, products, work processes, all being oriented towards ensuring fast and qualitative access to information, to enhance prestige of libraries. The evaluation of the quantity and quality of scientific research results is essential. "The quantitative aspects of information are measured with the help of tools,

being a concern of scientific research: bibliometrics, scientometrics, webometrics, infometrics, altmetrics,..." (Popov, L., 2019).

USARB Scientific Library, as an integral part of the educational and research process, has an important role in informing and documenting the university community, strengthening the institutional information environment, forming the users' Information Literacy. The mission is complex, because there is a redefinition of library activity, creating a modern user, interdisciplinarity of study objects, open access to information, scientific research, storing research data.

### ***2 USARB Scientific Library Experience***

We present USARB Scientific Library Experience regarding the provision of library and information services based on bibliometric data by evaluating the quality of information related to scientific research, studying its quantitative side, as well as promoting it through: USARB Institutional Repository Open Research Archive (ORA), creating profiles in Google Scholar, Orcid, Academia.edu, e-Library; providing data to the National Bibliometric Instrument (IBN); finding information in Webometrics, Publish or Perish, Scopus, Web of Science (WOS).

Scientific research and research data are current and complex. "Measuring the visibility of Universities' scientific products is a fundamental tool in establishing the international value of an University but also in the statistical evaluation of scientific research results and the promotion of open access to information" (Repanovici, A., 2019).

### ***3 Methods***

The data are analyzed in IBN, Webometrics, Orcid, OUCI, Dimensions, Google Scholar, Publish or Perish, eLibrary, Academia.edu, Scopus, WOS. The tools offer us the possibility to see the contributions of Bălți academic community to the development of the knowledge society in the Republic of Moldova.

#### ***3.1 USARB Institutional Repository Open Research Archive***

The indexing of works in the USARB Institutional Repository Open Research Archive is the first stage of publication of researcher's results. USARB IR ORA is included in the BASE, DuraSpace, OpenDOAR and ROAR, ROARMAP modules. The resources presented in USARB IR ORA are automatically indexed in IBN, Google Scholar, being visible in Publish or Perich, Orcid.

#### ***3.2 Rankings***

According to the *Transparent Ranking: Institutional Repositories* by Google Scholar, "USARB RI ORA held the 3<sup>rd</sup> and 4<sup>th</sup> place in the country, and the *World Scientist and University Rankings 2022* publishes in June the list of the first 500 researchers from the Republic of Moldova, where USARB held the 5<sup>th</sup> place out of 16 universities from Moldova. The data from September determine us to the 8<sup>th</sup> position, and acording to *Scientists Ranking 2022* there are 16 university students from Balti" (USARB pe locul 5 în topul național al universităților, 2022). The Webometrics Ranking 2019-2022 confirms USARB's 5<sup>th</sup> position. (Figure 1.)



**Figure 1. The Webometrics Ranking 2019-2022 USARB's**

Source: authors' own study

### 3.3 National Bibliometric Instrument

Outcome and impact measurement can be used to estimate the productivity and importance of institutional national research activities. There are opportunities to publish the works in digital collections of Republic of Moldova: IBN, <http://ibn.idsi.md/>, CNAA <http://www.cnaa.md/institutions/usb>. USARB holds the 7<sup>th</sup> position in IBN (1,295 authors, 4,124 articles, 35,229 downloads, 171,7095 views, 114 events).

## 4 Institutional projects

### 4.1 Google Scholar

In order to present the results of the scientific research of Balti academic community in Google Scholar, USARB Scientific Library launched the institutional project: *Create a Google Scholar Profile*. "The goal is to contribute to increasing the visibility of USARB research results, improving the results of bibliometric studies. Google Scholar accounts have been registered in IBN. There are 158 Google Scholar personalized profiles" (Țurcan, E., 2022).

### 4.2 ORCID

To increase the visibility of scientific activities, the results must be visible, accessible, used and cited by other researchers. "Researchers find difficulties in distinguishing their own products from the investigations of other scientists with similar names. The simultaneous presence of multiple names can be resolved through author identifier systems such as ORCID, which generate a unique ID for each author" (Staver, M., 2022).

Thus, USARB Scientific Library, after the testing period, initiated the *USARB Registration Recherche Project and getting an ORCID*. Out of 235 community members were registered - 108 with 1,565 documents with their ORCID ID, which constitutes 46%.

### 4.3 Academia.edu

"Academic Social Network – Academia.edu is a network that aims to connect scientists by giving them a platform for sharing research activities and facilitating access to relevant articles in their fields of study" (Academia.edu, 2021). There are 835 works of Bălți academic community with key word USARB and 72 profiles. Researchers participated in the conference *Academia.edu - a platform for sharing research activities*. It is an event promoted by USARB Scientific Library as part of the International Open Access Week. Researchers can also be found on the following platforms: OUCI (<https://ouci.dntb.gov.ua/>), Dimensions (<https://app.dimensions.ai/>), WOS (Clarivate Analytics), Scopus (Elsevier).

