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## MAY MESSAGE OF THE SCIENTIFIC DIRECTOR

### Distinguished Readers and Friends,

Spring is in the air; pansies, narcissi, primroses , tulips, violets are in bloom as if a fairy-tale carpet woven in the Quba Azeri Carpet Weaving workshop by Fatima. From early sunrise, I really enjoy the birdsong of blackbirds, blue tits, turtle doves and green spokes. It is now three years since a couple of wild ducks discovered the pond in our garden. Typically they land quacking, bathe and then fly away. It is to have our own miniature Eden.

With regard to our routine ERENET work, the Hungarian Parliamentary Elections were held on April 8<sup>th</sup>. It is symbolic that they fell on the Christian day of the Mercifulness of God. For many this occasion marked making a decision on national identity in the face of current geopolitics and massive international migration. Viktor Oban and the right wing Fidesz political party won 133 of the 199 seats being contested. It was a serious defeat for a left leaning fractured opposition. However, the result also raises profoundly difficult issues such as the role of the European Union subsidies in the Hungarian national economy against the Hungarian public sense of their country's well defined body politic and the role in society of the Christian religion. Middle East turmoil has clearly reignited historical concern in Europe as to the role of Islam in society. The outcome of the Hungarian elections accurately expressed public insecurity emerging from increasing global interdependence. It parallels that of the United Kingdom Referendum calling for withdrawal from the European Union and other parts of the global community. Hungary so far is an independent country within the European family, but the country does not need no-go zones, uncontrolled slacker African and Asian people who reject any integration.



Photo © by Dr. Antal Szabó

The heart of the current debate lies economic development. ERENET continues to support international business cooperation. This was well expressed at the end of April 2018 with the successful **16<sup>th</sup> International Conference on Management, Enterprise and Benchmarking** held at the Keleti Faculty on Business and Management of Obuda University, Budapest.

This issue of ERENET PROFILE also reflects valuable papers from European countries Belarus, Moldova, Russia and the Ukraine, member of the Commonwealth of Independent states. Equally, we are also including in this issue a publication from the Institute of Economic Sciences in Serbia. They all demonstrate the importance and significance of research and entrepreneurial understanding offered by these countries.



Green spoke  
Photo © by Dr. Antal Szabó

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## THE PHILOSOPHY OF SMALL AND MEDIUM-SIZED BUSINESSES IN BELARUS

### ABSTRACT

Small and medium-sized enterprises in Belarus are going through a difficult and thorny path. It is between two fires: (i) On one hand, the laws of the market economy operate independently and irreversibly; (ii) On the other hand, state administration affects the development of the entrepreneurship. Problems arising on the path of entrepreneurship development in Belarus are carefully studied and analyzed by the Head of State and the Government.

In 2017, a serious legislative base was adopted, thanks to which favourable conditions for the implementation of entrepreneurial activities, the emancipation of business initiative and the creative potential of citizens are formed.

In particular, the legislation on craft activities, agroecotourism, self-employment had underground drastic changes. Separately it is necessary to note the liberalization of control (supervisory) activity.

The key document of acts to improve the business climate in the country was the Decree of 11/23/2017 No. 7 "On the development of entrepreneurship" (hereinafter – the Decree). Its goal is to develop an entrepreneurial initiative, stimulate business activity by eliminating unnecessary requirements for business, as well as minimal government intervention in the activities of business entities.

The reason for writing is a study on problems of development and philosophy of small and medium-sized enterprises and entrepreneurship in the Republic of Belarus, which makes it possible to analyze the mistakes made and not repeat them in the future.

The questions that relate to the research are the future development of economic entrepreneurial activity, the experience and philosophy of the formulation and development of such activities.

The methodology for investigating this problem is based on an analysis of the development of small and medium-sized businesses in the Republic of Belarus, from the end of the 20<sup>th</sup> Century to the present.

The results and main conclusions of the study of this issue make it possible to solve and optimally quickly activate the socio-economic potential of entrepreneurs in the Republic of Belarus, using the experience of their country's development and international experience. The result of this research makes it possible to strengthen the socio-economic sustainability and the consistent development of small and medium-sized enterprises not only in Belarus, but also in international aspect.

**Keywords:** Decree, agroecotourism, self-employment, entrepreneur, small and medium-sized enterprise.

**JEL Classification:** L26, M21, M38, Q26

## 1. 2018 - GOLDEN TIME FOR ENTREPRENEURSHIP IN BELARUS.

The end of 2017 is marked by a revolutionary document for the entrepreneurship of Belarus. This is the Decree of the President of Belarus of 11/23/2017 N 7 "On the development of entrepreneurship". The main provisions of this legislative act are the consolidation of the basic principles that determine the relationship between state bodies and economic entities in the sphere of economic activity. In particular, they include the following principles:

- self-regulation of business and minimization of interference of state bodies, their officials in the economic activity of economic entities;
- presumption of good faith of economic entities, which is the assertion that the business entity is innocent, unless the contrary is proven;
- the prevention of offenses as a priority in the work of supervisory (supervisory) bodies, and not only the prosecution of violations committed by business entities;
- personal responsibility of the manager for the proper organization of the business entity, excluding harm to public or public interests, the environment, life, health, rights and legitimate interests of citizens;

The most interesting are the issues of regulation of the Decree on the procedure for economic entities to conduct economic activity and their relationship with the state.

A notification procedure for the implementation of some of the most common types of economic activity has been introduced. These activities include: domestic, tourist, social services, activities in the field of trade and catering, transportation of passengers and luggage, production of agricultural products, construction materials and others. The list of activities is based on the fact that it is in these areas that about 95 percent of small and medium-sized businesses are concentrated.

To engage in these types of activities, the business entity is required to file a notification with the executive committee and the next day the person will be entitled to carry out the declared type of economic activity.

Other administrative procedures the business entity is entitled to pass after the commencement of the declared type of economic activity.

**1.1. The optimization of administrative procedures has been carried out.** Administrative barriers, connected with the existence of complex and lengthy processes of obtaining certificates, approvals and other types of permits, have been abolished. Abolition of excessive and economically demanding requirements and restrictions on business in certain spheres of economic activity in certain Decrees.

So, the enterprises of the sphere of trade and public catering do not need to contact the executive committees for coordinating the operating mode of shops, restaurants and cafes.

Business entities can independently organize and hold exhibitions on the territory of the Republic of Belarus. The holding of fairs should be coordinated only with local executive and administrative bodies at the place where they are held.

In the field of advertising activities there is no need to harmonize the content of the outdoor advertising and advertising on transport

It is allowed to use personal garages as maintenance stations without the consent of members of the garage cooperative.

In the field of transport activities, the compulsory requirement for the preparation of travel sheets for the transport of passengers and baggage in an irregular message is excluded.

The procedure for carrying out construction work has been greatly simplified. In particular, the need to obtain permits for the execution of construction work for major repairs, technical modernization of the facility is excluded.

These and other innovations are aimed at reducing the administrative burden on business. Exemption of state bodies from appropriate approvals, in turn, will allow using their resources to carry out other more necessary functions.

#### 1.2. **The business entities are provided with some tax "allowances".**

In particular, a ban on increasing tax rates and the introduction of new taxes, dues (duties) until 2020 is set. Internet shops in the implementation of retail trade have the right to apply a simplified taxation system.

The order of payment by the payer of the sums of customs payments, special, antidumping and countervailing duties, recycling collection is regulated.

Implementing the above measures in practice will help stabilize the financial activities of enterprises.

#### 1.3. **The rights of business entities to organize their activities, in particular, on:**

Involvement of foreign citizens or stateless persons who do not have a permanent residence permit in the Republic of Belarus;

development of technical conditions for products (work, services);

The requirements for fire safety, sanitary and epidemiological requirements, environmental and veterinary requirements for the maintenance and operation of capital structures (knowledge, facilities), isolated premises and other objects belonging to business entities are minimized significantly

Business entities are allowed not to use seals, except for cases provided for by international treaties.

In addition, in 2017-2018, the legislation on self-employment, handicraft activities, agroecotourism underwent cardinal changes.

## 2. **Issues of self-employment.**

Since October 22, 2017, Belarus has expanded the list of activities that citizens can carry out without registering as an individual entrepreneur (hereinafter referred to as IP).

Thus, the Tax Code of the Republic of Belarus has already identified the types of activities that citizens are entitled to engage in on a declarative principle, provided that a single tax is paid from individual entrepreneurs and other individuals (hereinafter - a single tax). Among them - cleaning and cleaning of living quarters, tutoring, music and entertainment services for weddings and other celebrations, photography, etc. With the adoption of Decree No. 337, this list was supplemented by activities such as the self-made culinary and confectionery products produced by citizens, provision of premises for short-term residence to individuals, execution of repair works for furniture, watches and shoes, sewing of clothes, setting up musical instruments, sawing others on orders of consumers in, loading goods, masonry stoves and fireplaces, as well as carry out works and rendering services to citizens of website development and maintenance of computer and peripheral equipment. In addition, the list includes services for the design of premises, interiors, furniture, clothing and footwear modeling, graphic design, hairdressing and cosmetic services and other types of occupations.

The types of activity established by the provisions of Decree No. 337 do not require the receipt of a license and special permits. If a citizen has the necessary skills, he can offer jobs and services that he really

knows how to implement - this principle works in Belarus after the Decree 337. For this, prior to the commencement of work, it is necessary and sufficient to notify the tax authority at the place of residence in writing, period and place of its implementation, pay a single tax, the amount of which will be calculated by the tax service on the basis of the received written notification. The single tax is paid at the rates set by the regional and Minsk City Councils of Deputies.

Citizens who carry out activities without registering an IP should not keep a register of checks, submit reports and tax returns (calculations) to the tax authorities. They are also not required to use cash register equipment. It should be noted that a citizen who works without registering a PI does not have the right to recruit hired workers to carry out his activities. But in the future, as it develops, it can expand its activities by registering as an IP or in the form of an enterprise.

### **3. Questions of handicraft activities.**

Becoming an artisan, you can earn income from playing your favorite kinds of creativity. To get the status of artisan, you need to perform certain actions.

As an artisan you can produce goods, perform work, provide services yourself using only manual labor and tools, including electrical.

But you can not come up with a kind of craft activity yourself. It is necessary to choose one or several kinds of craft activity from the established list or other activity to create objects of creativity. For example, it can be the manufacture and repair of items for personal needs of citizens from wire, twine, synthetic tape, tin, clay, plant materials of local origin, including wood or candle making.

In order to become an artisan, prior to the commencement of activities it is necessary to pay a special handicraft fee, the size of which is 1 BV – Base Value -, which is BYR 24.5 respectively EUR 10. The fee is paid in this amount, even if you decide to carry out not one, but several types of handicraft activities. You have to pay the fee once a calendar year.

It is necessary to submit a written application to the tax inspection at the place of residence (ie at the place of registration indicated in the passport).

The tax office will need to produce a passport or other identity document (residence permit in the Republic of Belarus, a refugee certificate).

The tax inspection will issue a notice of assignment of the payer's account number (UNP).

For handicraft activities without paying a handicraft fee and submitting an application to the tax authority for registration, liability is provided: a fine of 5 BV (122.5 BYR).

Favorable conditions for the development of handicraft activities in the republic are reflected in the annual steady growth in the number of individuals paying a fee for the implementation of craft activities. Since 2005, the number of individuals paying the fee for the implementation of handicraft activities has grown in the country more than 100 times.

As of 1 January 1 2018, the number of individuals who paid a fee for the implementation of craft activities amounted to 29,381 people. This is more than the same period last year more than 6 thousand people.

### **4. Agroecotourism - formation and development.**

From 12.01.2018 Decree of 09.10.2017 N 365 "On the development of agroecotourism" (hereinafter - Decree No. 365) came into force, which improved the rules for implementing activities in the field of agroecotourism.

Agroecotourism is an activity aimed at acquainting agro-ecotourists with the natural and cultural potential of the Republic of Belarus, national traditions in the process of recreation, recreation, temporary stay in agroecolads.

The activity on providing services in the field of agro-ecotourism does not apply to business activities. The activities on providing services in the field of agro-ecotourism are entitled to:

#### **4.1 individuals:**

permanent residents of a single-family or blocked residential building, including an apartment in a blocked residential building, in rural areas, small urban settlements;

producing agricultural products on land plots granted for the construction and (or) maintenance of a residential building, or leading personal subsidiary plots on land plots granted for these purposes;

Individuals permanently residing in an apartment building should be understood as individuals registered at the place of residence or at the place of residence in this apartment building.

The countryside is a territory that is part of the spatial limits of village councils, with the exception of urban-type settlements and cities of regional subordination.

Small urban settlements - urban settlements, cities of regional subordination with the population of up to 20 thousand people.

**4.2 agricultural organizations.** The agricultural organization is a legal entity, the main activity of which is the production (cultivation) and (or) processing of agricultural products, the sale proceeds of which makes up at least 50% of the total revenue.

Activities to provide services in the field of agroecotourism are carried out by individuals on an application principle without state registration as individual entrepreneurs.

Subjects of agroecotourism have the right:

To involve individuals under labor contracts and (or) civil-law contracts; erect on the land plots granted to them in accordance with the established procedure for the construction and (or) maintenance of the residential building, guest houses for the temporary stay of agro ecotourists.

At the same time, the following conditions must be met by agroecotourism entities: availability of vacant rooms in agroeconomic grounds for accommodation of agro ecotourists;

the implementation by agroecotourism entities of activities for the production and (or) processing of agricultural products;

availability of opportunities for acquaintance of agroecotourists with natural and architectural objects, national cultural traditions of the corresponding area.

**4.3 Decree No. 365** clarified the list of types of services provided by agroecotourism entities. These services include:

4.3.1. Provision of rooms in the agroeconomic zone for the accommodation of agro ecotourists. At the same time, the requirements for agroeconomic life are established;

Agroecosadba - an apartment house (apartment houses), including those with guest houses (with them):

4.3.2 Provision of agro-eco-tourists with food (usually using products of own production);

4.3.3 Familiarization of agro-ecotourists with natural, agricultural and architectural objects, folk traditions of the corresponding area, carrying out sports-mass, physical culture and health and cultural events;

4.3.4 Holding presentations, anniversaries, banquets;

4.3.5 Rendering services for baths, saunas and showers;

4.3.6 Riding on animals, with the exception of wild animals, and cartage transport;

4.3.7 Provision of equipment for sports and recreation;

4.3.8 Transport services for agro-tourists.

Subjects of agroecotourism pay a fee in the amount of one basic value (about 2 euros) for a calendar year, the implementation of activities in the provision of services in the field of agroecotourism.

At the termination of activity, subjects of agroecotourism send a written notification to the regional executive committee at the location of the agro-eco-destination of the subject of agro-ecotourism.

Thus, in 2018 the social environment in which the small and medium business is developing steadily is strengthened in Belarus.

## **5. Philosophy and practical aspects of ways of development of entrepreneurship in Belarus.**

In the late 1980s of the 20th century, the market economy began to develop rapidly in Belarus. There were small and medium-sized enterprises, large-scale industry began to fail because of untimely supplies of raw materials and component parts from other regions. The state understood that in order to survive in such conditions, it is necessary to raise the private initiative to develop small and medium-sized businesses. In the late 90's, a system of measures was adopted to support the private initiative. An infrastructure of entrepreneurship support was created: Centers for Support of Entrepreneurship, Small Business Incubators. The first technological parks appeared, where innovative small and medium-sized enterprises were located. The state's course was aimed at developing private initiative and supporting small and medium-sized enterprises.

State programs to support entrepreneurship were developed, and the Belarusian Foundation for Financial Support of Entrepreneurship was established. To motivate private initiative and popularize private business at the state level, the contest "Best Entrepreneur of the Year" was held every year.

This state policy has given its results and the contribution of entrepreneurs and private enterprises to the economic component of the state has grown significantly.

So the share of small and medium-sized businesses in the amount of revenue from the sale of goods and services is about 30%. The annual growth is about 5%.

The share of small and medium-sized enterprises in gross domestic product is 15%. The SME sector provides 30% of tax revenues.

Small and medium-sized business in the Republic of Belarus is a perspective developing sector of the economy, whose contribution to the country's development is constantly increasing. This trend is facilitated by the implementation of the State Program "Small and medium-sized business in the Republic of Belarus" and other measures to create a favorable business climate in the country and improve business conditions.

Providing access of small and medium-sized businesses to credit and financial resources is an important component of the overall state policy of supporting entrepreneurship.

Financial support of business entities is carried out by commercial and non-commercial structures using various forms and methods of financing, including leasing, loans, grants, etc.

In order to promote the development of small and medium-sized businesses in the organization and implementation of entrepreneurial activities, the creation of a system of continuous support of small businesses in the conduct of economic activities, the Republic operates a network of infrastructure entities supporting small and medium-sized businesses:



Centers of entrepreneurship support, small business incubators, innovation centers, technology parks, etc. As of January 1, 2018, there are 88 business support centers and 19 incubators in Belarus. About 80.4% of the total number of infrastructure subjects operating in the republic are private property organizations.

Centers provide business entities, citizens wishing to start their own business (unemployed, young people, women, etc.), information and consulting services for the organization and conduct of entrepreneurial activities, contribute to the acquisition of financial and material resources, participation in exhibitions, fairs, establishment of business contacts, promotion of their products to the internal and external markets, preparation and provision of these subjects with qualified personnel, carry out marketing research and other assistance.

The activity of incubators is aimed at creating conditions for growth and development of small business entities, including innovative ones. The subjects of small business are provided with premises, office equipment and other property for rent, information, consulting services, assistance in finding partners, obtaining financial resources, introducing modern technologies into production, etc.

To popularize entrepreneurship and stimulate business activity of citizens in Belarus, the national contest "Entrepreneur of the Year" was organized. This position of the state gives a signal to the business community about the interest and support of business on the part of the Government.

The competition is held among representatives of small and medium-sized businesses, in four categories:

- a successful start;
- stable success;
- effective business in the sphere of production;
- effective business in the service sector.

Awarding of the winners of the competition is held in a solemn atmosphere by the Prime Minister of the Republic of Belarus or on his behalf by the Deputy Prime Minister of the Republic of Belarus with the awarding of diplomas, a memorable prize of the competition and a cash prize. the premium. Financing of the expenses for the preparation and holding of the awarding ceremony is carried out at the expense of the republican budget. This indicates a respectful attitude of the state to small and medium-sized businesses. The philosophy of the state's attitude to this issue does not change from year to year and state support for business is expressed in the state programs for supporting small and medium-sized enterprises that are being adopted for the five-year plan.

This attitude of the state to business is adequately assessed at the international level. Thus, Belarus participates in the international project Doing Business.

The Doing Business project allows you to objectively evaluate the regulatory and legal acts that regulate business activities and ensure their compliance in countries, as well as in certain cities at the subnational and regional levels.

The Doing Business project, which began in 2002, focuses on the activities of national small and medium-sized enterprises and the evaluation of regulations that regulate their activities throughout the life cycle.

The study collects and analyzes comprehensive quantitative data to compare the conditions for regulating entrepreneurial activity between countries and in the dynamics

In addition, the Doing Business project offers detailed subnational reports that provide an exhaustive analysis of business regulation and reforms in different cities and regions of a particular country.

The Republic of Belarus took the 37th place among 190 countries of the world, while improving its positions at once by 13 rating points.

During the eleven years of participation in the study, Belarus has gone from the last quarter of the countries to the first quarter of the world's best practices.

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## **INNOVATION POLICY IN THE REPUBLIC OF MOLDOVA AND ITS IMPACT ON BUSINESS DEVELOPMENT**

### **ABSTRACT**

In the context of the increasing role of the SMEs sector in the national economy landscape, supporting innovation activity in SMEs is imperative. In this paper our goal is to review the main policy documents on innovation, with reference to the measures aimed at stimulating innovation in SMEs; summarize the characteristics of the innovative SMEs in the Republic of Moldova. Additionally, there has been outlined the constraints faced by the participants of the technology transfer process - enterprises, researchers and intermediary institutions, based on the interviews carried out with the participation of the authors. We also examine the Republic of Moldova position in the international rankings, referring to the innovational development. The article identifies that the innovation activity is still underestimated in the Republic of Moldova, the encouragement of the innovation activity is not systemic, having a fragmentary character, with a low impact on business community.

**Keywords:** innovation, innovation policy, SMEs, research and development

**JEL Classification:** O 20, O 30, O31, O38

**The importance of the SMEs sector for the national economy.** Entrepreneurial activity plays a major role in the country's social and economic development: enterprises produce goods and services, create jobs, revenues in the state budget, generate innovations and ensure economic growth and the welfare of citizens. A considerable role is played by the SMEs sector. SMEs are essential components of the economy of a large number of countries, playing a particular role in the development of the countries, their share in the total number of enterprises being considerable. In the Republic of Moldova, as in most other countries, they represent a dominant part of the business sector and significantly contribute to the job creation.

Considering that in the Republic of Moldova, the majority of enterprises are related to the SMEs sector, the emphasis in the state policies, as a rule, is on the support of SMEs. Recently, a new law on SMEs, which provides for a number of significant changes in supporting SMEs, was adopted in 2016 (the Law no. 179 of 21.07.2016). The new law establishes the legal framework for micro, small and medium enterprises, as well as the state support measures for their creation and development. As stated in the recently established law in Moldova, small and medium-sized enterprises are defined according to three criteria: average annual number of employees, annual sales revenue and total annual balance sheet assets.

Enterprises belong to the SMEs sector if they cumulatively fulfill the following conditions:

- a) have an average annual number of employees of up to 250;
- b) achieve an annual turnover (sales revenues) of up to 50 million MDL or hold total assets of up to 50 million MDL.

Depending on given criteria, the SMEs are classified into the following categories:

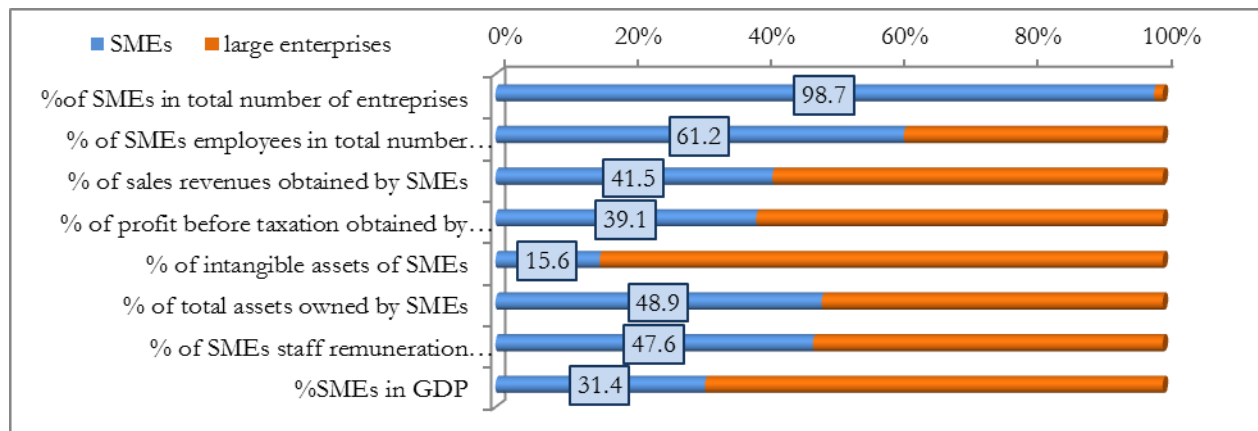
**Table 1. Criteria for classifying enterprises in the SMEs sector**

Size of SME	Number of employees, pers.	of Sales revenue, million MDL	or	Balance sheet assets, million MDL
Micro	0-9	≤9	or	≤9
Small	10-49	≤25	or	≤25
Medium	50-249	≤ 50	or	≤ 50

Source: based on the Law No.179 from 21.07.2016 on the Support of Small and Medium sized Enterprises Sector

In the Republic of Moldova, SMEs embody the most important part of economic agents, representing in 2016, according to the National Bureau of Statistics 98.7% of the total number of enterprises. Thus, SMEs account for approximately 30.5% of all enterprises registered in the State Registration Chamber.

The SMEs contribution to the national economy is an important one, with 61.2% of employees in the national economy working in SMEs in 2016. The SME sector generated 41.5% of the sales revenue and created 39.1% of the total profit before taxation, and the SME's quantitative impact on economic growth is estimated at 31.4 percent of GDP. The share of intangible assets of SMEs is still very low, making up 15.6%, which shows that the SMEs do not yet perceive and do not realize the importance of intangible assets components for their business development.

**Figure 1. SMEs in the national economy of the Republic of Moldova in 2016, %**

Source: Calculated by the authors on basis of the statistical data

86.3% of the SMEs are microenterprises, 11.2% are small enterprises, and 2.5% are medium-sized enterprises. There were 51.6 thousand SMEs in Moldova in 2016, up from 51.2 thousand in 2015, with a slight increase of 2.2%.

According to the statistical data, in 2016, in the SMEs sector worked 313.53 thousand employees with 3.4 thousand less than in 2015 (with a slight decrease of 1.1% compared to the previous year). Medium-sized enterprises, microenterprises and small businesses, employed almost similar number of employees, with a weight of 32.4-34.2% of the total SMEs workforce.

Regarding the turnover generated by SMEs in 2016, it was 124954.35 million MDL, with an increase of 4.7% compared to the previous year. Structurally, the largest share of turnover achieved in SMEs sector

was obtained by the small enterprises (40.1% of the SME sector's turnover), followed by medium-sized enterprises and micro-enterprises, with a share of 33.0% respectively 26.9%.

**Table 2. The main indicators of the SME sector, 2016**

Indicators	Total number of SMEs	Medium-sized	Small	Micro
Number of enterprises	51,626	1,299	5,780	44,547
% of total	98.7	2.5	11.2	86.3
Average number of employees, persons	313,533	101,529	107,156	104,848
% of total	61.2	32.4	34.2	33.4
Sales income, MDL m	124,954.35	41,303.67	50,079.32	33,571.36
% of total	41.5	33.0	40.1	26.9
Profit (+)/Loss(-) before taxation, MDLm	5,878.53	2,101.29	2,229.81	1,547.43
% of total	39.1	35.7	37.9	26.3

*Source: Calculated by the authors on basis of the statistical data*

**The analysis of innovative SMEs in the Republic of Moldova, based on statistical data.** Today, when businesses and in particular SMEs, are marked by a fierce market competition, competitiveness depends more than ever on their ability to develop, implement and commercialize innovative solutions constantly. In order to remain competitive on a long-term basis, SMEs need to introduce new products / services on the market, permanently improving the quality of existing ones by applying new production technologies, etc. Knowing innovative business activities is very important for the economic measurement of innovation, for assessing its potential, efficiency and impact.

In the Republic of Moldova until recently it was not possible to analyze the activity of innovative SMEs due to lack of the statistical data. Starting with 2017, the National Bureau of Statistics has presented for the first time the information on business innovation activity in the Republic of Moldova for the years 2015-2016.

The information includes statistical data on business innovation by economic activities, size of enterprises, by development regions, referring to: the number and share of innovative enterprises, the typology of innovators, the ways in which innovation is achieved, the number and share of enterprises with new products for the market and new products for the enterprise, the turnover from innovation activities, investment in innovation activities, cooperation partners and their geographical location.

Thus, based on the analysis of this information, it was found:

- *Small and medium-sized enterprises are more innovative than large enterprises.* The share of innovative SMEs in total innovative enterprises in the Republic of Moldova in 2016 constituted 90%. Although the share of SMEs in the total innovative enterprises is significant, the share of innovative SMEs in the total SMEs in the Republic of Moldova is extremely small (only 1.2%). Thus, out of 51 626 SMEs, only 609 were innovative, which means that one of 85 small and medium-sized enterprises has been innovating.

- *Small businesses are more innovative than medium-sized businesses.* Small-scale innovative SMEs (employing 10-49 employees) had a share of 68.6% in the total of innovative SMEs, which is 2.2 times higher than the

share of innovative medium-sized enterprises (31.4%). The same is true for both Industry and Services sectors. At the same time, innovative small enterprises prevail over the innovative medium-sized ones in almost all development regions, with the exception of the South region, where relatively more medium-sized enterprises (55.0% medium vs. 45.0% small) are concentrated. Although the number and the share of small enterprises in total innovative SMEs were higher (2.2 times), they achieved a turnover 1.4 times lower than the innovative medium-sized enterprises.

- *There are more innovative SMEs in Industry than in Services sectors.* Innovative SMEs in the Industry sector accounted for 52.4% of all innovative SMEs, 1.1 times higher than the share of innovative SMEs in Services (47.6%).

- *SMEs from Industry have earned higher income from innovation activity than SMEs from Services sector.* The turnover share of the innovative SMEs in Industry is 2.6 times higher than the share of the innovative SMEs' turnover in the Services, accounting for 72.4% and 27.6%, respectively, of the total turnover of the innovative SMEs. In the size class profile, medium-sized enterprises from Industry have obtained a 2.6 times higher turnover than small businesses, accounting for 72.1% and 27.9% of the total turnover of innovative SMEs of the Industry sector. In the field of Services, the situation is the opposite: the income from the innovation activities of medium-sized enterprises (22.1%) is 3.5 times lower than the income of small enterprises (77.9%) of the total turnover of innovative SMEs of the Services sector.

- The largest share of innovative SMEs is found in Chisinau municipality. Most innovative SMEs are concentrated in Chisinau (58.6%) and in the Center (16.1%) and Northern (15.1%) development regions. The Southern Region and ATU Gagauzia has registered relatively smaller share of 6.6% and 3.6% respectively of all innovative SMEs. At the same time, in all development regions, apart from Chisinau, the industrial SMEs dominate, and in Chisinau, the largest share belongs to innovative SMEs in the Services sector.

Given the fact that SMEs represent the most important part of the business sector, the modest results of the innovative SMEs demonstrate the need to further develop a stimulating economic and legislative framework for innovation at the level of all enterprises in the Republic of Moldova.

**The main policy documents on innovation, referring to the measures aimed at stimulating innovation in SMEs.** At the current stage of economic development, no enterprise, even more, no country can be competitive in the absence of the innovation activity. However, the innovation activity can only be successful with the existence of a legal and normative-legal framework well adapted to the conditions of the country. Thus, in the Republic of Moldova in the last years a series of laws and strategies have been adopted, aimed at stimulating the development and implementation of innovations. The main legislative acts aimed at stimulating the development and implementation of innovations are: The Code on Science and Innovation of the Republic of Moldova, no. 259 of 15.07.2004; The Law on Scientific and Technological Parks and Innovation Incubators of 21.06.2007; The Law no. 138-XV of 10.05.2001 on the rationalization activity.

At the same time, the main policy document, which directly concerns the field of innovation, is the **Innovation Strategy of the Republic of Moldova for the period 2013-2020 "Innovation for Competitiveness"**. The strategy identifies 5 general objectives and aims to provide a framework of horizontal policies that will contribute to the enhancement of the international competitiveness of the country through the development of the human capital by strengthening the capacities of the Moldovan companies to absorb, generate and disseminate innovations and by a closer interconnection with the universities and research centers. The general objectives set out in the Strategy covers the following areas:

A. The adoption of an open governance model of the research and innovation sphere; B. Empowering people with innovative skills; C. Companies' orientation towards innovation; D. Applying knowledge to solve global and societal problems; E. Stimulate the demand for innovative products and services (Government of Republic of Moldova, 2013).

In addition to the legislation and the basic documents, which directly address the sphere of innovation, there are a number of policy documents that reach to a certain extent the innovation field, of which the main are:

- The **Action Programme of the Government of Republic of Moldova for 2016-2018**, Chapter IV *The economic development, energy security, enhancing competitiveness and job creation* includes several objectives, among which Innovation and technological development. For achieving this goal are provided nine actions, including: providing access through a competitive process to state funding programmes in scientific research, technological development and innovation; developing a legislative support framework for innovative companies, including the Law on venture funds; reorganising and consolidating the National Agency for Innovation and Technology Transfer; enhancing innovative linkages between companies, educational institutions and research institutions; facilitating networking and technology integration of domestic and foreign companies; supporting the integration of innovators and Moldovan researchers in the global circuit of innovations and ideas; developing competitive financing tools for companies focusing on product, process, marketing and management innovation (Government of Republic of Moldova, 2016 c).

- The **Roadmap for improving the competitiveness of the Republic of Moldova** addresses the constraints that are considered to be of major importance for improving the competitiveness of the country, including human resources, access to finance, transport and energy infrastructure, quality infrastructure, information society, trade facilitation, fiscal policy and administration, *innovation and technology transfer*, competition. Among the objectives and actions referring to innovation included in the above-named document can be mentioned: Creating the legislative framework related to the innovation activities, linked to the European rigors; Company's orientation towards innovation; Adapting the formal training programs to the needs of the innovative development and supporting the young talents' entry into the innovation sphere; Strengthening the innovation links between companies, the education and research sectors, etc.(Government of Republic of Moldova, 2014)

- Some measures regarding the innovation activity are stipulated in the **National Action Plan for the implementation of the Moldova-EU Association Agreement for the period 2017-2019**: Supporting through various programs the capacity of SMEs to absorb innovative local technologies; Promote good technology transfer and innovation business practices by involving companies in international programs and projects in the field; Developing a network of innovation and business incubators; Facilitating the production and marketing of innovative and creative products between the parties; Elaboration of methodology and implementation of indicators on innovation statistics according to the EU requirements (Government of Republic of Moldova, 2016 a).

- In the **National Intellectual Property Strategy until 2020**, a central role is given to encouraging the creation, protection and use of intellectual property as a key tool in creating the conditions for the country's transition to the innovation model of economic growth.

- The **SMEs Development Strategy for the years 2012-2020** provides the long-term and medium-term policy framework for the development of the export-oriented sector, investment and innovation as well as the political commitment of European integration. One of the eight priority areas is aimed at *strengthening the SMEs competitiveness and encouraging the innovative spirit*.

Thus, *the Action Plan for 2015-2017 on the implementation of the Strategy* includes a number of objectives and actions, aimed at increasing the competitiveness of SMEs and encouraging the innovation activity. Among these, we mention only a few objectives: The improvement and development of technical and innovative capacities of SMEs; Facilitating the development of the SMEs clusters, business incubators; Promoting intellectual property for the SMEs; as well as some actions: Grants to support SMEs in implementing energy efficiency projects; Expanding innovative infrastructure by creating and sustaining

innovative incubators and scientific parks; Creating a communication and collaboration platform for intellectual property, creativity and innovation for SMEs at the “INFOINVENT” Exhibition (Government of Republic of Moldova, 2012).

Although the initial legislative framework was developed and some support institutions have been developed, the innovation activity is insufficiently sustained in the Republic of Moldova. First of all, in reality, the specific mechanisms and levers (regulations, instructions, government decisions, etc.) for the implementation of the legislation on innovation are not developed. The legislative framework is more declarative and there is no correlation between the main policy areas. There is no policy impact assessment and monitoring of the whole innovation process, and the first statistical data on business innovation activity occurred only at the end of 2017.

Moreover, the facilities stipulated in the Law on Scientific and Technological Parks and Innovation Incubators for the residents of these structures have been canceled without being applied. Thus, the tax and customs facilities initially promised to the residents were canceled by the Law on the scientific and technological parks and the innovation incubators. The mentioned facilities were canceled in 2012, but no residents ever benefited from them. This discourages business and investors from investing in this activity.

Secondly, the applied research activity is not predominantly oriented to increase the competitiveness, to the priority areas and the business and society needs. Thus the connection with the private sector is weak, these two develop separately from each other, limited to few possibilities, which can be achieved through the transfer of knowledge and, in some cases, through technology transfer. SMEs support measures and innovation incentives are developing as two independent processes, promoting and stimulating the SME sector without innovation. The innovation legislation is referring more to the innovative enterprises, which are resident of innovative infrastructure. Thus, the formal approach of stimulating the SMEs innovation activities can create a false impression of the intentions of obtaining the right privileges and benefits for innovative SMEs.

Thirdly, the development of innovation policy does not involve all the main actors interested in developing this important area. Moreover, the functions of development, implementation, monitoring and evaluation of innovation policy until 2017 were concentrated within a single institution - the Academy of Sciences of Moldova, which ultimately led to the inefficiency of this policy and to a minimal impact on the development of the SMEs sector. Thus, the encouragement of the innovation activity in the Republic of Moldova is not a systemic one, but it has a fragmentary character, manifested by the regulation of only individual segments of the entire innovation cycle and the minimal use of levers in the whole arsenal of incentive measures, existing in international practice.

**The institutional framework for innovation.** Aware of the need to improve the situation, in order to adopt a more open model, inclusive and transparent, in the Action Programme of the Government of Republic of Moldova for 2016-2018 was introduced the objective of *Reforming the governance of the national system of scientific research, technological development and innovation*. In order to achieve this objective, and based on the recommendations of the European experts, in 2017 was decided to reform the field of science and innovation in the country, focusing on increasing the efficiency in this field and increasing the impact of research and innovation on the national economy.

As a result of the reforms carried out in 2017, the main public authorities, which, according to their mandates, participate in the elaboration and implementation of the state policy in the field of innovation and technological transfer are:

- **The Ministry of Education, Culture and Research** - is responsible for policy development in the field of research;



- **The Ministry of Economy and Infrastructure** - is responsible for developing and monitoring policies in the field of innovation and technology transfer;
- **The National Agency for Research and Development** - is a new institution in the process of creation, set up by the merger of 3 organizations: the Research and Development Agency, the Agency for Innovation and Technology Transfer and the International Projects Center. The newly created agency is responsible for the implementation of the state policy according to action plans approved by the Government; the distribution of the budget allocations for R & D and innovation projects, exclusively on a competitive basis, according to the National Research and Development Program; the elaboration and presentation to the Government for approval of the National Research and Development Program; monitoring the project implementation; etc (Government of Republic of Moldova, 2017 a).
- **The Academy of Sciences of Moldova (ASM)** - an autonomous public institution of national interest in R & D, will operate on the principles of self-management. The ASM will be a scientific consultant of the public authorities in setting the priorities in the field of fundamental and applied research and will have the following attributions: to elaborate the report on the state of science, reflecting the elaborated policies; to develop forecasts on the development of research and innovation fields, to organize the scientific events, etc. (Government of Republic of Moldova, 2017 a).
- **The State Agency for Intellectual Property** – the legal protection of intellectual property rights.

In addition, it is planned the creation of the Council for Research, Development, Innovation and Technological Transfer, which will deal with relevant expertise in the development of the science and innovation policy, will ensure the impartial intersectoral approach and will monitor the activity of NARDI. The council will gather outstanding personalities from various fields - representatives of the authorities, the Academy of Sciences and the civil society, and will be an advisory platform to develop guidelines for the development of research and innovation, providing advice and expertise (Government of Republic of Moldova, 2017 b).

A novelty is also the abolition of the obligation of scientific accreditation and the introduction of minimum performance criteria for accessing the budgetary financial resources, respectively the elimination of barriers for actors from other fields: the business environment and the civil society to participate in the research and development activities (Government of Republic of Moldova, 2017 b).

**The evaluation of the innovative development of the country based on international rankings and other reports.** National innovation efforts are highlighted in the international rankings, which tend to analyze and compare the innovation situation in different countries, the importance of innovation, especially for SMEs, by helping to formulate appropriate public policies for the given context.

In order to better understand the innovative development in our country in a global context, we will analyze the position of the Republic of Moldova in two of the most important international rankings - The Global Innovation Index and The Global Competitiveness Report.

In the **Global Innovation Index** in 2017, Moldova is ranked number 54 among 127 countries included in the ranking, worsening the position from the previous year with -8 points.

The lowest positions in the ranking the Republic of Moldova has obtained for the Innovation Effort Sub-Index (73rd place), in particular the Infrastructure (82nd place, a decrease with 7 positions), Business Sophistication (81st place in the ranking, improving by +8 positions), Institutions (72th place, a decrease with -4 positions). Within this sub-index, the Market Sophistication indicator showed a representative advance of +31 positions, moving from 93rd place (2016) to 62nd place (2017).