### 5 Bibliometric services

To support the academic community, USARB Scientific Library proposes Bibliometric Services. During the period 2017-2022, 22 individual studies were carried out, regarding the evaluation of scientific research. The requests are from Balti academic community, researchers from the country and foreigners.

### 6 The feedback

We are interested in the feedback of USARB's scientific research evaluation activity, that's why a questionnaire was given on the Library's website.

#### Have you used the bibliometric services offered by USARB Scientific Library?

(Figure 2):

14% of respondents are for scientific journals;

9% of them are satisfied;

and 87% of members don't know the possibilities.

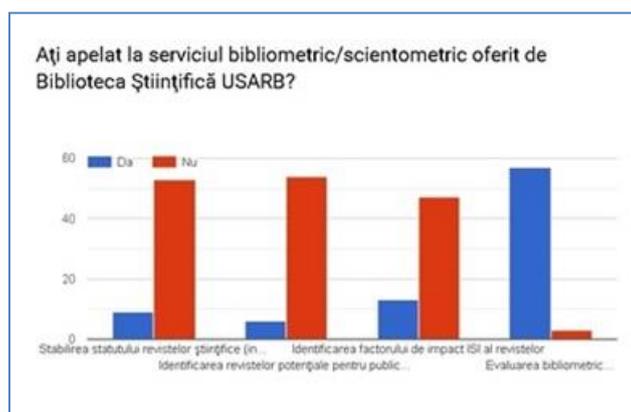


Figure 2. Have you used the bibliometric services offered by USARB Scientific Library?

Source: authors' own study

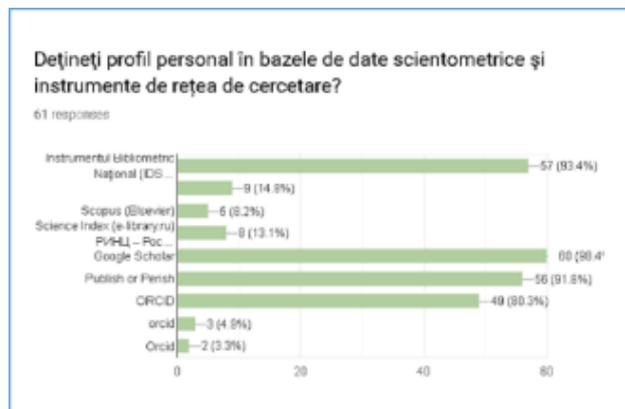
We find out the fact that teachers are not well informed about the service for establishing the status of scientific journals. The establishment of the H-index was appreciated by 60, 95% and only 3 persons answered – no.

Many members recognize that the help of the Library is inevitable and valuable.

**Do you have a personal profile in scientometric databases and research network tools?**

The results are (Figure 3):

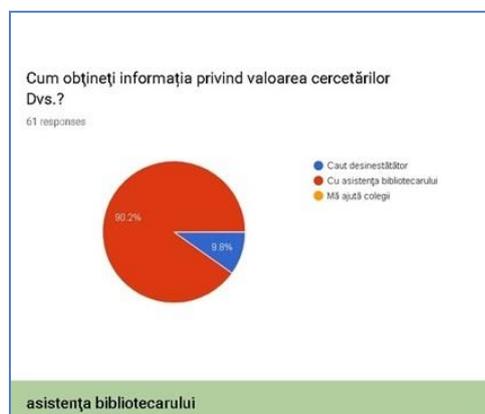
- Google Scholar – 60, 98%;
- IBN – 57, 93%;
- Publish or Perish – 56, 92%;
- ORCID/Base – 54, 89%;
- WOS – 9, 15%;
- e-Library – 8, 13%;
- Scopus – 5, 8%.



**Figure 3. Do you have a personal profile in scientometric databases and research network tools?**

Source: authors' own study

The mission of the Library is to help the university community to access, use and correctly interpret data in research. This is the visibility of the universities' scientific products.



**How do you know the value of your research? (Figure 4):**

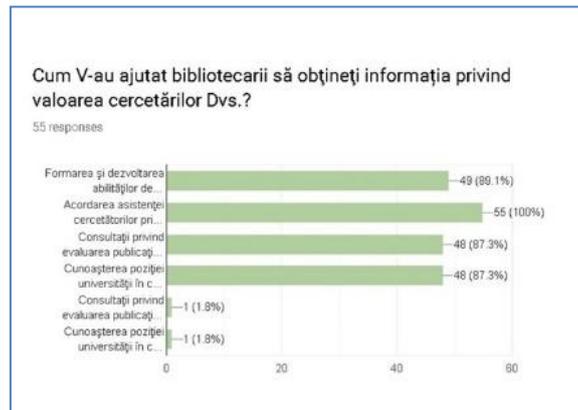
**Figure 4. How do you know the value of your research?**

Source: authors' own study

90% of respondents demonstrate that they are informed and helped by the librarian, and only 6, 10% manage independently.