In the Innovation Output Sub-index, the country occupies a relatively better place (42), but in the last year it has worsened by -6 positions. All indicators that characterize this sub-index have worsened their

positions, with the most representative downgrade recording the Knowledge and Technology output indicator (-21 positions).

The most advanced position in the ranking, Moldova has registered at the Innovation efficiency ratio (22nd place), which shows the top of the most efficient countries in transforming innovative ideas into practical results. This indicator reflects not the potential for innovation (in the Republic of Moldova, as in a number of other countries that has occupied advanced positions in the innovation efficiency, this potential is very limited), but the degree of using the existing potential. Although this index is the most advanced in the ranking for the Republic of Moldova, it also has a very negative trend (-18 positions). This shows us that the situation regarding the implementation of the innovations in the economy has been considerably worsened, and the country remains in the echelon of the economically less innovative and uncompetitive economies at the international level.

In this context, it is important to improve the work of all stakeholders involved in the innovation process - research institutions, entrepreneurs and public administration bodies. This implies, first of all, increasing the quality of scientific research institutions, which would lead to the increase of the Knowledge and Technology outputs indicator and a more active involvement of the public institutions, responsible for the elaboration, implementation and monitoring of the policies and mechanisms related to the innovation activity in the country.

**Moldova's position in the Global Competitiveness Report.** The place of the Republic of Moldova on the global map of competitiveness remains modest, according to the results of the latest comparative evaluations. In the ranking of the Global Competitiveness Report in the years 2017-2018 Moldova ranked number 89 among 137 countries, the country advanced by +11 positions compared to the previous period and all the indicators that characterize the country's innovative development had a positive trend. It is important to underline that the improvement with 11 positions of our country in the ranking in 2017-2018 as compared to the previous year should be analyzed in the context of a considerable worsening by 16 positions of the Republic of Moldova in the previous period 2016-2017 compared to 2015-2016.

The innovative activity in this ranking is characterized by 2 pillars - P.9 Technological readiness (53rd place) and P.12 Innovations (128th place). Although at the Technological readiness pillar the Republic of Moldova is relatively well positioned (only due to the developed ICT sector), within this pillar the lowest position is recorded at the Firm-level technology absorption indicator (106th place). At the same time all the indicators that characterize this pillar have positive tendencies.

**Table 3. The position of the Republic of Moldova in the Global Innovation Index Ranking**

Indicators	Position		The change
	2016-2017	2017-2018	
<b>Total</b>	<b>46</b>	<b>54</b>	<b>-8</b>
<b>INNOVATION INPUT SUB-INDEX</b>	74	73	+1
<b>1) Institutions</b>	68	72	-4
<b>2) Human capital and research</b>	51	59	-8
<b>3) Infrastructure</b>	75	82	-7
<b>4) Market sophistication</b>	93	62	+31

<b>5) Business sophistication</b>	89	81	+8
<b>INNOVATION OUTPUT SUB-INDEX</b>	36	42	-6
<b>6) Knowledge and technology outputs</b>	31	52	-21
<b>7) Creative outputs</b>	34	39	-5
<b>INNOVATION EFFICIENCY RATIO</b>	4	22	-18
<b>Number of countries</b>	128	127	

*Source: Based on the Global Innovation Index Report*

Referring to the Innovation Pillar, the country's position is lower than for the Technological readiness pillar, and the lowest among the 12 pillars, which characterize the country's competitiveness. An encouraging moment is the fact that, within the pillar, all indicators are showing positive trends in the last year, from +5 (Capacity for Innovation and PCT Patents) to +12 (University-industry collaboration in R&D). And only the Companies spending on R&D indicator remained unchanged, Moldova is on 135th place three consecutive years (2015, 2016, 2017).

Thus, it is very important, to reorient domestic research to address business challenges in order to improve the country's position on the Firm-level technology absorption indicator, to help develop closer ties between research and the business environment. With regard to businesses, it would be necessary to increase the R&D spending of companies and, as a whole, their innovation capacity, to increase the possibilities of enterprises to participate in the Government procurement of technology advanced products.

An important prerequisite for implementing innovations is to improve the access to finance for innovative businesses, through the creation of new support institutions (for example business angels) and the development of existing innovation incubators and scientific and technological parks, as well the provision of tax and credit facilities.

**Moldova's evolution on the Innovation dimension of the SME Policy Index 2016**, according to the OECD report "SME Policy Index: Eastern Partner Countries 2016: Assessing the Implementation of the Small Business Act for Europe". Starting with 2012, the OECD, every 2 years, conducts an assessment of the implementation of the Small Business Act, which shows the progress of implementing the 10 principles of the law and measures the convergence with EU practices and standards.

**Table 4. The position of the Republic of Moldova in the Global Competitiveness Report**

Indicators	Position		The change
	2016-2017	2017-2018	
<b>Total</b>	100	89	+11
<b>Pillar 9. TECHNOLOGICAL READINESS</b>	58	53	+5
<b>A. Technological adoption</b>	103	97	+6
<b>Availability of latest technologies</b>	95	88	+7
<b>Firm-level technology absorption</b>	112	106	+6
<b>FDI and technological transfer</b>	100	98	+2
<b>Pillar 12. INNOVATION</b>	133	128	+5

Capacity for innovation	124	119	+5
Quality of scientific research institutions	125	115	+10
Companies spending on R&D	135	135	-
University-industry collaboration in R&D	133	121	+12
Government procurement of technology advanced products	136	130	+6
Availability of scientists and engineers	131	120	+11
PCT patents, application/milion pop	77	72	+5
Number of the countries	138	137	

*Source: Based on the Global Competitiveness Report*

The assessment of the SMEs policies by the OECD has demonstrated that considerable steps have been taken in Moldova to establish a comprehensive framework for SMEs development. Moldova's evolution in most dimensions of the SME Policy Index 2016 shows a steady progress in several areas.

Thus, according to the mentioned OECD report, some concrete measures have been taken in recent years on the innovation ecosystem in cooperation with governmental agencies and other stakeholders. So, amongst the progress made in this area, the OECD report points to: financing instruments provided by the Innovation and Technology Transfer Agency in the form of innovation and technology transfer projects, and the establishment of scientific and technological parks and incubators (OECD, 2015).

Also, the Innovation Vouchers Contest, organized by the Innovation and Technology Transfer Agency in 2014, provided SMEs with the opportunity to acquire R&D services from knowledge transfer service providers, implement the acquired projects, and establish or strengthen the relationships with research institutions and international partners (OECD, 2015).

At the same time, according to the OECD report, the innovation ecosystem in the Republic of Moldova is confronted with a number of challenges, including: the average SME investment in R&D remains low; the collaboration between universities, research institutes, the private sector and SMEs is still poor; the policies, innovation strategies and action plans overlap partially with the Action Plan of the SMEs Development Strategy (OECD, 2015).

**The evaluation of the constraints, faced by the participants in the technology transfer process - businesses, researchers and intermediary institutions based on the results of the National Institute of Economic Research.** Since innovations are implemented in the business sector, including SMEs, then when evaluating the policies it is advisable to take into account the opinion of the most important participants of the innovation process: SMEs, public administration bodies, representatives of the research environment and intermediary organizations.

In this regard, in order to identify the main barriers of cooperation between SMEs and researchers in developing and implementing innovations, a series of interviews was carried out within the NIER, with the involvement of the authors. The reason for choosing the research method was that the level of innovation activity of domestic SMEs is quite low. This conclusion was confirmed several times by the results of previous projects, reflecting the limited participation of indigenous SMEs in the implementation of innovations. The results of the interviews largely confirmed the main findings of the reports and the analyzed policy documents.

Following the interviews, among the main constraints faced by the participants in the technology transfer process - enterprises, researchers and intermediary institutions, were mentioned (Aculai, 2009, 2010, 2014):

- difficulty in seeking employees with the required qualifications;
- insufficient financial possibilities, which are an obstacle for all parties;
- lack of information that could contribute to the implementation of innovations;
- insufficient awareness of the importance of cooperation by entrepreneurs and researchers, who are the main actors in the process of developing and implementing innovations;
- the complexity of finding the necessary partner, which comes to those entrepreneurs and researchers who are interested in cooperation;
- lack of economic incentives for scientists to initiate research, and for entrepreneurs - to implement innovations;
- lack of knowledge and skills of most researchers in promoting personal results on the market;
- high investment risk, related to the implementation of innovations;
- lack of a constructive dialogue between enterprises, intermediary institutions and public administration bodies;
- the respondents also noted that the legislation aimed at stimulating the processes of implementing innovations in enterprises is insufficiently elaborated. An example in this regard refers to the incubators created by universities, legislation not allowing the production and commercialization of products in such incubators. For example, the Incubator “Politehnica” within the Training and Technological Transfer Scientific Center in the Food Industry is able to train specialists in the dairy industry, to create new assortments, without the right to produce and commercialize.

## CONCLUSIONS AND PROPOSALS

The analysis has allowed us to conclude that the role of innovations as the driving force for economic growth and competitiveness is still underestimated in the Republic of Moldova despite the fact that the initial legislative framework has been developed and some support institutions have been created. SMEs support measures and innovation incentives are developing as two independent processes, promoting and stimulating the SME sector without innovation.

Overall, encouraging innovation activity in the Republic of Moldova is not systemic, but has a fragmentary character, manifested by the regulation of some individual segments of the entire innovation cycle and the minimal use of levers in the whole arsenal of incentive measures existing in the international practice.

All these have generated a number of proposals for improving the situation in the field, namely:

*Regarding the improvement of the policy documents on innovation and SMEs*

- Strengthen the coordination efforts between different innovation actors, as well as the monitoring and evaluation mechanisms in order to create a balance between policies, innovation strategies and action plans with the Action Plan of the SMEs Development Strategy;
- Review the Law on scientific-technological parks and innovation incubators and analyze the possibilities for providing incentives (tax, credit, customs, etc.) to residents of these entities.

*Regarding the improvement of the research implementation results in SMEs*

- It is necessary to stimulate the cooperation between research institutions and the business environment, as well as to encourage the commercial exploitation of scientific results, especially by SMEs, in this sense, it is important to promote widely in society, first of all, in the scientific and business community, the need to implement innovations, inclusive based on the results of scientific research;
- Elaboration of a special state program, focused on the innovative development of SMEs and destined mainly for the development of the necessary knowledge for entrepreneurs and researchers;
- Elaboration of a mechanism for identifying the needs of entrepreneurs in scientific research and innovation.

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Memorial for Smolensk by sculpture Sándor Gyula Makoldi at the bank of Danube in Budapest. The Memorial was erected for the 70<sup>th</sup> anniversary of the Massacre in the Katyn forest and the catastrophe of the Polish plan crash in 2010.  
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## **IMPACT OF ENTREPRENEURSHIP EDUCATION OF YOUTH ON THE DEVELOPMENT OF SMEs IN THE REPUBLIC OF MOLDOVA**

**ABSTRACT**

Involvement of youth in the field of entrepreneurship in the Republic of Moldova is one of the important tasks carried out by the Government, in the framework of the development policies for small and medium-sized enterprises (SMEs), as well as of policies in the sphere of education. The solution of this task can positively affect the well-being of young people, improving opportunities for self-development, increasing their social activity, as well as limitation of the mass migration of youth.

The paper presents an overview of the development of SMEs and their support policies (with an emphasis on involving young people in business), as well as there is presented, in general, participation of youth in the economy of the Republic of Moldova.

The main attention is paid to the analysis of entrepreneurial education of youth. In the article, the emphasis is made on teaching entrepreneurship in Moldova in the system of secondary vocational education: a list of implemented measures and developed documents that provided the beginning of this process are presented; the influence of entrepreneurial education on the emergence of a start-up business or ensuring self-employment is analyzed; the problems of development of entrepreneurial skills are approached. The survey of graduates of the technical vocational education institutions, which passed a learning course on entrepreneurship, represents the base for results and conclusions. After the completion of the studies, a part of graduates created their own business or got self-employed. The survey was carried out during 2016-2017, with the active involvement of authors.

**Keywords:** SMEs, SMEs support policy, young entrepreneurs, entrepreneurial education, technical vocational education institutions.

**JEL Classification:** I25. L53

**INTRODUCTION**

In the modern economy of European countries, small and medium-sized enterprises (SMEs) have a multifaceted input in the economic and social development. In the Republic of Moldova, SMEs also have a significant role and is manifested, first of all, in ensuring the internal consumption market with products and services, creation of new jobs and ensuring self-employment, as well as in increasing the number of private businesses, emerge of the entrepreneurial activity experience and entrepreneurial spirit in a part of the population.



Support of the SMEs sector is reflected as one of the main directions in the country's main economic policy. At the same time, within the framework of state support for SMEs, special attention is paid to the involvement of young citizens of the country in business, representing a significant number of active population, who often can not find a decent job in the country. As a result, a part of them remains unemployed or go abroad in search for a job or for a permanent place of residence. In addition, it should be noted that young Moldovans are not sufficiently represented in business - the share of young entrepreneurs is significantly lower than their share in the population of the country. Therefore, it is absolutely necessary to use various methods in order to involve youth in the social and economic environment of the country, mainly, supporting young people in launching their own business.

In order to initiate and create a new business with growth prospects, a set of favourable conditions is necessary, one of which is the entrepreneurial education. The more knowledge about business a beginner entrepreneur will have, the more successful the results of his business can be. In the Republic of Moldova, in recent years, the system of education of young people has been purposefully implemented, which today encompasses not only higher education (universities), but starting with 2012 - the level of secondary vocational education. As a result, there is already possible to sum up the first results, including analyzing whether the training course of entrepreneurship influences graduates to establish their business or ensuring them with self-employment.

It is important to take into account that entrepreneurial education does not only mean the educational program that provides information related to establishment and development of a business, but it has a wider sphere of perception. In a broader context, the task is to form entrepreneurial competencies that not only contribute to the formation and development of business, but also teach young people to use more active and creative approaches in all areas of activity.

## 1 BRIEF CHARACTERISTIC OF THE SMEs DEVELOPMENT AND POLICY OF THEIR SUPPORT IN THE REPUBLIC OF MOLDOVA

### 1.1 SMEs definition

In accordance with the legislation of the Republic of Moldova, the criteria for including enterprises in the SMEs sector are the following: number of employees, turnover or total assets. Therefore, the SMEs sector includes three groups of enterprises - medium, small and micro, depending on quantitative indicators of the above-mentioned criteria.

No.	SMEs groups	Number of employees, pers.	Turnover or total assets, mil. MDL <sup>1</sup>
1	Micro	≤ 9	≤ 9
2	Small	from 10 ≤ 49	More than 9 and up to 25
3	Medium	from 50 ≤ 249	More than 25 and up to 50

**Table 1: Classification of SMEs in the Republic of Moldova**

*Source:* Law on Small and Medium-sized Enterprises

### 1.2 Contribution of SMEs to the economic development of the country

<sup>1</sup> The exchange rate of the Moldovan leu (MDL) against the Euro as of 07/04/2018 according to the National Bank of Moldova was: 1 EUR = 20.1422 MDL.

Currently, the SMEs sector in the Republic of Moldova makes a significant contribution to the economic and social development of the country. In particular, during the last years, the number of SMEs is constantly increasing, despite the numerous and serious problems faced by Moldovan business. As a result, 98.7% of the total enterprises refer to the sector of SMEs. The largest share of SMEs carries out its activity in the field of trade - more than 39%. 8.5% of all SMEs operate in the field of manufacturing industry; 6.6% - in agriculture, forestry and fishery. As in many European countries, the SMEs sector of the Republic of Moldova is seen as a provider of job places: the SMEs sector employs 61.2% of the total number of employees. The contribution of SMEs to GDP is about 32%. In 2016, long-term investments increase: the share of SMEs investments in the total amount of investments accounted for 47.4%. The main indicators of SMEs development for 2015-2016 are shown in the table below.

<b>The main indicators</b>	<b>2015</b>	<b>2016</b>
Number of SMEs, thousand units. <i>% of SMEs in the total number of enterprises</i>	50.6 98.7	51.6 98.7
Number of employees in SMEs, thousand people. <i>% of SMEs employees in the total number of employees</i>	316.9 62.2	313.5 61.2
Revenues from sales of SMEs, billion MDL <i>% of sales of SMEs in total sales</i>	119.4 42.3	125.0 41.5
Long-term financial investments, billion MDL <i>% of SMEs investments in total amount of investment</i>	11.2 44.0	13.6 47.4

**Table 2: Main indicators of the development of the SMEs sector in Moldova in 2015-2016.**

*Source:* Developed by the author, based on *National Bureau of Statistics of the Republic of Moldova, 2018*

### 1.3 SMEs support policy (with an emphasis on involving young people in business)

Currently, the SMEs sector support policy in the Republic of Moldova at the state level is defined in two main documents - the Law on Small and Medium-Sized Enterprises and the Small and Medium Enterprise Sector Development Strategy for 2012-2020.

*The Law on Small and Medium-sized Enterprises* establishes the legal framework for the activity of micro, small and medium-sized enterprises and measures of state support for their creation and development. At the legislative level, it is stated that specific support measures will be implemented through the development of state programs in the following 6 directions:

- a) supporting young entrepreneurs in launching a business in the country;
- b) stimulating migrants to start a business in the Republic of Moldova;
- c) developing female and social entrepreneurship;
- d) supporting SMEs with export potential and their internationalization;
- e) adapting SMEs to the "green economy" principle;
- f) expanding business support infrastructure by developing business incubators, industrial parks, clusters, etc.

Thus, the law provides that the task of supporting young entrepreneurs is the most important priority in the development and implementation of government programs for the development of SMEs.

In the *Small and Medium Enterprise Sector Development Strategy for 2012-2020*, 8 priority directions of state policy are currently defined, but support of young entrepreneurs is not emphasized as a separate priority. However, Action Plans for the implementation of the Strategy (which are developed every 3 years) include actions aimed at supporting young entrepreneurs. In particular, the National Program of Economic Empowerment of Youth (PNAET) has been implemented for many years. PNAET is a program intended for young people aged 18-30 years who wish:

- to develop entrepreneurial skills;
- to launch or expand their own business in rural areas, except Chisinau and Balti municipalities.

PNAET offers a set of services:

1. entrepreneurial training and consultancy (free of charge);
2. financing, in particular, provision of preferential credits, of which 40% represent the non-reimbursable grant;
3. post-funding monitoring.

It is important to note the important document adopted by the Republic of Moldova jointly with the EU (National Action Plan for the Implementation of the Association Agreement between the Republic of Moldova and the European Union) provides that the implementation of development strategies for SMEs should be based on the basic principles of the Small Business Act for Europe. At the same time, the first principle of the Small Business Act for Europe implies giving a special attention to future entrepreneurs, especially among young people and women.

## 2. PARTICIPATION OF YOUNG PEOPLE IN THE ECONOMY OF THE COUNTRY

An analysis of the demographic situation in the country shows that the share of young people (age 15-34 years) in the total number of the Moldovan population accounts for 32%, of which the age group of 15-24 years old - 13% of the population; group of 25-34 years - 19%. In the total number of young people, the proportion of males is slightly higher (51%), the proportion of women being 49%. Relatively more young people live in rural areas (56.9%), respectively, in urban areas - 43.1%.

Indicators	Share
Total	100.0
Including young people,	32.0
<i>Of which:</i>	
15-24 years	13.0
25-34 years	19.0
Of the total number of young people:	
Men	51.0
Women	49.0
Of the total number of young people:	
Urban	43.1
Rural	56.9

**Table 3. Distribution of youth from the Republic of Moldova on age groups, gender and place of residence, at 01.01.2017, %.**

*Source:* Developed by the author, based on *National Bureau of Statistics of the Republic of Moldova, 2018*

Estimating the involvement of young people in the economy, it should be noted that the share of young people in the working-age population (15 years and over) accounts for 38.1% of the population. Indicators characterizing the economic activity, employment and unemployment among young people, of course, vary for individual groups. Thus, the indicators of the level of economic activity and employment are significantly lower for the age of 15-24 years (because many young people are still studying), and significantly higher - for the age of 25-34 years. However, for both groups, the unemployment rate is higher than the average indicator for the economy (4.2%), and accounts for 11.2% for the age group of 15-24 years, and 5.2% for the age group of 25-34 years.

Age groups, years	Activity rate	Employment rate	Unemployment rate
Total, aged more than 15 years old, Including young people:	42.6	40.8	4.2
15-24 years	19.6	17.4	11.2
25-34 years	49.0	46.5	5.2

**Table 4. Activity, employment and unemployment rate of young people, 2016, %**

*Source:* Developed by the author, based on *National Bureau of Statistics of the Republic of Moldova, 2018*

A high level of unemployed among young people has been maintained over the past few years, and this is also indicated by absolute data on the number of unemployed.

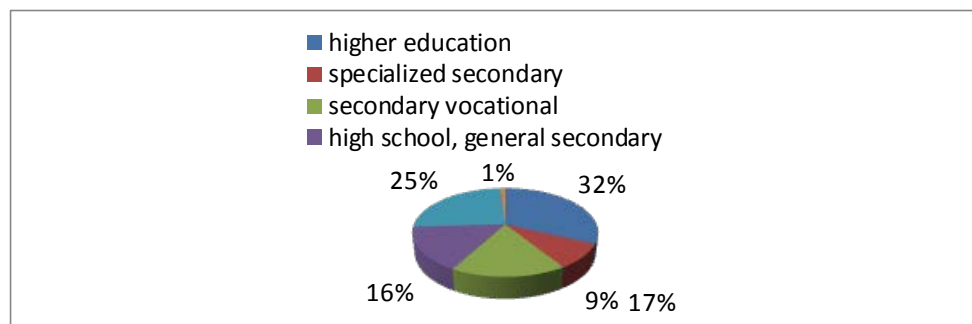
Age groups, years	Years				
	2012	2013	2014	2015	2016
15-24	16.1	14.5	10.3	13.8	10.7
25-34	21.6	19.4	14.7	20.6	17.2
<b>Total youth (15-34 years)</b>	<b>37.7</b>	<b>33.9</b>	<b>25.0</b>	<b>34.4</b>	<b>27.9</b>
35-44	13.8	13.0	11.7	14.2	11.4
45-54	11.9	11.6	7.8	8.6	9.9
55-64	4.3	4.5	3.1	4.7	4.0

**Table 5. Unemployment level in the Republic of Moldova, 2016, thous. people**

*Source:* Developed by the author, based on *National Bureau of Statistics of the Republic of Moldova, 2018*

The education level of young people (belonging to the economically active population), which largely reflects their potential, is quite high, and is characterized by the following indicators: 32% of young people have higher education; specialized secondary - 9%; secondary vocational - 17%. 41% have graduated from high school, or have general secondary, and gymnasium education. Only 1% of this group of young people have primary education or no education at all.

The unemployment rate indicator is different for people with different levels of education. In the age group of 15-24 years, this indicator is the highest for people who have a higher level of education: higher - 17.3%; specialized secondary - 14.8%; secondary vocational - 11.1%. It is likely that among these young people there are many graduates who have not yet found the first workplace after receiving an education. For the young people aged 25-34 years, the highest unemployment rate belongs to graduates of gymnasium, (6.1%), followed by those having higher and specialized secondary education - 5.7% and 5.0%, respectively.



**Figure 1. Education level of youth, %**

Source: Developed by the author, based on *National Bureau of Statistics of the Republic of Moldova, 2018*

Age groups, years	Education level					
	Higher education	Specialized secondary	Secondary vocational	High school, general secondary	Gymnasium	Primary education or no education
15-24	17.3	14.8	11.1	8.1	9.2	-
25-34	5.7	5.0	3.4	4.6	6.1	4.4
35-44	2.6	1.7	4.2	4.3	4.6	16.4
45-54	3.2	3.7	3.7	3.8	1.8	-
55-64	2.0	1.3	2.4	2.4	1.2	-
65+	-	-	0.5	-	-	-

**Table 6. Unemployment rate in the Republic of Moldova, according to the education level, 2016, %**

Source: Developed by the author, based on *National Bureau of Statistics of the Republic of Moldova, 2018*

In 2016, of the total population of 15 years and over, employed or searching for a job, abroad, more than half (56%) are young people. Of these, 18.1% are of 15-24 years old; 37.9% - 25-34 years old. The high level of migration of young people reflects a relatively higher level of unemployment among them. That is, young people, including those who received education, are often less required on the labour market due to the lack or insufficient work experience. In such circumstances, entrepreneurship development (or ensuring them with self-employment) may be an additional opportunity for youth in order to provide them with a certain level of income; feel more confident in all spheres of life, actively participate in public life, stay to live and work in their country.

Data on the involvement of young people in entrepreneurial activities in Moldova are very limited and refer to 2009; more relevant and actual data are missing. In accordance with the available indicators, the share of young people in the total number of entrepreneurs accounted for 22.7%; including in the group of 15-24 years - 2.4%, in the group of 25-34 years - 20.3%. The study showed that the youngest entrepreneurs (age 15-24 years) indicated in the survey for the presence of relatively more significant barriers to their business. In particular, 77.3% of respondents of this age indicated that they are experiencing difficulties in managing the enterprise (the average sample indicator was 73.8%). As the main barrier, they named the lack of financial resources, as indicated by 80.6% of entrepreneurs of this age group (the average sample indicator was 74.1%). The differences in the structure of the starting capital due to the age of entrepreneurs can serve as an illustration of the difficulties in accessing financing. For example, in young people aged 15-24 years, a significantly higher proportion of funds are the borrowed ones - 21.8% (with an average level of 12.1%); while

the minimal share belongs to foreign investment - 1.9% (with an average level of 5.3%) (Aculai E., 2009, pp.17, 46, 54, 62).

### **3 ENTREPRENEURIAL EDUCATION OF YOUNG PEOPLE IN THE REPUBLIC OF MOLDOVA: MAIN GOALS AND FIRST RESULTS**

#### **3.1 The task of developing entrepreneurial skills in the Moldovan legislation and policy documents**

The education system in Moldova has undergone significant changes in the past 5-7 years, taking into account the current trends in the economy and business. As a result, nowadays, the need to study the entrepreneurship basics is fixed in a series of policy documents, laws, normative and methodical acts, adopted in the country.

The main document for preparing pupils and students at all levels and cycles of the education system is the Education Code of the Republic of Moldova, adopted in 2014. The Code clearly sets out the main purpose and key competences that include knowledge, skills, attitudes and values that allow the active participation of the individual in social and economic life. In particular, Article 11 stipulates that education aims the establishment of the following 9 key competences:

- a) communication competencies in Romanian (national language of Moldova);
- b) communication competencies in the native language;
- c) communication competencies in foreign languages;
- d) competences in mathematics, science and technology;
- e) digital competences;
- f) competence to study to learn;
- g) social and civic competences;
- h) entrepreneurial competencies and initiative spirit;
- i) cultural expression competencies and awareness of cultural values.

Thus, among the 9 key competences, on which the education system of the Republic of Moldova is centred since 2014, "entrepreneurial competencies and initiative spirit" are indicated as separate competences.

A new Law on Small and Medium-sized Enterprises was adopted in July 2016, Article 16 of which is fully devoted to entrepreneurial education. The article emphasizes the fact that entrepreneurial education is oriented towards the development of entrepreneurial spirit, which is a fundamental competence for lifelong learning and is mandatory for inclusion in vocational education and training programs at all levels. The law stipulates that competent authorities with competences in the field of education initiate and carry out actions to promote attitudes and behaviours of the entrepreneurial spirit through the following basic actions:

- a) introducing entrepreneurial education at all levels of the education system, starting with primary education;
- b) initial and continuous formation of teachers for entrepreneurial education;
- c) including entrepreneurship in professional orientation;
- d) providing counselling to educational institutions and teachers for the development of initial vocational training programs and dissemination of successful experiences and practices;

*The Small and Medium Enterprise Sector Development Strategy for 2012-2020* – the main document, in which the Government provides the main directions and actions related to the support of the SMEs sector, there are also presented measures targeted at promotion of entrepreneurial competencies and culture, for example: organizing trainings for youth in the framework of the National Program for Economic Empowerment of

Youth or supporting the organization of training sessions, round tables and creative workshops in order to develop the entrepreneurial skills of young people. Actions related to supporting young people do not differ according to levels and education cycles, i.e. referring to all institutions involved in the educational process, training and retraining of the staff, including the one from technical vocational education institutions.

In the *Education Development Strategy for 2014-2020 "Education-2020"* the task of developing entrepreneurial skills has been set up repeatedly. In particular, it was noted that pedagogical staff, students and parents mention the insufficient formation of entrepreneurial skills as one of the obstacles of the education system. Accordingly, the priority measures for the implementation of the Strategy include, among others:

- Development of lifelong learning programs, in view of the development of key competencies, including entrepreneurial ones.
- Development of curricula for pre-university education with the prospect of developing the necessary competencies, in particular, the development of entrepreneurial skills. Involving the business community in the process of developing curricula.
- Review of the initial education of teachers, including their taught entrepreneurship courses.
- Legislative recognition of the possibility of higher education institutions to organize and provide business services in order to obtain their own income.

In the Republic of Moldova, a series of measures for the entrepreneurial education of pupils has been implemented in accordance with the approved documents, by introducing the discipline: "Entrepreneurship basics", which is a mandatory discipline nowadays in all universities and secondary vocational education institutions. The aim of introducing this course was to form a set of key competencies necessary for the development of young people, so that they could establish their own business, increase their chances of finding a job on the labour market, as well as for their more active participation in other areas of activity. The most important objectives of entrepreneurial education are:

- acquiring knowledge specific to entrepreneurship;
- acquiring skills in using technology, analyzing business situations, synthesizing action plans;
- identifying and stimulating entrepreneurial desire, entrepreneurial talent and entrepreneurial skills - increasing the perception of individuals about new business opportunities, supporting individuals in developing these possibilities;
- reducing the level of aversion to risk;
- encouraging new business.

Implementation of tasks set in the policy documents faces many challenges. One of the main among them is that this course is largely theoretical in nature. In particular, teachers teach students / pupils about the main concepts and definitions, general methods and structures of enterprise management; basic laws governing business. But within the framework of the training sessions, practical examples (case studies) are analyzed extremely rare, which would make it possible to apply theoretical concepts and ideas in practice. The lack of practical orientation of entrepreneurial training is due to a number of circumstances. These include, first of all: the lack of specific teachers in the field of business management, especially the experience of entrepreneurship; rare involvement of practicing entrepreneurs in the learning process; the lack of educational specialties in the country related to the training of teachers in this specialty; lack of scientific, didactic and methodological manuals, corresponding to the level of training of teachers and students / pupils.

So far, it has not been possible to establish an effective partnership between education institutions and business. Many entrepreneurs are not yet interested in improving the education process, although they acknowledge that the lack of qualified personnel is becoming an increasingly important problem. An unfavourable business environment also does not help entrepreneurs to get actively involved in the education

process, including, openly speaking about their problems and ways of solving them (which are not always legitimate).

Another obstacle in the development of entrepreneurial skills is that despite the presence of a large number of SMEs, the spirit of entrepreneurship is poorly developed in society. Some of the small entrepreneurs came into the business compelled, not having other opportunities to support their family. Therefore, even the presence of a family business does not always cause the parents the desire to transfer their business by inheritance. In addition, due to historical conditions, there are no traditions of educating entrepreneurship in families, especially since business is connected with a high level of stress and uncertainty.

The above mentioned circumstances are difficult to be overcome quickly. This requires a certain period of time and purposeful actions from governing bodies in the educational system, the teaching community, as well as business.

### **3.2 Education of entrepreneurship in the system of secondary vocational education**

#### **3.2.1 The main measures implemented for the purpose of entrepreneurial education**

Introduction of training courses aimed at forming entrepreneurial skills in youth began in Moldova from universities. The idea on the importance to start teaching young people the basics of business as early as possible has been expressed in society for several years. Nevertheless, concrete measures have been taken in the last 6 years namely in the system of secondary vocational education.

The main directions and actions of the state policy in the field of development of technical vocational education in Republic of Moldova are laid down in the *Strategy for the Development of Vocational / Technical Education for the years 2013-2020*, approved by the Government Decision in 2013. Although the Strategy does not directly mention the development of students' entrepreneurial skills, some actions from the Action Plan to implement this Strategy for the years 2013-2017 include, however, separate elements of entrepreneurial education. In particular, the following measures are provided:

- Promotion of entrepreneurial courses in the vocational / technical education institutions;
- Development of models of continuous professional training of the teaching / managerial staff, including business management courses
- Elaboration and application of new mechanisms for financing vocational / technical education, including the possibility of marketing the products made by pupils in workshops

During 2012-2016, a series of important measures for the entrepreneurial education of pupils was carried out in the vocational-technical education system in the country. In particular:

1) The project of the National Curriculum for the "Entrepreneurship Basics" discipline was developed for the formation of entrepreneurial skills in the secondary vocational technical education institutions. The approaches outlined in the Curriculum are in line with the spirit and theses of the main laws of the Republic of Moldova on entrepreneurial activity. The "Entrepreneurship Basics" discipline is aimed at providing students with skills that will enable them to efficiently capitalize their own professional potential, and in the future – to effectively initiate and manage the entrepreneurial activities. In a wider context, these skills should help young people become more creative and active in any activity they will carry out in their personal and social lives. For this discipline, 120 hours are reserved in the framework of the framework-plan of secondary technical vocational education.

2) The teaching materials for the "Entrepreneurship Basics" discipline were developed in addition to the curriculum – a set of documents for teachers aimed at increasing the quality of the teaching process and providing support for pupils in assimilating the new discipline. The set of documents included:



- The methodological guide for teachers;
- Suggestions for designing lessons in the "Entrepreneurship Basics" discipline;
- Student specifications.

These documents were of great importance, since the teachers of the "Entrepreneurship Basics" discipline often became persons without economic education.

- 1) At the national level, the curriculum for the "Entrepreneurship Basics" discipline and the set of teaching materials were piloted in 15 vocational secondary education institutions. The results have been widely discussed among teachers, pupils and representatives of public bodies in the field of education, which allowed improving the Curriculum, as well as the set of documents attached to it. After piloting, all the materials were initially approved by the order of the Minister of Education. At present, the modular curriculum and course support are the main normative documents, mandatory in the process of teaching, educating and evaluating the entrepreneurial education in secondary vocational education institutions.
- 2) Since the role of the teacher in the teaching process, especially in the Entrepreneurship learning discipline is of high priority, training programs have been organized for teachers involved in teaching the "Entrepreneurship Basics" discipline.
- 3) Training courses have been organized with the aim of improving the possibilities of graduates of technical vocational education institutions to create their own business, for those who were interested and prepared business plans for investors. Some of the training participants received mini-grants to initiate their own business.

All these actions were undertaken by the **Centre for Entrepreneurial Education and Business Support (CEDA)**. **CEDA is a non-governmental, non-profit organization. The aims of the Centre are: training and capitalizing on professional skills, individual initiative and entrepreneurship spirit; also promoting entrepreneurship and entrepreneurial spirit through education, business initiation and development. In recent years, CEDA has paid special attention to the development of entrepreneurship in the institutes of the vocational education system. As part of this activity, CEDA works in close partnership with the Ministry of Education, Culture and Research. The main measures related to the development of entrepreneurial skills among students of vocational schools were realized within the framework of the MEEETA - Moldova project (IIIrd phase) "Employment and Entrepreneurship Education and Training Activity" implemented with the financial support of the Liechtenstein Development Service Foundation (LED).**

### 3.2.2 Development of entrepreneurial competencies as an independent task of education

Entrepreneurship education in scientific materials and political documents has recently been seen as another chance to develop an own business. At the level of positioning the problem and discussions, it is already quite clear today that within the framework of the entrepreneurship training course, the student acquires entrepreneurial competences - additional knowledge and skills that can be successfully used in other spheres of social activity. This is, in particular, about such qualities and skills as creativity, innovation and willingness to take risks, which allows us to reasonably plan and effectively manage projects to achieve goals in any activity. That is, entrepreneurial competencies are considered as a transversal competence that is applied to all spheres of life, not just for the initiation and development of business, but also for ensuring self-employment.

If we consider the formation of entrepreneurial competencies more widely, then there is an opinion that such competencies can and should be formed not only in the framework of training courses related to the basics of entrepreneurship / business / enterprise management, but also in the process of teaching of other academic disciplines. In Moldova, similar ideas are already beginning to gradually take root in the system of vocational education, nowadays. In particular, a draft document has been already prepared - Conceptual benchmarks for the development of entrepreneurial skills in general and technical subjects in secondary vocational and post-secondary technical education systems (Version 1), in which there is proposed a conceptual model for the development of entrepreneurial skills in general and technical subjects in secondary vocational and post-secondary technical education systems. The theoretical basis of the conceptual model is the "EntreComp" European Entrepreneurship Competence Framework, published by the European Union in 2016, focused on unifying approaches and efforts to promote and develop entrepreneurial competence as key competency. Theoretical ideas in the developed document are brought to practical implementation; in particular, a functional model of organization of the work process for ensuring the development of entrepreneurial skills at general and technical disciplines from the secondary technical and post-secondary technical vocational education is proposed. The proposals were discussed at the beginning of February 2018, in the framework of the workshop "Development of entrepreneurial skills in different educational disciplines", organized the Centre for Entrepreneurial Education and Business Support. The developed mechanisms and documents deserve attention and implementation not only in institutions of secondary vocational education, but also at other levels of education in Moldova.

### **3.2.3. Involving graduates of vocational schools in business (survey results)**

After 4 years of introduction in the professional-technical education system of the "Entrepreneurship Basics" discipline, the need to analyze its results and its effectiveness emerged, and also the necessity to carry out research of the professional path of graduates of technical vocational education institutions, including the development of entrepreneurial career of respondents who act independently as self-employed or set up their own business. Tracer Study was initiated and organized by the Centre for Entrepreneurial Education and Business Support (CEDA)

The survey was carried out within the MEEETA - Moldova project (IIIrd phase) "Employment and Entrepreneurship Education and Training Activity" implemented with the financial support of the Liechtenstein Development Service Foundation (LED). The study has been developed during the period of October 2016 - January 2017. During the research, 90 graduates have been surveyed. Of the total number of respondents, 39% created their own business, including being self-employed.

Graduates of technical vocational education institutions indicated that different people and events encouraged them to establish their own business. Most often (42.0%) it was the family, close relatives. However, every fifth respondent (20.0% of the sample) noted that professors from education institutions encouraged them to create a business. Examples of surrounding people who already have a business - 16.0% were also essential.

The "Entrepreneurship Basics" discipline significantly influenced students' decision to establish a business, according to 78.8% of respondent. For 15.1%, the impact of the discipline was not significant (6.1%), or was absent - 9.0%.

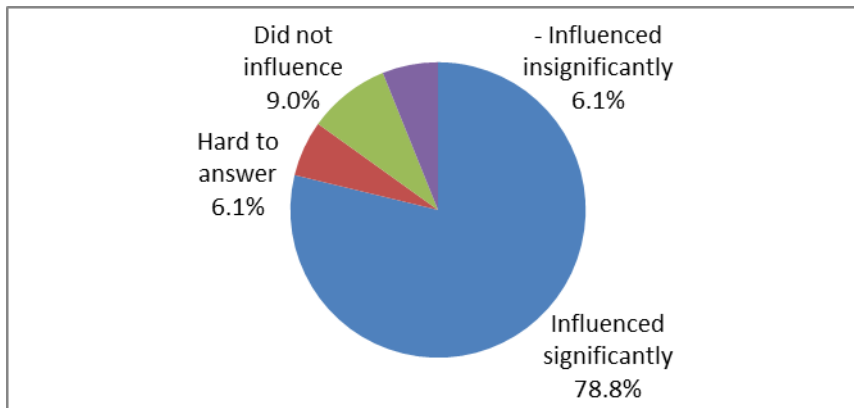
The business established by graduates, in most cases (77.4%), is not registered. Young entrepreneurs, when explaining the reasons why they did not register their business, pointed first of all on high tax rates or small turns/earnings/profits, which make official registration of business unprofitable. Directly or indirectly, this was noted in most of the answers.