The teachers mentioned the importance of the information received through personal e-mail, those presented at the meetings of the departments, on the website of USARB Scientific Library.

**How did librarians help you get information about the value of your research?** (Figure 5). Out of 55 respondents:



**Figure 5. How did librarians help you get information about the value of your research?**

Source: authors' own study

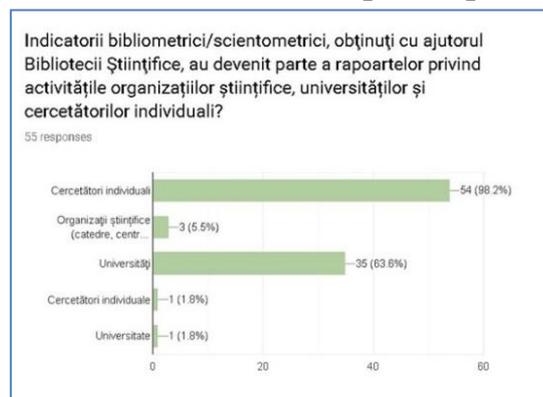
49, 89% confirm that the information was a source of inspiration in improving databases skills, 55, 100% of respondents formed a new vision regarding the personalization of scientific produc in databases;

48, 87% of respondents require librarian’s consultation regarding the evaluation of scientific publications, of bibliometric indicators for journals, articles, authors, institutions and faculties;

48, 87% used the information regarding the knowledge of the University's position in the International Rankings;

2, 4% did not use the information.

**Have the bibliometric indicators become a component part of the reports? (Figure 6):**



**Figure 6. Have the bibliometric indicators become a component part of the reports?**

Source: authors' own study

54, 98% of respondents indicated the presence of Library information in individual research reports;

3, 6% indicated the presence in the reports of the faculties;

36, 65% said that evaluation of scientific research work has become a component part of the reports.

**How do you appreciate the quality of bibliometric services offered by librarians?**

very satisfied – 52 respondents;

satisfied – 3 respondents;

54 respondents are very satisfied and only 1 satisfied for creating personalized profiles;

52 persons appreciate importance of bibliometric indicators

and only 3 persons less satisfied.

From the very beginning, the teachers received the evaluation indicators with indignation, but now they have a different opinion.

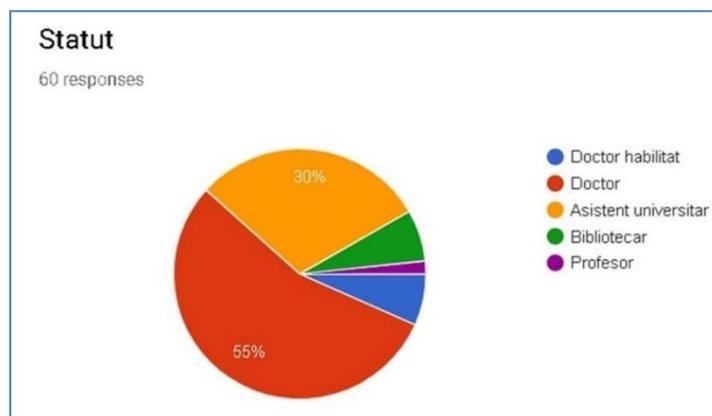
**What suggestions do you have for improving these services?** All the respondents want more access to BD. They appreciate the librarians' work and recognize that the Library keeps pace with innovative advances. The professional state (Figure 7):

4, 7% of respondents are PhD, professors;

33, 55% – are Ph.D;

18, 30% – are Associate Professors;

4, 7% – are librarians.



**Figure 7. What suggestions do you have for improving these services?**

Source: authors' own study

"By registering research results in various databases, librarians increase the researcher's visibility and chances to be noticed, to establish partnerships and joint collaborations, increasing the opportunities for institutional success" (Țurcan, N. și colab., 2021).

**7 Perspectives**

USARB Scientific Library has the tendency to modernize its activity, to become an active partner at all stages of scientific activity in the institution: informing and providing access to the

informational resources necessary for research, publishing research results, analyzing and evaluating them. We note the importance of continuous training of librarians, highly qualified human resources, which contribute essentially to the training of researchers, to increasing the impact of scientific research and to the visibility of the institution as an important body of education, training and research.

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