Sources of encouraging establishment of own business	%
Family, close relatives	42.0
Teachers from the educational institution	20.0
Examples of surrounding people who already have a business	16.0
Friends, neighbours	8.0
Success stories read in literature, Internet	8.0
Others	6.0
Total	100.0

**Table 7. Sources of encouraging establishment of own business, %**

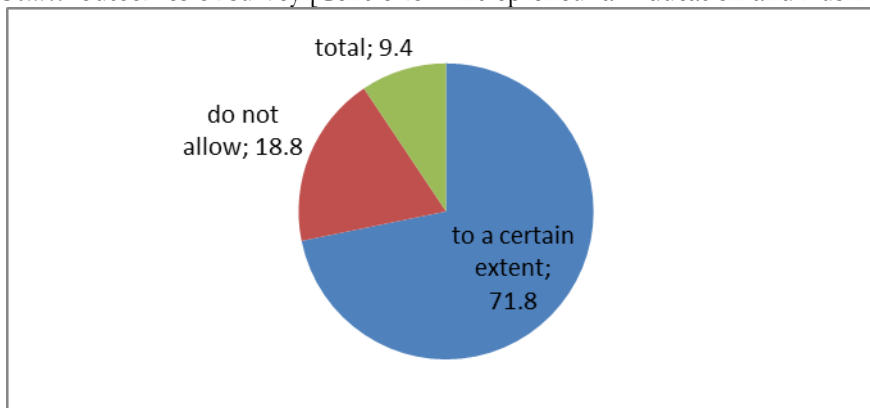
*Source:* outcomes of survey from the Centre for Entrepreneurial Education and Business Support

Assessing the effectiveness of their business, the majority of business graduates - entrepreneurs (71.9%) noted that income from their business allow them, to a certain extent, to support themselves. Only 9.4% of respondents can support themselves from the business incomes; and 18.8% of respondents even partially can not support themselves from their incomes.



**Figure 2. Influence of the Entrepreneurship Basics discipline on the decision establish a business, %**

*Source:* outcomes of survey [Centre for Entrepreneurial Education and Business Support, 2017]



**Figure 3. To a what extent income from business allow the respondent to support itself, %**

*Source:* outcomes of survey [Centre for Entrepreneurial Education and Business Support, 2017]

Graduates involved in entrepreneurship were asked: what is the biggest obstacle for them to develop their business? The lack of financial resources was indicated most often (in every fifth response). Other obstacles mentioned by several respondents were attributed to: the lack of qualified personnel, the general economic situation in the country, the narrow internal market and high competition, as well as insufficient experience in the field.

Analyzing the perspectives of the business/personal career in 1 year and 5 years, a relatively large proportion of the respondents expressed the intention of develop/expand their business. 48.6% of respondents indicated on this perspective in 1 year; in 5 years even more respondents (60.6%) see the prospect of growth for their business. A 5.7% of respondents see the prospect of closing their own business in 1 year. The same percentage of respondents (5.7%) plans to go abroad in search of a workplace or emigrate.

<b>Career perspectives</b>	<b>In 1 year</b>	<b>In 5 years</b>
Develop / expand the business	48.6	60.6
Maintain the business at the same level	40.0	33.3
Closing the business and looking for a job as an employee	5.7	-
Migration to work or emigration	5.7	6.1

**Table 8. Career perspectives in 1 year and 5 years, %**

*Source:* outcomes of survey [Centre for Entrepreneurial Education and Business Support, 2017]

Respondents have indicated on the support, which they need. Accordingly, the first place is occupied by the need in finance (37.5%). To a lesser extent, but also significant, there was a need for information (20.0%), consultations (15.8%) and training (13.3%).

<b>Types of support</b>	<b>%</b>
Financial resources	37.5
Information	20.0
Consultancy	15.8
Training	13.3
Space	10.8

**Table 9. The need for support for business development**

*Source:* outcomes of survey [Centre for Entrepreneurial Education and Business Support, 2017]

The majority of young entrepreneurs-respondents (66.7%) do not know about institutes that can offer support for business development. That is, organizations that support young entrepreneurs are not actively promoting their services.

The results of the survey made it possible to elaborate proposals to improve the work of the teachers of the "Entrepreneurship Basics" discipline, in particular, to pay more attention to the topics related to financing and accounting of business activities (which are quite difficult for students) or risk management problems, the importance of which is underestimated by young people. With regard to the improvement of teaching methods, the need to increase the emphasis on the practical orientation of teaching was noted, more often to use "live" practical examples to illustrate theoretical provisions, including inviting young entrepreneurs-graduates of the school, who had achieved success. One of the proposals was considered to be the dissemination of knowledge about new opportunities related to the organization of entrepreneurial activities in secondary vocational education institutions (in accordance with the profile of the educational institution) and the involvement of students in this work. Some of the proposals are already being developed and discussed with the stakeholders, meaning that they are already in the process of practical implementation.

## CONCLUSIONS

In the Republic of Moldova, the SMEs sector significantly affects the development of the national economy, first of all, saturating the domestic consumer market, creating new jobs and improving the structure of the economy, in particular, expanding the sphere of private business.

Legislation and policy documents aimed at supporting SMEs in the Republic of Moldova, like in other European countries, are geared towards involving different groups of people in the business. For the economic growth of our country there is especially important to involve in the business more entrepreneurs from the youth group, who represent a significant number of the population that often can not find a decent job in the country, as a result remaining unemployed or go abroad.

One of the conditions for the development of entrepreneurship, in particular, the increase in the number of new enterprises created by young people, is the development of entrepreneurial education. The significant role of entrepreneurial education in many European countries and at the EU level has already been recognized and has been reflected both in documents developed by the European Commission, as well as in publications of scientific researchers.

In the Republic of Moldova, the need to study the entrepreneurship basics has also been fixed in a series of policy documents, laws, normative and methodical regulations adopted in the country. However, the implementation of the tasks set in the policy documents faces many challenges. The main among them is the theoretical nature of this academic discipline at the expense of practical orientation; the lack of specific knowledge in the field of business management, especially the experience of entrepreneurship; lack of scientific, didactic and methodological aids; lack of effective partnership between educational and business institutions; lack (due to historical conditions) of traditions of educating entrepreneurship in families.

Over the years, the society has expressed the idea that it is necessary to start teaching young people the basics of business as early as possible. In the Republic of Moldova in the last 6 years, specific measures to develop the system of entrepreneurial education have been undertaken in the system of secondary vocational education. In particular, in 2012-2016, there was developed, piloted and approved the National Curriculum for the "Entrepreneurship Basics" discipline, as well as a set of methodological documents to help teachers and students from technical-vocational schools. Nowadays, practical steps are being taken in the system of technical-vocational education aimed at forming entrepreneurial competencies. These measures to develop entrepreneurial education and entrepreneurial competencies in the system of vocational and technical education of Moldova became possible thanks to the close cooperation of the body of public administration - the Ministry of Education, Culture and Research of the Republic of Moldova, the non-governmental organization Centre for Entrepreneurial Education and Business Support (CEDA) and the external donor - Liechtenstein Development Service Foundation (LED).

The first experience of the introduction of the "Entrepreneurship Basics" discipline in the technical-vocational education system was analyzed within the framework of the research of professional path of technical-vocational education institutions graduates, some of which began to develop the entrepreneurial career. The survey was initiated and organized by CEDA and was carried out the framework of the MEEETA – Moldova project (IIIrd phase) with the financial support of the LED. The survey of graduates of vocational schools showed that the "Entrepreneurship Basics" discipline has significantly influenced on the decision of students to establish a business, as a result, 39% of respondents created their own business. The analysis of the identified problems and the needs of young entrepreneurs has shown that it is important to promote and apply learning programs based on practical experience, to involve entrepreneurs and local companies in carrying out entrepreneurial trainings, to promote closer linkages between education institutions and companies, to disseminate wider the information about successful histories of Moldovan entrepreneurs.

The proposals developed as a result of the survey made it possible to prepare corrections and make improvements in the National Curriculum for the "Entrepreneurship Basics" discipline, and will also serve as a base for other practical measures aimed at improving entrepreneurial education in the education system from the Republic of Moldova.

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## **SMEs IN REGIONAL INNOVATIVE ECOSYSTEM DEVELOPMENT: THE CASE OF RUSSIAN ENERGY SECTOR**

### **ABSTRACT**

The paper is devoted to the analysis of regional innovative ecosystems' development in Russia's energy sector. In transitional economies, the energy sector undergoes through dynamic technological and also structural changes that attract new players in it. Innovations increase competitiveness of the energy sector and help growing its exporting potential. The "gluing" role of small businesses in developing innovative ecosystem is critical for sustainable innovating. The paper assesses problems that small businesses report, and investigates elements of possible regional innovative ecosystem in energy sector. Based on semi-structured interviews with small firms we determined the most problematic area for innovative SMEs, - it is the legislative and regulatory framework that is holding the development of regional and country-wide innovative ecosystems back. We came up with suggestions on how to improve the situation in Russia's energy sector. Although the analysis is industry and country specific, we believe that our generalizations would help other transitioning and emerging countries to faster developing innovative ecosystems and grow their economies.

**Keywords:** SME, innovative ecosystem, energy sector, innovative infrastructure.

**JEL Classification:** L26, O25, Q43, Q57,

### **INTRODUCTION**

The emerging and transitional markets are rather dynamic (Ju, 2015). They undergo through significant structural changes of their industries and markets. Thus, the former socialist and also former Soviet Union countries that integrated with the European Union had to reconsider their economies. Although they had essential support for the transformation from the well developed Western World countries interested in their faster integration, they still have many problems similar to Russia's economy that all of them inherited from their past. The quality educational systems of former socialist countries, broader and more focused on hard science education have added to fast transformation of their institutional support for innovations (Leskova, 2015; Smolentseva, 2017). It is clear that small businesses are more dynamic in developing innovations (Klewitz, 2017). Implementing them in house requires significant resources that SMEs often lack. Thus, institutional support and nurturing environment become critical for success of innovations. Different aspects related to taxation, credits and loans, and other forms of institutional support to innovative SMEs are seen as common problems for many transitioning and emerging countries (Doh, 2014; Herliana, 2015; Kim, 2016).

We would like to focus our attention on energy sector, and innovations in it. The research, based on data from Russia's most dynamic energy sector would help other emerging and transitioning countries in better understanding of possible ways of creating the innovative ecosystems, and the role of SMEs in it. The former socialist countries, both current members of the European Union as well as Russia, have some similarities in their energy sectors' structure. In the past, the major players there were state owned companies in energy generation, grids, and energy delivery industries. Market needs are forcing significant structural transformations (both technological and organizational). In Russia, they also lead to significant change in attitudes to innovations (Epifanova, 2015; Kindras, 2015). Thus, the new forms of dissemination of innovations in energy generation, and in management of energy distribution systems are changing the industry innovation environment.

## **INNOVATION ENVIRONMENT IN RUSSIA'S ENERGY SECTOR**

Liberalization of Russia's energy market ended up with significantly lower share of the state than even in many European countries. The increased competitiveness and opportunities for growth attracted foreign direct investments. The industry traditional players reconsider their roles (Fedosova et al., 2018) and understand the need of innovating. Technological changes in energy transmission/delivery are also significant, letting small businesses to become new market players there (Volkova et al., 2017). With that said, the state is also forced to develop new policies in support of new roles and ensure new players in fair competition.

There are many of studies confirming that liberalization relates positively to the overall efficiency and effectiveness of countries' energy sectors (Jasamb, 2005; Jasamb, 2008; Zhang, 2008; Kern, 2009; Nagayama, 2009; Pollitt, 2012) but some authors are reporting negative results and significant problems (Nepal, 2015; Polemis, 2016; Jasamb, 2017). A study by Urpelainen, Yang and Liu (2018), based on the 1982-2008 energy sector reforms of vast majority of the world's countries, confirmed the positive impact of such reforms on energy accessibility, reduction of energy transmission losses, as well as overall growth of regional economies. There is a correlation between positive changes and well developed and maintained infrastructure (Urpelainen et al., 2017). It also depends on technological and organizational advancements (Camison, 2014; Huenteler, 2016). The state regulator is encouraging the innovations in the industry by creating a sort of innovation-friendly environment for business with new players, and new roles of the players, institutions, and networks (Volkova et al., 2017).

As for the Russia's energy sector, a number of studies (Vishnevskiy, 2015; Brutschin, 2016; Carayannis, 2017) have shown that firm performance depends on its absorptive capacity for industry advancements and innovations (Greco et al., 2017). Small and medium-sized enterprises (SMEs) are among the most dynamic ones (Russell et al, 2017) that add to the success level of large traditional corporations when partnering with them (Brink, 2017).

Sharing knowledge and even innovations is typically done through commercialization of innovations. Small companies, specializing on design and implementation of energy sector innovations become significant players on energy markets (Cagno, 2015; O'Keeffe, 2016). However, due to their small size and limited resources, such firms are often unable to implement their innovations independently. The only way for them to succeed is in partnering with other market players. The legislative, regulatory and institutional support for that is expected from local, regional, and Federal authorities. Designed in a small company, successful innovations subsequently seep into a regional energy system and ultimately create value for the country's entire energy system. Thus, small businesses become instrumental in innovation diffusion process for the energy system of a country, and country unions. Russia has recognized that the need in developing innovative environment is critical for the success of its energy sector as well as its economy as a whole.

The industry now couldn't be managed manually, and is based on analyzing massive data sets, high technological algorithms and software. This becomes a window of opportunities for small businesses, and



leads to the emergence of new players on energy markets as was mentioned above. Russia recognized and supported the emerging companies in its Concepts for the Energy Market Development (2017). Providers of various services (aggregators, energy service companies, information providers, and consulting companies, supplying analytical services to all market players) are among them.

In our understanding, the innovative environment is similar to what others call innovative ecosystem that companies share to scale innovations (Guan, 2016; Noseleit, 2018).

In our paper we are specifically interested in studying of regional support for innovation leaving alone the Federal level for further research. For many years, Russia's energy sector was known for its integrity, being compiled of its regional subsystems. We assume that at the regional level some key resources could be combined in an incubator-like environment to nurture energy sector innovations. The investments could be streamed in by both governmental grants, as well as large corporations, venture capitalists, and individual private funds similar to angel investments. We don't see it as a typical incubator for growing small energy sector companies, although it might be possible also, but, instead, as an incubator environment/ecosystem for innovations, providing resources and supportive infrastructure for already established innovative small businesses.

## THEORETICAL FOUNDATIONS FOR INNOVATIVE ECOSYSTEM

Currently, the papers, exploring the collective forms of contributing to innovations' design, alongside with the traditional concepts like partnerships, alliances, agreements and value creation networks (Mazzukato et al., 2017; Pera et al., 2016; Hooge et al., 2016) highlight a new construct called "innovative ecosystem" (Dedehayir et al, 2015; Gomes et al, 2016). Despite of existing criticism of this concept (Oh et al, 2016), the majority of a literature sources provide a clear support to it, and compare with other similar ones. For instance, Gomes, Facin, Salerno & Ikenami (2016) compare definitions for the "innovative ecosystem" based on the most cited papers on this topic (Table 1).

**Table 1**

### Definitions of "innovative ecosystem" from 17 most-cited papers on this topic

– adopted from (Gomes et al, 2016)

Source (paper)	Definition Used
<i>Teece (2007)</i>	"...business-ecosystem – is a community of organizations and individuals influencing the company, as well as its consumers and suppliers. This community also includes complementors, suppliers, regulators, standardization bodies, educational and research organizations..."
<i>Moore (1993)</i>	"...business-ecosystem spreads across different industries..., companies collectively develop their capabilities around innovations: they work mutually and at the same time compete on the supply of new products, satisfaction of consumers' needs and future cycles of innovations' creation..."
<i>Santos &amp; Eisenhardt (2005)</i>	"...ecosystems..., as communities of players like complementors, suppliers and regulators, functioning in the industry"
<i>Adner &amp; Kapoor (2010)</i>	"Construct – "ecosystem" – is a way of brighter reflection of interrelatedness..., focusing its attention on the understanding of coordination processes among partners within the exchange networks, when cooperation and competition are happening simultaneously"

<i>Iansiti &amp; Levien (2004)</i>	“...effectiveness of these...firms is a result of something more than just companies themselves: the success of their business-ecosystem. These quasi-related networks of suppliers, outsourcing firms, producers of complementary goods and services, various service providers...– influence and are influenced by the company’ proposition”
<i>Adner (2006)</i>	“...innovation ecosystems – are collaborative formations where firms combine their intellectual supplies into a coherent, client-oriented supply”
<i>Vargo (2009)</i>	Uses the definition of Iansiti & Levien (2004)
<i>Gawer &amp; Cusumano (2008)</i>	Uses the definition of Iansiti & Levien (2004)
<i>Carayannis &amp; Campbell (2009)</i>	“...innovation ecosystem, where people, culture and technology,... meet and serve as a catalyzer of creativity, trigger for inventions and an incentive for cross-scientific and cross-technological nature in public and private sector...in directive as well as enterprising manner”
<i>Rohrbeck et al (2009)</i>	Uses the definition of Moore (1993)
<i>Sunley et al (2008)</i>	Do not define the term
<i>Li (2009)</i>	“...emerging concept...with big emphasis on business-strategy of the company... Ecosystem may also provide emerging orientation towards creation of novelty within business-operations”
<i>Romero &amp; Molina (2011)</i>	“...system for collaborative creation of value in the form of people, organizations and technologies, functioning as a symbiotic business-ecosystem, where organizations and consumers collaborate in dynamic and bilateral manner...”
<i>Alexy et al (2013)</i>	Uses the definition of Adner (2006)
<i>Iyer &amp; Davenport (2008)</i>	Uses the definition of Iansiti & Levien (2004)
<i>Gawer &amp; Cusumano (2014)</i>	Uses the definition of Iansiti & Levien (2004)

The authors (Gomes et. al, 2016) stress out that there are following related terms in use: “value chain”, “business-ecosystem” and “innovation/innovative ecosystem”, which, despite of rather similar definitions, are different by their nature (Table 2).

**Table 2**  
**Major differences between the terms “value chain”, “business-ecosystem” and “innovation ecosystem” – adopted from (Gomes et al, 2016)**

	Value Chain (firm-level)	Value Chain (industry-level)	Business-Ecosystem	Innovative Ecosystem
<i>Level of analysis</i>	Firm	Industry	Ecosystem	Ecosystem

<b>Major focus</b>	Costs reduction and resourced enhancement for obtaining competitive advantage through differentiation	Co-specialization, market power, relationships among partners	Value extraction, actors' integration	Collaborative value creation, actors' allocation, integration, distribution of peculiarities among partners and complementors
<b>Key agents</b>	Firms and its resources	Firm, consumers, suppliers	Suppliers, complementors of a focal firm, consumers	
<b>Coordination mechanism</b>	Managerial hierarchy	Formal contracts	Ecosystem management, formal contracts (with suppliers), weak informal agreements with complementors	

Clearly, an “innovative ecosystem” tends to be an “umbrella” term, which includes a lot of characteristics from less complicated forms of economic agents’ collaboration (see Table 2) and that is why appears to be a multi-level concept (Walrave et al, 2017). In this context, the already existing forms, described in the literature as “innovation policy execution” forms (Rinkinen, & Harmaakorpi, 2017), such as clusters, regional innovative systems, business-ecosystems and “smart specialization”<sup>2</sup>, (Table 3) could be considered to be forms of innovation ecosystem.

**Table 3**

**Key characteristics of innovation policy execution forms** – adopted from (Rinkinen & Harmaakorpi, 2017)

	Cluster	Innovation System	Smart Specialization	Business-Ecosystem
<b>Scale</b>	Particular industry and related businesses	Regional platforms	Specialized knowledge areas and complementary industries	Complementary industries and firms
<b>Actors</b>	Firms of a particular industry and related firms	Firms, NGO, public and private organizations	Firms, NGO, public and private organizations, citizens	Ecosystems of firms and organizations
<b>Networks</b>	Local	Regional, national	Global	Global
<b>Drivers</b>	Localization economy	Urbanization and related variety economies	R&D investments, relatedness	Complementary assets, collaborative value creation
<b>Knowledge &amp; innovations</b>	Highly specialized, local spill-overs	Regional spill-overs, innovations as a social process	Highly specialized, coupled with “anchor” technologies	Complementary assets, knowledge pools, open innovations

<sup>2</sup> An approach within innovation policy, that is aiming to boost the regional innovativeness using advantages of a particular geographical area (European Commission)

<b>Cooperation</b>	Cluster firm and related firms	Triple-helix, systems' cooperation	sub-Quadruple helix	Ecosystem firms and organizations	
<b>Governance</b>	Top-down	Top-down	Top-down and bottom-up	Leading firm and collaboration	
<b>Public sector role</b>	Education, infrastructure	Innovation systems' management, mediation, education, infrastructure	Launch and management of strategic processes, founder and partner within cooperation	Elimination of development bottlenecks	
<b>Policy goal</b>	Stimulating growth and competitiveness	local and collaboration between private sector and academia	Enhancing collaboration between private sector and academia	Identification of unique, appropriate specialization sphere	Fostering entrepreneurship, support or ecosystem development

By analyzing the above definitions from Table 1, 2 and 3, we could determine the borders of regional innovative ecosystem. We also would like to stress out that the above definitions provide a support to the statement of a critical role of SMEs in its development and further functioning.

### SME SUPPORT IN REGIONAL INNOVATIVE ECOSYSTEM

As it was mentioned above, small and medium enterprises, being catalysts of innovations, face difficulties in implementing of their innovations. We assume that if they had an access to innovation infrastructure, as well as regulatory support, this alone would become a great incentive for them.

#### *Infrastructure as an incentive for SMEs in energy sector*

Infrastructure consists of several mutually dependent components compensating for SMEs' lack of resources. Our detailed analysis of an infrastructure a regional innovative ecosystem for a power generation industry is presented in Table 4.

**Table 4**  
Components of regional innovative ecosystem infrastructure

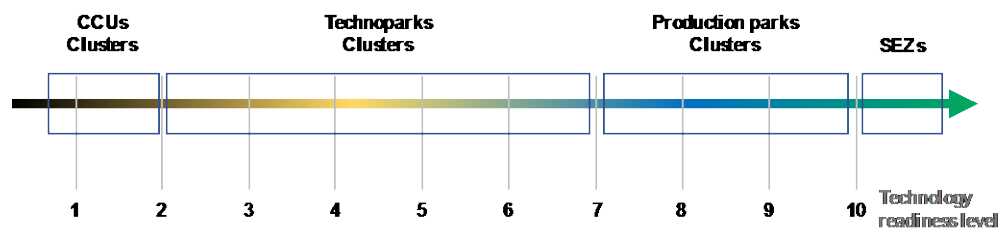
	Entity	Type of Support for SMEs	Examples <sup>1</sup>
<b>Big production centers</b>	<i>Production and industrial parks</i>	Ready-to-use infrastructure for production purposes	«A plus park Alabuga»; «Oka-polimer»
	<i>Special economic zones – SEZs</i>	Ready to use infrastructure (including utilities) for manufacturers. “Soft” economic regulations and controls	SEZ PPT «Alabuga»; SEZ PPT «Lotos»; SEZ PPT «Lipetsk»
<b>Big R&amp;D centers</b>	<i>Technoparks</i>	R&D infrastructure (including concept testing and commercialization)	«Technopark Lipetsk»; «Technopolis Moscow»; «Yablochkov»; Sverdlovskiy region high technologies technopark «University»

	<i>Centers of Shared/Collaborative Use (compiled with laboratory and experimental equipment) – CCUs</i>	Rare, expensive, and highly specialized equipment for creating new experimental products	«Scientific park of SPbNU»; «State engineering center»; Center for collaborative use of scientific equipment Research center «Kurchanovsky institute» – IREA
<b>Innovative territorial and production clusters</b>	<i>Participants/members of the projects included in the priority list of the Russian Federal Ministry of Economic Development</i>	Collaboration in implementation of innovations - knowledge transfer and “competences’ transfer” among members (participants)	Innovative cluster of Mordovia Republic «Lightning technology and tool engineering »; Perm innovative territorial cluster of fiber technologies “Photonics”
<b>Big regional innovative and infrastructural projects</b>		Providing SMEs with work contracts	Priority is given to specific regional needs

**Note 1:** complete list of parks and clusters is provided in “Gisip”– an informational system of industrial parks, R&D parks and clusters of Russian Federation (<https://www.gisip.ru/#!en/about/>)

In Table 4, infrastructure is supporting SMEs at different stages of innovation design and implementation (innovation life-cycle), or in other words, their different level of “technology readiness” (Mankins, 2015) (Figure 1).

**Figure 1.** Distribution of regional innovation infrastructure elements over the SMEs innovation life-cycle



We expect that, when an innovative technology is at its early readiness level (up to 2) a small business needs an infrastructure, which would allow to embody this technology in a particular product: centers for collective/shared use (CCUs) as well as clusters. Later, when a technology already exists in a physical form (levels 2-7) of a prototype or a sample, it needs to be manufactured but first at a smaller scale to assess its feasibility and modify the final product. This creates a need for a different type of support - in a form of “technopark” or a cluster with its facilities for small-scale manufacturing. And, when the concept is being proven and promises high margins and efficiency (levels 7-9) the support for a larger-scale production of manufacturing parks of clusters becomes critical. When the innovative SME gets mature enough and becomes independent from infrastructural support, they could move in specific locations – special economic zones (SEZs) with “soft regulations and controls” and their ready to use utilities.

To confirm our proposition, and then design a regional innovative ecosystem and fill it in with the needed infrastructure, we conducted semi-structured interviews with 83 innovative SMEs in the energy sector all over Russia to better understand their priorities for a type of support. With the 67.49% response rate we ended up receiving the data from 56 companies. They are in the manufacturing and services areas of an energy sector: engineering and IT consulting, equipment manufacturers and services, both for a core and measuring equipment. With a variety of problems we found out as a result of our pilot project, we grouped them all

according to Scott (2014) in the following clusters: resource based problems, institutional problems and diffusion problems. According to our respondents, regulatory, normative and cognitive institutions (Hoffman, 2001) are found to be the most contributing to the obstacles in the innovative ecosystem development in Russia's energy sector. Although we believe that innovative ecosystem has to be sort of harmonized/balanced, and represent all the elements from Figure 1, we wanted to know the "Achill's heel" of the system. Our interviewees directly pointed out at the legal and regulatory support. Thus, for the purpose of this article we would discuss it in depth and provide our suggestions for its improvement, although other findings from the pilot project will be left for the future research.

#### *Legal and regulatory environment*

The data on energy sector innovations present a rather low SME involvement – only 4.5% of all SMEs in Russia in 2015 were involved in the innovative activity (Innovative Activity in Russia, 2016) and, as a result, a low level of commercialization of their innovations (RIA<sup>3</sup>) (Simaeva, 2011). We are interested in the restraining forces that left SMEs behind the industry trend that is rather high for large companies and corporations there (Table 5). Our recommendations for eliminating these forces and over-passing the obstacles are presented in the same table below.

**Table 5**

Current legal obstacles for innovative SMEs in power generation sector and recommendations for their elimination

	Issue Description	Recommendation
<b><i>Low level of RIA legislation development</i></b>	Low level of RIA commercialization, intellectual property rights problems	Development and implementation of legislation, which will regulate the RIA ownership (including cases of state financing for R&D). Intellectual property rights are to be appointed to a developer of a product (Simaeva, 2011).
	Low level of legal culture and knowledge in RIA field	Support from Federal Intellectual Property Services: training and the access to international experience, as well as detailed recommendations advising on patents, copyrights, trademarks, "know-hows" and etc.) (Karpova, 2017).
<b><i>Imbalanced and unclear accounting requirements for SMEs</i></b>	Imbalanced and unclear SMEs' accounting regulation)	Creation of a universal regulation, for instance, a 'united accounting policies for SMEs' (Kravhanko et al, 2015)
<b><i>Imperfection of tender and public purchasing regulations</i></b>	Complex for SMEs tenders' procedures, and purchasing procedures ( industry specific)	Stimulating state-owned companies in energy sector to purchase more from innovative SMEs; Incentivizing partnership between innovative SMEs and corporations. Several pilot projects already exist: the following are the partnerships' names - PJSC "RusHydro", JSC "Zarubezhneft", JSC "SO UES", and PJSC "Transneft" (Smotrinskaya et

<sup>3</sup> Results of innovative activity (new or improved product; new or improved technological or managerial process)

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		al, 2016).
<b><i>Low investment attractiveness for SMEs</i></b>	High risks (of venture nature) of investments combined with low industry specific short term return on investment, and low state support while waiting for long-term gains	These issues may be tackled through brand-building, development of intellectual property institutions and overall state support of SMEs in energy sector. Moreover, development of regional brands also allow local SMEs to to lower their costs through regional investments in these brands (Karpova, 2017)

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As Table 5 shows, SME regulation is rather undeveloped in Russia, thus, there is an obvious need for its change as well as developing new additions specifically tailored to creation of regional innovative ecosystems. Also, our interviews confirmed that a study on energy sector innovative SMEs' needs and incentives are necessary to develop a working regulatory framework for innovative ecosystems (Mihnevich et al, 2017). The Federal government has started moving in that direction. In 2015, the Federal Corporation of SME Development was created<sup>4</sup>, whose major purpose was coordination of all the support for SMEs, including marketing and advertising support of their innovative products, promotion of sales, and help with legal counseling (Smotrinskaya et al, 2016). In 2016 alone, the "Corporation" provided its vouchers for SMEs for the amount of 61 bn. Rubles, where 31% was directed in manufacturing (Federal Corporation of SMEs Development, Annual Report, 2016). These actions are in conjunction with the recent literature suggestions to address the lack of market mechanisms (Davidova et al, 2013) and financial instruments (Sviridova, 2010) in SMEs support by creating a special organizations/entities focused on innovation support. Energy sector could benefit from them most, because all other elements of innovative ecosystem are already in place but still not interconnected. Other countries come up with their own forms such as venture capital firms and various foundations that provide the needed, including financial, resources for innovative SMEs. Russian venture capital market is still undeveloped, however, there is a positive trend toward its creation: Russian Venture Company (RVC), Bortnik Fund (Fund for promotion of innovative SMEs), Russian Direct Investments Fund (RDIF), etc. The innovative ecosystems are not possible with such organizations (Davidova et al, 2013).

## CONCLUSION

SMEs are confirmed to be a driver for economic growth (Love, 2015; Memili, 2015; Miles, 2017) and innovative changes in the energy sector (Greco, 2017). Their ability to rapidly adapt to the dynamically changing external environment and collaborate with bigger players of the industry would be instrumental in developing regional and then, country wide, innovative ecosystems. We discussed major problems slowing down its development in Russia's energy sector, and assume that other former socialist countries might suffer from the same issues.

Low level of supporting infrastructure development, including legislative and regulatory framework, weak cooperation with other energy market players on regional level, low incentives for SMEs to enter the innovations' market, and lack of training and counseling options for SMEs are among them.

We see a need for a deep research of a concept of regional innovative ecosystem, its functions and elements its internal structure and networks. Although many of potential elements discussed in this paper have been successfully used within the energy sector, what it lacks most at this time, - a comprehensive support for innovative SMEs that would glue its innovative ecosystems in to one entity.

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<sup>4</sup> Federal Law from 29.06.2015 #156-FL

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**GREEN MOVEMENT AND ASSOCIATION OF GREEN UNIVERSITIES IN RUSSIA****ABSTRACT**

Civil society is closely attached to environmental problems in general and has a deep concern for preserving environment for nowadays and for the future generations.

One of Russian NGOs, aimed on increased participation of youth in the ecological problem-solving is Interregional ecological nonprofit organization "ECA", which was founded in 2010. Now "ECA" is represented in over than 50 regions of Russia by its regional and local branches. The movement realizes several programs around the country – "Green schools of Russia", "Green Universities of Russia", "River keepers" dedicated to protection and purification of small rivers. "Discharge" program is dedicated to battery recycling and separate waste collection. ECA leaders promote healthy lifestyle as an integral part of ecolife.

In 2016 "ECA" had created a federal partnership program "Green Universities of Russia". This program is aimed at the introduction of environmental initiatives and practices in higher education institutions. The Green Universities Association was established in 2017 by 25 universities and more than 150 universities now are participating in educational student quests, which are conducted to popularize the concept of sustainable development. The international part of university green movement in Russia is strongly committed to participation in UI Green Metric World University Rankings, a worldwide university ranking, initiated in 2010 by The University of Indonesia (UI). The Association of Green Universities of Russia is looking for partners to be able to learn more about the environmental responsibility of all sectors of society, get acquainted with the most significant youth environmental and social projects, initiatives of the local community and participation of citizens in this process.

**Keywords:** green university, NGO ECA, Russian green movement

**JEL Classification:** I25, O1, O3, Q48

The Ecological problems of Russia are well-known:

- about 60 million Russians live in dangerously high air pollution;
- the number of cases of high pollution of natural waters is increasing, a third of drinking water bodies

do not meet sanitary and hygienic requirements;

- Avalanche-like growth of waste volumes, legal and illegal landfills are increasingly surrounded by all the larger settlements, no more than 5% of municipal solid waste is processed;
- in all cities the green areas are reduced;
- an environmentally dependent morbidity rate (including cancer cases) is growing;
- Russia's average life expectancy is behind the developed countries for 10-11 years (in ecologically unfavorable regions, life expectancy is 3-5 years less).

Of course, Russia received from the USSR a terrible ecological heritage. But in recent years, most environmental problems have been aggravated and on increasingly large territory environmental disadvantages

become the limiting factor of socio-economic development and green movement emerged as a response to this global problem.

Civil society is closely attached to environmental problems in general and has a deep concern for preserving environment for nowadays and for the future generations. After “perestroika” numerous environmental public organizations began to emerge in 1987, which later played a significant role in the change of state power in the Soviet Union. However, in the last decade there has been an increase in regulation by the state regarding the non-profit sector. As a consequence, the number of officially registered NPOs has shrunk, including environmental organizations, though many continue to work as “clubs” without bureaucracy. Against this background, it is quite impressive to see the organization, which not only preserves the ecological trend in its activities, but also demonstrates a steady growth.

There are various directions in the Russian Green Movement. One of them, aimed on increased participation of youth in the ecological problem-solving is Interregional ecological nonprofit organization “ECA”, which was founded in 2010. Now “ECA” is represented in over than 50 regions of Russia by its regional and local branches.

One of the first large-scale programs of ECA Green Movement was the federal program “More oxygen!”, supported by Faberlic company. Now an All-Russian environmental game “Plant the Forest!” is promoted via the Internet and mobile phones.

Over than 10 million of trees have been planted in over than 5 000 schools by activists, teachers and students during the program stages. Another partner of the program is the Federal Forestry Agency. ECA annually participates in the National Forest planting day and federal event “Live, forest!”.

The movement realizes several programs around the country – “Green schools of Russia”, “Green universities of Russia”, “River keepers” dedicated to protection and purification of small rivers, “Discharge” program is dedicated to battery recycling and separate waste collection. ECA leaders promote healthy lifestyle as an integral part of ecolife through “Zdravitsa” and “Bicycling Russia” programs.

Every month the movement organizes an Action Day campaign on a specific ecological issue in tens of regions of the country: International Water day, “AntiFire” (against forest fire), International Birds day, Bicycling Action day, No Plastic Bags Day, International Animal Protection Week, Energy Saving Day, Recycling Day and so on.

At the same time regional ECA leaders develop local projects and work on local problems in collaboration with regional administrations, business structures and NGOs, develop eco-communities in their regions and build up a strong eco-network around the country.

ECA is all about people: active, creative, conscious, responsible, who get together in an interregional community, a community with a dream about green future and an intention to act and make the “green revolution” happen – from a revolution in daily habits to building a green economy.

In 2016 Russian green movement “ECA” had created a federal partnership program “Green Universities of Russia”. This program is aimed at the introduction of environmental initiatives and practices in higher education institutions. The most popular activities include implementation of student organizations educational Quests. The Quest is a set of practical and theoretical tasks for students that helps to implement specific environmental practices - separate waste collection, environmental education and water conservation. As part of the quest, students are invited to assess the decline in the ecological footprint of the university, as well as show the economic benefits to the university students, staff and teachers.

The Association of Green Universities of Russia is a voluntary association of universities whose main goal is to reduce the environmental footprint of higher education institutions on the environment and

exchange experiences. The Association was established in 2017 by 25 universities that passed the first Quest and now has more than 30 members, also more than 150 universities are participating in educational student quests, which are conducted to popularize the concept of sustainable development.

The quests are implemented by the green-oriented ERA Foundation and the All-Russian Movement ECA with the support of The Coca Cola Foundation and Ministry of Natural Resources of the Russian Federation within the framework of the “Water of Russia” Program.

The international part of university green movement in Russia is strongly committed to participation in UI GreenMetric World University Rankings, a worldwide university ranking, initiated in 2010

The University of Indonesia (UI). The goal of this rating is to quantify the efforts to maintain the sustainability (ecological compatibility) of campuses. UI GreenMetric is recognized as the first and only world rating of universities on sustainability and has the following Global Rating Targets:

- Promotion of academic discourses on sustainability in education and greening of campuses
- Promotion of social changes related to the university, taking into account the goals of sustainable development
- A self-assessment tool for campus sustainability for universities around the world
- Informing the government, international and local environmental agencies and society about sustainable development programs on the campus.

Currently the highest rating of Russian University of Peoples’ Friendship in 2017 is 22<sup>nd</sup> among participating European Universities (and 44<sup>th</sup> in the World Ranking), but the enthusiasm of students combined with strong support of university administration promises new achievements.

Within the framework of the federal partnership program “Green Universities”, students from the winning teams were nominated for trips to the United States and Germany and took part in the internship in 2017.

On April 28, 2018 Association of Green Universities of Russia had conducted 2<sup>nd</sup> Online Conference "Education for Sustainable Development", where professional and students from Russia, Kenya, Portugal and Great Britain presented the discussion papers, devoted to green professions, smart cities, international standards in Sustainable development Goals and other topics of interest to ecology-oriented community. Conference findings will be published as a brochure in Russian with English summaries. This annual event attracted more than hundred participants and was conducted in two languages.

Russian Green Movement ECA is aimed to promote mutual understanding between the peoples of all countries, and also provide an opportunity for students and teachers to participate in the discussion of top issues in the field of sustainable development and ecology at the international level. The activities focus on acquaintance with the concept of sustainable development, which provides for the harmonious development of society, taking into account economic, environmental and social factors.

The Association of Green Universities of Russia is looking for partners to be able to learn more about the environmental responsibility of all sectors of society, get acquainted with the most significant youth environmental and social projects, initiatives of the local community and participation of citizens in this process. In the era of continuous conflicts and economic hardness, youth need to be united and bring peace and freshness to the planet!



Illustration: Dancing evening lights  
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**LOOKING CONSCIOUSLY INTO THE FUTURE: WHERE TO LIVE, WHAT TO DO****Part I.****ABSTRACT**

The UN Sustainable Development Goal No. 11 is called “Sustainable cities and communities” and puts making cities inclusive, safe, resilient and sustainable as a goal. Taking into account the growing trend of economic digitalization, many cities will benefit applying smart city models. Building of future cities is not possible without Public-Private-People Partnerships (PPPPs). Thus, People became a new P in former government-business cooperation. Despite robotization of economy, there are still many things that cannot be done by robots, so the demand for well-educated, active, conscious people is increasing in the society. The first chapter of this paper gives an overview of the future cities.

However, there are different mindsets of people, and some of them are not ready to spend their lives waiting until cities become an eco-comfortable place for living. Such individuals build their own small communities – eco-villages. The Global Ecovillage Network (GEN) reaches out to 10,000 of such communities around the world, allowing them to share with and learn from each other. In Russian Federation there are above 500 of registered eco-villages (with only 1/20 of them being the members of GEN, and 1/5 promoting other values than the Megre’s type of villages that create ancestral estates).

The major type of activity of people living in eco-villages is eco-tourism and eco-health-educational activities. This article provides an example of the new Russian eco-village “Derevnya Mira” (the World Peace Village) that despite being a cottage settlement will have education, health and park clusters. The second chapter of this paper is focused on description of global eco-villages picture.

Eco-inhabitants often work in cities providing seminars in services in body-oriented practices – the type of activity that will never be robotized. Moreover, taking into account future tendencies of the increasing competitiveness for resources, and associated with that mental strain of people living in cities, body-oriented services such as sauna, yoga, massage will be even more in demand. Additionally, future developments give people more possibilities to live interesting lives, so they will demand the services that could provide them better health and longer life. The third chapter of this paper gives the example of the business model focused on provision of bathhouse services and yoga practices that improves health and gives longevity.

**Keywords:** future cities, SDG, PPPP, GEN, eco-village, Derevnya Mira, health, longevity, bathhouse, sauna, yoga.

**JEL Classification:** I1, H7, O3, R0

**1. FUTURE CITIES: WHAT SHOULD WE EXPECT**

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The concept of future cities is based on two important trends of the future: growing population versus scarce resources and changed people's mind/ awareness. These trends are closely linked due to technological breakthrough that put big data in the center of future cities' development. Every individual has the possibility to learn about everything going on in his/her or other cities, and, moreover, to publicly (via social network) share the opinion of newly acquired information that in the end forms a bank of data. This means that any city or smaller town/ village of the future World is not isolated from others any longer, and cannot for the long period keep its uniqueness, because any wise solution will become known and shared/ implemented on a larger scale.

However, some cities will be pioneers in development while others will follow much later. This depends on a current state of affairs in a particular country and its expected future role on a global arena.

### **1.1 The picture of big players: from global to local actions**

The main concern of governments is based on expected growing population and the resulting struggle for scarce resources. By 2050 above nine billion people are expected to live on earth. About three-quarters of them will concentrate in cities. Thus, a major challenge is how to build more sustainable and livable cities, tackling pressures on resources like water and energy.

The 17 Sustainable Development Goals (SDGs), which were set by the United Nations, were adopted by 193 countries in September 2015. According to the 2030 Agenda for Sustainable Development, countries should make efforts to achieve the 17 SDGs over the next 15 years. The goals address the needs of people in both developed and developing countries, pointing out the three dimensions of sustainable development: social, economic and environmental, as well as important aspects related to peace, justice and effective institutions. Their implementation critically depends on financial resources, technology development and transfer, capacity-building, and the role of partnerships.

These 17 SDGs are basically built on 8 Millennium Development Goals (MDGs) sought by 2015: to eradicate extreme poverty and hunger; achieve universal primary education; promote gender equality; reduce child mortality; improve maternal health; combat diseases; ensure environmental sustainability; and develop a global partnership for development (UN Sustainable development goals).

In particular, the SDG no. 11 is called "Sustainable cities and communities". The goal here is to make *cities inclusive, safe, resilient and sustainable*. The most pressing challenges for cities today are: inequality, the levels of urban energy consumption and pollution, cities vulnerability to climate change and natural disasters (urban resilience). 95% of urban expansion in the next decades will take place in developing countries, the resources of which are not always sufficient to be sure that poorly planned urbanization will not appear and sustainability concerns will be accounted for.

Every city and every government should form a foresight as a science of thinking about their future. It draws on diverse methods to give decision-makers comprehensive evidence about anticipated and possible future change. With ever increasing volumes of available data and emerging new analytical approaches, cities need to be equipped for complex decision-making about the future in a way that engages the appropriate partners and communities. Working together, national and local governments can strengthen the mechanisms and processes available for cities to examine the long term and take evidence-based action to shape their own futures.

City foresight does not need to be resource-intensive to be valuable. Even small-scale uses can deliver benefits: it can be helpful to differentiate between value gained from the content generated by exercises (the insights and stories revealed) and value that comes from engaging in the process. Having a foresight can help cities to expose local strengths, to enhance resilience, refine strategic roadmaps, increase city's attractiveness

for businesses, skilled workers and investors, form strategic partnerships and civic engagements, as well as be better prepared to tackle challenges (UK)

Having a foresight gives a right push for a city's transformation from being a "traditional" into a *sustainable, resilient and smart*. Success depends on the quality of the decisions that are made and the way these decisions are executed.

A smart city is a city that has developed such technological infrastructure that enables it to collect, aggregate, and analyze real-time data and has made efforts to use that data to improve the lives of its residents. Such efforts include explicit policy recommendations regarding 'smart' infrastructure and data, a functioning administrative component, and some form of community engagement. The examples of technological breakthroughs used by a smart city include:

*Transportation congestion sensors:* smart transportation systems use sensors to detect congestion and bottlenecks in traffic patterns. Cameras enforce speed and traffic infractions; in doing so, these tools gather real time information that can make mobility networks safer and more efficient.

*Water and wastewater monitoring* devices can detect leaks as well as changes in water pressure to determine whether water infrastructure is working properly.

*Parking Apps* coordinate with smart parking meters to inform drivers of where there is parking availability.

*Self-driving cars* shuttle people in and out of the city, providing rides for others and making deliveries while their owners are occupied with work or other activities.

*Waste management:* Sensors detect the amount of garbage in receptacles around the city

*Lighting:* LED lights are weather adaptive and communications to replace bulbs are automatically sent to the Department of Public Works

*Fire detection:* Sensors monitor conditions in public parks and wooded areas that might be prone to fire. Sensors can also detect fires in buildings and initiate a call to the fire department in an emergency.

*Energy monitoring:* Power plants can be monitored for safety and city officials can be informed of any influx in radiation levels.

*Drones* can be used for law enforcement and firefighting, as rural ambulances, for infrastructure inspections, and for environmental monitoring. Commercial uses include precision farming, aerial photography, and in the near future, package delivery.

*Surveillance cameras and Wearable detection:* Public safety officers can wear body cameras that capture footage of interactions between themselves and city residents to ensure safety for both parties. Cameras ensure security by monitoring activity in areas that are not frequented by public safety officers. Areas that are not open to public access can be monitored to keep unauthorized personnel out. Cities can build in smartphone and wearable detection sensors so that people can be an active part of the internet ecosystem, communicating with the city, and with each other.

*Broadband infrastructure:* A reliable internet ecosystem is the glue that holds the internet of things together.

*Smart logistics/ freight:* Platooning trucks carry freight efficiently from the port to their final destination. Smart inventory systems inform operators about when freight is moved between different locations.

*Vehicle fleet communication:* Public transit and city fleet vehicles communicate with their home agency when it is time for maintenance or replacement (NLC, pp. 5-6).



Thus, to implement such technologies the government of the smart city should be strategist, advocate, solution enabler, steward, director and regulator, connector and protector at the same time. However, even having all these characteristics, the governments having *compact city* models have a high probability to be more successful. Denser cities can better address power generation, energy and water distribution, as well as transport infrastructure inefficiencies.

Cities such as Singapore highlight that compact development can be achieved in a way that keeps the city attractive to residents. For billions of future residents in new urban developments, resource stresses other than individual space alone will become increasingly important (Shell, pp.47-49).

Apart from being smart, a city of the future should also be sustainable and resilient. Sustainable cities should develop going along the path of continuous finding new construction methods and building technologies or taking an innovative approach to urban, transport and spatial planning (ETH Zurich, 2017). A 'Resilient City' is prepared to absorb and recover from any shock or stress while maintaining its essential functions, structures, and identity, as well as adapting and thriving in the face of continual change.

As observed in 2016, natural disasters, including those exacerbated by climate change, continue to have menacing impacts for communities around the globe. In October 2016, UN countries adopted the New Urban Agenda (NUA) at the Habitat III conference in Quito, Ecuador. The document frames urban development for the next 20 years with a strong emphasis on inclusive, sustainable development that will "leave no one behind." The focus has now shifted from negotiation to implementation, with governments and stakeholders elaborating plans, actions, and key performance indicators for achieving global sustainability targets. The main obstacle to local implementation is lack of funding and capacity (RC 2017, pp. 4-5).

Businesses could provide sound investments, however, they also face a lot of challenges to maintain their profitability. One of the most important things for businesses is digitalization of economy: everything that can be digital, will be digital. It applies shorter product life cycles (fast learning will be a more winning tool than efficiency), as well as ultra personalization of products (3D printing allows to produce preference-based products). The products can be quickly changed just by changing the digital program. The barriers to shared use will be lowered. Internet allows the consumers to obtain full information on products and sellers, so transparency, trust and reputation will be vital but always at risk. The role of intermediaries in the value chain will decrease to zero. *The manual work will be robotized* (thus unemployment is one of the major concerns for the governments). Therefore, Quantum computing, Artificial Intelligence, Robotics, Nano Technology and Bio Technology will disrupt the world we live in. We don't know how exactly, but we are sure it will go beyond what we can imagine today (Deloitte).

The use of disruptive technologies has downsides too. Society becomes more vulnerable for cyber crime as much more data is stored digitally and a plethora of physical objects becomes connected to the Internet. Also the resilience of smart digitalized cities becomes at risk. Sustainability and social cohesion are under permanent pressure as well.

Therefore, government cannot solve these problems alone. Building of smart cities is the result of co-creation between government, businesses (with scalable business models) and inhabitants, citizens (helping to solve social problems). Public-Private-People Partnerships (PPPPs) bring innovative solutions for inclusive resilience at the city level and promote collective ownership of outcomes.

The destructive thoughts of the national leaders could be transformed into creative ones. Man is the root cause of both creation and destruction. Due to the pollution of thoughts, the universe is on the brink of disaster. Once the thoughts become pollution free, they can save the universe from this catastrophe. If all thinkers, whether they are sages, patriots, religious or national leaders are really interested in the improvement of the nation's administration and the welfare of humanity – this country can become a better place to live in.

Peace, love and harmony can replace anarchy and terrorism, thus, the world can escape from the devastation of war. The flux of thoughts imbued with determination can be used to spread the message of peace. Mere thoughts will not yield the desired result.

To achieve this goal, each individual should first experiment it on himself/herself. Gradually, it should be applied to the family, from family to the society, from society to nation and from nation to the world. If the present human tendencies do not change, nature will revolt, and humanity will have to face the horrors of world war. Name, fame, wealth – all these are left behind, when death embraces human being (Pilot Baba, pp. XXVI-XXVII).

## 1.2 The picture of individual inhabitants

All discussed above issues will eventually affect every citizen. Inequality can lead to unrest and insecurity, pollution deteriorates everyone's health and affects workers' productivity and therefore the economy, and natural disasters have the potential to disrupt everyone's lifestyles.

The society started to separate into two big groups. The first group is ready to totally accept all changes and adapt to them. The second group wants to create the livelihoods where they can live with their own rules and be less affected by the processes going on in general world environment. Indifferently to which group the citizen is belonging to, he or she should invest a lot into education.

The most pressing factor that motivates everyone to improve the educational level is robotization of economy that increases the competitiveness on the job market. Many people have a high risk of staying without their jobs very soon in case they will not start improving or changing completely their qualifications.

There is a tendency to make yourself a person-profession or obtain such a profession that cannot be made by robots. The robots do not have the following abilities:

- to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects (finger dexterity),
- to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects (manual dexterity),
- to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem (creative intelligence),
- knowledge of theory and techniques required to compose, produce, and perform works of music, dance, visual arts, drama and sculpture (fine arts),
- being aware of others' reactions and understanding why they react as they do (social intelligence),
- bringing others together and trying to reconcile differences (negotiation),
- persuading others to change their minds or behavior (persuasion),
- providing personal assistance, medical attention, emotional support, or other personal care to others such (assisting and caring for others) (Frey C. and Osborne M., 2013).

The education market is becoming wider and easier accessible to obtain free knowledge on any subject. Every person can know become a YouTube-teacher (lector). These lectors become leaders of public minds. Those people are extremely interesting for participation in PPPPs, because they can really motivate others for actions.

The first group of people are typical urbanists. They feel themselves comfortable with digitalization of the society, and are ready to adapt and accept highly-dense modern cities and become active participants of improving the city's environment for others. For example, two individuals pioneered the ongoing transmedia project about five of the world's most exciting, emerging urban areas from the perspective of young leaders of the cities included into this project. The project consists of a five-part web documentary, print stories and

events in the cities chosen on the basis of demographic growth and economic potential. The project has already been supported by several funds and private companies.<sup>6</sup>

The second group of people sees every country wider than the existing cities, and would like to create separate settlements with own rules. These are inhabitants of growing eco-villages. Also eco-villages are becoming a comfortable place for living for those people who have already satisfied their minds with urban entertainments, and prefer taking rest after daily activities in calm, quiet and clean environment, or to take a deep research of self.

Only after the true self (higher consciousness) is realized and is left behind, then the man can choose either to move to the city and become active there, or to move to solitude. Whether the enlightened man engaged in the activity, or he/she lives in isolated forest, in enlightenment there is no distinction. The mind which is free from conditioning is not tainted even while it is engaged in activity (Yoga Vasishtha, pp. 134-223).

## 2. ECO-VILLAGES

An ecovillage is an intentional, traditional or urban community that is consciously designed through locally owned participatory processes in all four dimensions of sustainability (social, culture, ecology and economy) to regenerate social and natural environments. Ecovillages become a breeding ground for innovation, regeneration and information-sharing that spin off technologies and systems for in-country scaling up. Each ecovillage is designed by the people who live there, according to their vision, context, culture and interests, no two are alike, while every ecovillage is unique.

### 2.1 Global eco-village projects and their main values

**Gaia Trust** is a charitable entity supporting sustainability projects around the world. Two NGOs especially have been supported for many years, namely Global Ecovillage Network and Gaia Education.

Founded in 1995, the **Global Ecovillage Network (GEN)** reaches out to 10,000 communities around the world, allowing them to share with and learn from each other. There are a lot of smaller networks that are also members of GEN. These networks include:

- 1) **Sarvodaya** in Sri Lanka is a network of more than 12,000 self-sustaining villages that focuses on participatory community development with no poverty and no affluence, agriculture, micro-banking, livelihood training, cross cultural-meditation, and pre-school development. The Tanamalwila Living and Learning Centre located near two national parks in the Southeast of Sri Lanka, focuses on permaculture, species diversity, human rights and peace initiatives. It offers regular courses to community-linked people in Southeast Asia.
- 2) **Auroville** in India is a multicultural eco-city that has been endorsed by UNESCO. It has a wide variety of programs and receives visiting researchers, university students, and international volunteers. Programs exist in low cost building technology and sustainable living, food security and organic farming, training in architectural applications and town planning, environmental education, seed banks, medicinal plant gardens, traditional botanical knowledge, experiential education, philosophy, medicine and healing. Auroville's Forestry group works on land restoration and can serve as a training center for programs like the International Earth Restoration Corps.
- 3) **Bija Vidyapeeth** in India (means education for Earth Citizenship) near Risikesh is an International College for Sustainable Living at the Navdanya organic farm in cooperation with surrounding sustainable villages. The rich bio-diversity of the farm provides the context for education for earth

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<sup>6</sup><http://www.futurecities.nl/en/cities/medellin-en/#6>

democracy in which participants (80% local, 20% international) learn from nature and each other, while they study, live, clean, cook and eat together. Programs also include yoga, practice of music and theatre.

- 4) **Crystal Waters** in Australia offers courses in permaculture design, environmental restoration, and community work. The UN Habitat Award-winning ecovillage features housing in rammed earth, pole structures, mud brick, domes, and straw bale. Demonstration sites exist for water harvesting, waste water use, rainwater collection, swales, dams, artificial wetlands, biolytic treatment, compost toilets, stand-alone and grid-connected solar power systems, heat pumps, cell grazing, land restoration, reforestation, orchard culture, wildlife corridor and rainforest applications. Crystal Waters has an excellent range of eco-systems, and abundant and diverse wildlife, which live in harmony and close proximity with humans. The Eco Centre is an ideal place for a genuine immersion experience and is linked to credit-earning university programmes.
- 5) **Eco-Yoff** in Senegal is a sub-urban community development program oriented towards aiding people to protect their natural resources and village wisdom, insure their long-term survival, and alleviate poverty. It is the headquarters of a large network that has on-site demonstration projects, which include preserving mangrove ecosystems, village social action, green tech, waste water recycling stations, food security, solar cookers, water conservation, conflict resolution, micro-enterprise and employment, eco-tourism, integrated health, nutrition, and early child development. Through Colufifa village co-operatives, farmers and local women – are trained in community resource management and organic farming and are able to receive organic certifications. The network has been endorsed by the Senegal Ministry of the Environment and the UNESCO Chair of the Environment at the University of Dakar.
- 6) **Ivory Park Ecocity** in South Africa is a demonstration project located on the edge of a new and very poor township in Midrand near Johannesburg. It fuses African indigenous technologies with western tech. Models include ecologically-friendly homes, a zero energy community centre built by local women, solar energy, water conservation and harvesting, medicinal herbs, paper-making and traditional crafts, smokeless fires and solar cookers, eco-tourism, youth and women's empowerment, youth environmental activities, sanitation, product recycling, food security; finance and eco-banking, eco-construction, eco-businesses, co-operatives; non-polluting transport, eco-urban planning; pollution, waste, and natural resource management. This is a courageous experiment in sustainability and poverty eradication for people living and working in cities and who need ecologically-friendly community models.
- 7) **Tlholego** in South Africa is a small rural-based living and learning community that offers certification courses in permaculture, sustainable building technology, and ecovillage design incorporating local African traditions. Programs are being planned to train trainers in science, solar technology, biology, sanitation, herbals, ecology and household food security, in order to respond to the growing challenge of prosperity and poverty living side by side
- 8) **Findhorn in Scotland** offers holistic education programmes. These include an annual ecovillage training programme, permaculture workshops, courses in personal development, spirituality, arts and crafts. Findhorn is part of a large organic community-supported agricultural scheme, and has its own currency and bank, uses renewable energy systems (solar, wind and biomass), recycles waste, including sewage treated in a reed-bed living machine system. It has many community-based enterprises and is creating a village of eco-sensitive houses. Findhorn is home to an award-winning reforestation project, Trees for Life, and promotes an ethic of voluntary simplicity.
- 9) **Zegg in Germany** stands for Centre for Experimental Society Design and is a community sharing a common idea of peace and sustainable living. Zegg offers courses in ecological building and renovation, mud-construction, organic gardening, permaculture design, spiritual ecology, the arts, social communication, conflict resolution, social networking, strategies for peace, and

- environmentally sustainable enterprises. The Zegg annual summer camps offer courses on everything from child rearing to countering global consumerism and resolving planetary crises.
- 10) **Damanhur in Italy** is a community with its own currency, a diverse social structure, many successful businesses, organic farms, solar installations, and an experiential school for children. Damanhur offers courses in the healing arts, communication, personal and spiritual transformation, community building, and the arts, especially in mosaics, ceramics, painting, tiffany glass work, and weaving. There is research in fields such as color therapy, plant response to music, and subtle body acupuncture. Work exchange programs exist, especially on Damanhur's farms.
  - 11) **The Centre for Alternative Technology (CAT) in Wales** is run by a small community of dedicated tech environmentalists with hands-on holistic experience and academic expertise. A wide range of courses that cover green oak building, solar water heating and installations, timber frame self-build dwellings, wind turbine construction, alternative building methods, eco-design and eco-construction suitable for practicing architects and professional builders who want to learn how to be more environmentally-friendly. Courses also include green woodworking, blacksmithing, working with living willow, and providing participants with traditional local knowledge.
  - 12) If we want peace on earth, we need to get an idea of what peace is. So, more than 30 years ago a team of pioneers came together to create a model for a future world society in which peace is manifested and can be experienced as convincing and as possible. This led to the foundation of the **Peace Research Tamera** in the Alentejo in Portugal in 1995. Tamera is a deep ecology and spiritually oriented community, now reviving a desert area of Portugal through permaculture design. It is a place with the goal of becoming "a self-sufficient, sustainable and duplicable communitarian model for nonviolent cooperation and cohabitation between humans, animals, nature, and Creation for a future of peace for all."
  - 13) **The Farm in Tennessee** is oriented towards low-cost high satisfaction community living and self-reliance. It offers excellent examples of solar building design, micro-enterprise, large scale composting, food production, and regenerative hardwood forest management. The Ecovillage Training Centre at the Farm offers total immersion courses ranging from basic and advanced permaculture and village design to solar electricity, water treatment, natural building techniques. It provides a walk-thru visit to a straw bale dwelling, a dome, organic gardens, rainwater harvesting facilities, greenhouses, root cellars, a wetlands filtration system, and a solar car prototype. The Farm manages 400 acres of designated wilderness preserve, has a nursery for indigenous tree species, a forest mushroom laying yard, and many species of temperate bamboo. The community has outreach programs in Central and South America.
  - 14) **The Manitou Foundation in Colorado** fosters a network for different cultural and spiritual traditions and runs the Earth Restoration Corps (ERC), a training of trainers program in earth restoration, environmental technologies, micro credits, environmental businesses, and meaningful livelihood for youth. The ERC is dedicated to helping establish and maintain training programs in ecovillages throughout the world and the protection of indigenous peoples and traditional wisdoms. ERC teams have partnership programs with communities in India, Brazil, and the Philippines.
  - 15) **La Caravana** is a mobile ecovillage working in Central and South America that uses theatre arts, workshops, conferences and bio-regional events to teach people how to take better care of the Earth. La Caravana has inspired the creation of ecovillage networks and projects in Colombia, Venezuela, Ecuador, Jamaica, Cuba, Puerto Rico, and Brazil and helped to create the Ecuadorian Women's Leadership Network for Peace. International volunteers teach permaculture, ecovillage design, consensus decision-making, facilitation and conflict resolution, appropriate technology, natural building techniques and community development for positive planetary change.
  - 16) **Barus in Brazil** is a network of viable appropriate technology models in applied permaculture and village development, food production, natural architecture, nature conservation, reforestation, urban

kitchen gardens, organic produce certification, permaculture design certificate courses. There are village women's co-operatives, eco-tourism, aquaculture, organic agriculture, appropriate housing design, environmental education textbooks for schools, and appropriate village building technologies. Barus has strong links to the landless movement, as well as the indigenous communities.

**Gaia Education** is a leading-edge provider of sustainability education that promotes thriving communities within planetary boundaries. It works through (i) e-learning and (ii) project-based learning. Their main e-learning program is Design for Sustainability that provides students with whole systems design skills, analytical abilities and practical tools to support the redesign of the human presence on Earth, one local community and bioregion at a time.<sup>7</sup> The project-based programs are running in 6 different countries: Zambia, India, Senegal, Sicilia, Denmark and Bangladesh.<sup>8</sup> The projects are directed to the implementation of UN SDGs. There is also a separate program intended to train trainers that will become global eco-settlements leaders.

The Ecovillage Design Mandala of GEN, embracing the social, cultural, ecological and economic dimensions, was created in 2004 as a core symbol of sustainable design:

- 1) **Social.** Individuals cannot implement the changes needed at this time, but communities are able to become catalysts of change for our wider societies. Best social practices include embracing diversity and building thriving communities, cultivating responsive and inclusive decision-making, empowering participatory leadership and good governance, ensuring equal and lifelong access to holistic education and healthcare, practicing conflict facilitation, communication and peacebuilding skills, and developing fair, effective and accountable institutions.
- 2) **Cultural** diversity, like biodiversity, is a precious resource for our journey into the future. Ecovillages grow within a wide variety of different cultures and worldviews, but their values are universal: respect for life, fairness, inclusivity, generosity, hospitality, and openness to feedback, responsibility and active care for the Earth and all its inhabitants are the basis for a life sustaining culture. Best cultural practices include: connecting to a higher purpose in life, nurture mindfulness and personal growth, respecting cultural traditions that support human dignity, engaging actively to protect communities and nature, celebrating life and diversity through art, reconnecting to nature and embrace low-impact lifestyles economy.
- 3) **Ecological.** Ecovillages show that low impact, high quality lifestyles are possible: water, food, building materials and energy can be obtained in sufficient quantities in healthy regional lifecycles. Best ecological practices include: clean and replenish sources and cycles of water, moving towards 100% renewable energies, growing food and soils through organic agriculture, innovating and spreading green building technologies, working with waste as a valuable resource, increasing biodiversity and regenerating ecosystems.
- 4) **Economy.** Social enterprise and social innovation thrive in ecovillage frameworks. Striving to marry love for the planet with needs to make a living is one of the major challenges for eco-villages. Ecovillages strive to create meaningful work that solves societal challenges, while providing an income to those concerned. Healthy regional and local economic cycles, community banks, regional currencies, cooperative ownership, shared income streams: regardless of the specific form a community chooses, trust, communication and close feedback loops are essential for the system to work. Best economic practices include: ensuring equitable ownership of land, and resources, reconstructing the concepts of wealth, work and progress, generating wellbeing for all through economic justice, cultivating social

<sup>7</sup> <https://gaiaeducation.org/elearning/design-for-sustainability/>

<sup>8</sup> <https://gaiaeducation.org/project-based-learning/>

entrepreneurship to create sustainable solutions, empowering local economies and invigorating bioregional living systems, investing in fair trade and ethical systems of exchange.

- 5) **Whole Systems Design.** Ecovillages spring from the dreams of the people and their wish to make a difference by taking their future into their own hands. The ensuing Whole Systems Design is often called a 'Community Resilience Plan'. Best whole systems design practices include engaging all stakeholders in designs for the future, honouring traditional wisdom while integrating positive innovation, finding strengths, weaknesses and leverage points in all areas, identifying the appropriate scale for efficient solutions, learning from nature and practice whole systems thinking, building networks and alliances for mutual support across all divides. (GEN Report 2016, pp. 16-18).

GEN is developing consolidated support systems for (1) Ecovillage Incubation (supporting the creation of new intentional ecovillages), (2) Ecovillage Development/Transition (transitioning existing settlements to regenerative settlements/ecovillages), (3) Greening Schools For Sustainable Communities (establishing green schools as hubs of inspiration for whole community transformation), (4) Emergencies (rebuilding sustainable communities after disasters or with refugees), (5) Urban Eco-Neighbourhoods (establishing ecovillages within and around urban areas).

GEN categorizes eco-villages into three broad categories:

- 1) urban – communities or eco-neighbourhoods with a common vision to reinvent life in the city to become more sustainable, collaborative and participatory;
- 2) traditional – existing rural villages and communities that decide to design their own pathway into the future, using participatory processes to combine life-sustaining traditional wisdom and positive new innovation
- 3) intentional – created by people who come together afresh with a shared purpose or vision.

Besides GEN, there are a lot of other small communities. Many people create own interest communities exclusively for providing seminars and retreats. Usually these are some spiritual communities like Ripa International Center in Switzerland or Polestar Yoga Community in Hawaii, Eco Truly Park in Peru, Finca Treehouse Community in Costa Rica<sup>9</sup> or numerous Ashrams throughout India.

The Government of Senegal has been very supportive to ecovillages. It is working on a project to turn 14,000 traditional rural villages into renewable energy-powered self-sufficient communities. Guédé Chantier is an eco village of 7,000 inhabitants in northern Senegal. Due to an intensive use of agro chemicals in China from 1970s, by 2000s the soil was seriously degraded and the villagers decided to take action. In 2002 Guédé Chantier appeared to reflect on the state of agriculture, economy, education.

Another example is Sekem in Egypt. It is 2,800 hectares of green crops supplying successful textile, natural medicines and herbal tea businesses that employ 2,000 people. It took 40 years for his ideologist to achieve such results. This was all achieved using biodynamic agriculture techniques, a method of organic farming. Sekem's approach is holistic, with an ethical code of conduct, schools from nursery right up to a university and a development foundation that runs microfinance projects and initiatives to help nearby farms convert to sustainable techniques.<sup>10</sup>

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<sup>9</sup> <http://www.ecorazzi.com/2012/05/19/eco-villages-and-beyond-10-communities-across-the-world/>

<sup>10</sup> <https://www.theguardian.com/global-development-professionals-network/2015/aug/14/five-eco-villages-around-the-world>

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## **ASSESSING BUSINESS SUCCESS OF MEDIUM-SIZED ENTERPRISES BY ECONOMIC SECTORS IN THE REPUBLIC OF SERBIA**

**ABSTRACT**

The objective of the research is to assess the business success of medium-sized enterprises in the Republic of Serbia. Business success is evaluated based on of financial performance in sectors with the largest number of medium-sized enterprises. The focus is on medium-sized enterprises for they are the drivers of economic activity in the Republic of Serbia according to their share in key macroeconomic indicators. The data source refers to the official financial statements published by the Serbian Business Registers Agency (SBRA) for the 2010-2014 period of time. On the basis of separate financial statements of medium-sized enterprises, the summary balance sheet and income statement are prepared for the following sectors: Agriculture, Forestry and Fshing (sector A), Construction (sector F), Wholesale and Retail trade; Repair of motor vehicles and motorcycles (sector G), Manufacturing (sector C). Medium-sized enterprises which are not registered in the above mentioned sectors are classified as "other sectors". By applying financial analysis, the values of key financial performance are determined according to which the economic and financial power of medium-sized enterprises is assessed. The research results indicate that yield, asset and financial position of medium-sized enterprises in the Republic of Serbia are acceptable.

**Keywords:** medium-sized enterprises, financial performnace, economic sectors, business success, economic and financial power

**JEL Classification:** L25, M21

**INTRODUCTION**

The role and importance of medium-sized enterprises are largely the result of their share in the key indicators of economic growth. Medium-sized enterprises play a significant role in the economic growth of national economies because they are flexible and prone to undertake innovative and risky business activities (Brnjac, Z., et al., 2015; Erić, D., et al., 2012). Consequently, the focus of both transitional and developed economies should be on supporting the development of medium-sized enterprises.

Eventhough medium-sized enterprises are the most modest in terms of their share in total number of business entities and their share in the SME sector, according to key developing indicators they are the major drivers of economic growth. Medium-sized enterprises have generated the most employment, GVA, turnover and foreign trade activity for many years now, thus being reffered to as the backbone of growth and development of the national economy. According to the latest available data, medium-sized enterprises account for only 2% of total number of business entities in the Republic of Serbia and generate 16% of employment. However, these enterprises generate 17% of revenue, 16% of expenses, 16% of total net income, and 14% of total net loss of all business entities in the Republic. According to their share in basic



developing indicators of the SME sector, medium-sized enterprises account for only 0.7% of total number of SMEs but generate 48% of export, 40% of import, 29% of employment, 30% of turnover and 33% of GVA.

The identification of the main characteristics of medium-sized enterprises begins with their classification in terms of activity and geographic affiliation. Based on the classification of medium-sized enterprises it is determined that the majority i.e. 37% is registered in the Manufacturing sector (sector C). A somewhat smaller number of medium-sized enterprises i.e. 27% is registered in the Wholesale and Retail sector; Repair of motor vehicles and motorcycles (sector G). More than 60% of medium-sized enterprises in the Republic of Serbia are registered in these two sectors. The next in size is the Construction sector (sector F) with 9% share followed by the sector of Agriculture, Forestry and Fishing (sector A) with 7% share, transportation and warehousing (sector H) with 5%, and Professional, Scientific, Innovative and Technical activity (sector M) with 4% share. All the remaining sectors which are not listed together account for 11% of total registered medium-sized enterprises.

The regional analysis showed uneven geographical distribution of registered medium-sized enterprises in the Republic of Serbia (Đurićin, S., et al., 2016). Medium-sized enterprises are dominant in the region of Belgrade where they account for around 50% of total registered medium-sized enterprises. Comparing to the region of Belgrade, the number of registered medium-sized enterprises in Vojvodina is somewhat smaller and amounts to approximately 30% of their total number. Medium-sized enterprises in the region of Sumadija and West Serbia which is according to population, territory and number of settlements the largest region, account for 18.8% of their total number, while the least active region refers to South and East Serbia accounting for 8.3% of total number of registered medium-sized enterprises.

Comparing this statistics with the share of medium-sized enterprises in the entire SME sector additionally emphasizes the uneven distribution. The share of medium-sized enterprises in the entire SME sector in Belgrade region amounts to 31.7%, while in Vojvodina it amounts to 26.6%. Sumadija and West Serbia account for 25.6% of total number of medium-sized enterprises in the SME sector, while South and East Serbia account for 16.1%.

According to data published by the SBRA, the number of medium-sized enterprises operated in Serbia at the end of 2015 amounted to 1,004 employing the total of 165,537 workers. The two largest sectors generate the most employment. Sector C generates 40% of the workforce, while sector G generates 17.5%.

The classification of economic activities and the number of employees influenced the selection of sectors for which business success is assessed. The main objective of the research is to assess business success of those sectors generating the largest number of medium-sized enterprises in the Republic of Serbia. Business success is evaluated based on financial performance of the sectors A, F, G and C.

## **DATA AND METHODOLOGY**

The comparative sectoral analysis of the business success of medium-sized enterprises refers to the 2010-2014 period of time. The subject of the research is summary sectoral financial statements prepared according to information disclosed in the official financial statements publically available on the SBRA web site. On the basis of separate financial statements of medium-sized enterprises, the summary balance sheet and income statement are prepared for the sectors A, F, G and C. Medium-sized enterprises which are not registered in the above mentioned sectors are classified as "other sectors".

In order to accomplish the main research objective, the following methods were used: qualitative and quantitative financial analysis, common data collection and analysis methods, and description and synthesis methods.

By applying financial analysis, the value of financial performance of medium-sized enterprises was calculated which was then used to assess their business success (Đuričin, S., 2012; Đuričin, S. and Beraha, I., 2012, p. 495; Đuričin, S. and Beraha, I., 2013, p. 124). Financial performance used in the comparative sectoral analysis of medium-sized enterprises includes representative indicators of their yield, asset and financial position (Balaban, M. et al., 2016; Đuričin, S. and Jovanović, O., 2016).

By applying common data collection and analysis methods, the subject of the research is more narrowly set. Only sectors generating a significant number of medium-sized enterprises were taken into consideration. After description of the determined financial performance of the yield, asset and financial position a synthesis of the obtained results was conducted (Rodić, J., et al., 2007), and conclusions were made regarding the business success of medium-sized enterprises in the sectors A, F, G and C.

## RESULTS AND DISCUSSION

The yield position of medium-sized enterprises is assessed based on the analysis of the structure of total revenues and expenses, the structure of gross financial result and the profitability. The assessment of the sectoral structure of total revenues and expenses include analysis of the share of certain types of revenues and expenses in total revenues and expenses of medium-sized enterprises within the sectors of Agriculture, Forestry and Fishing, Construction, Wholesale and Retail trade; Repair of motor vehicles and motorcycles, Manufacturing and "other sectors". The analysis of the structure of total revenues and total expenses shows that a dominant share of operating income in total revenues and operating expenses in total expenses is recorded in medium-sized enterprises in all observed sectors in the 2010-2014 period of time.

**Table 1. Analysis of total revenues and expenses structure**

- in % -

Position	Period of time				
	2010	2011	2012	2013	2014
<b>AGRICULTURE, FORESTRY AND FISHING (sector A)</b>					
Operating Income	94.50	95.79	95.14	93.31	95.23
Financial income	1.46	1.25	1.77	1.24	1.47
Revenue from adjustment values of other assets	0.00	0.00	0.00	0.29	0.21
Other income	4.04	2.96	3.09	5.17	3.10
<b>Total revenues</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>
Operating expenses	91.47	93.22	92.03	91.21	88.17
Financial expenses	5.37	3.94	5.21	3.96	6.72
Expense from adjustment values of other assets	0.00	0.00	0.00	0.92	1.36
Other expenses	3.16	2.84	2.76	3.91	3.75
<b>Total expenses</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>
<b>CONSTRUCTION (sector F)</b>					
Operating Income	92.12	94.49	92.06	92.41	91.81
Financial income	3.22	2.26	4.14	2.64	2.92
Revenue from adjustment values of other assets	0.00	0.00	0.00	0.36	0.93
Other income	4.65	3.25	3.81	4.59	4.34
<b>Total revenues</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>
Operating expenses	89.51	92.53	87.45	90.48	87.30
Financial expenses	7.94	4.77	5.95	4.99	6.85
Expense from adjustment values of other assets	0.00	0.00	0.00	2.20	2.91
Other expenses	2.55	2.70	6.60	2.34	2.94
<b>Total expenses</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>
<b>WHOLESALE AND RETAIL TRADE AND REPAIR OF MOTOR VEHICLES AND MOTORCYCLES (sector G)</b>					
Operating Income	96.03	95.21	95.95	96.70	97.00
Financial income	2.02	2.95	2.11	1.63	1.24

Revenue from adjustment values of other assets	0.00	0.00	0.00	0.19	0.19
Other income	1.95	1.83	1.94	1.49	1.57
<b>Total revenues</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>
Operating expenses	95.05	95.38	95.12	96.08	95.67
Financial expenses	3.17	2.45	2.88	1.64	2.18
Expense from adjustment values of other assets	0.00	0.00	0.00	0.62	0.63
Other expenses	1.78	2.17	2.00	1.66	1.52
<b>Total expenses</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

**MANUFACTURING (sector C)**

Operating Income	94.10	95.08	94.30	95.54	95.80
Financial income	2.71	2.78	3.01	2.16	1.71
Revenue from adjustment values of other assets	0.00	0.00	0.00	0.27	0.38
Other income	3.20	2.14	2.70	2.04	2.11
<b>Total revenues</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>
Operating expenses	90.21	92.52	90.63	92.15	90.70
Financial expenses	6.89	5.13	6.92	4.30	5.43
Expense from adjustment values of other assets	0.00	0.00	0.00	1.64	1.66
Other expenses	2.90	2.36	2.45	1.91	2.21
<b>Total expenses</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

**OTHER SECTORS**

Operating Income	86.83	87.93	91.54	93.48	87.69
Financial income	7.33	9.20	6.04	4.07	5.30
Revenue from adjustment values of other assets	0.00	0.00	0.00	0.32	0.86
Other income	5.84	2.86	2.42	2.13	6.15
<b>Total revenues</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>
Operating expenses	80.42	83.31	86.06	86.64	83.22
Financial expenses	14.17	12.50	9.89	5.63	10.19
Expense from adjustment values of other assets	0.00	0.00	0.00	5.20	3.38
Other expenses	5.41	4.19	4.05	2.53	3.22
<b>Total expenses</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

Source: Authors' calculation according to SBRA data

Observed by sectors, in the 2010-2014 period of time, medium-sized enterprises in the Republic of Serbia were characterized by the following structure of total revenues and expenses:

**Sector A:** operating income make up on average 94.79% of total revenues. Financial and other income on average account for 1.44% and 3.67% of total revenues respectively. The share of revenue from adjustment values of other assets described at a fair value in the income statement in the total revenues in the 2013-2014 period of time amounted to 0.29% and 0.21% respectively. Operating expenses in the structure of total expenses on average account for 91.22%, while financial and other expenses make up 5.04% and 3.28% respectively. The share of revenue from adjustment values of other assets described at a fair value in the income statement in the structure of total expenses of medium-sized enterprises registered on the territory of the Republic of Serbia within the sector Agriculture, Forestry and Fishing in the 2013-2014 period of time amounted to 0.92% and 1,36% respectively.

**Sector F:** operating income on average account for 92.58% of total revenues of medium-sized enterprises registered on the territory of the Republic of Serbia within the sector Construction. Financial and other expenses on average account for 3.04% and 4.13% of total revenues respectively, while the share of revenue from adjustment values of other assets described at a fair value in the income statement in total revenues in the period 2013-2014 amounted to 0.36% and 0.93% respectively. Operating expenses in the structure of total expenses on average account for 89.45%, while financial and other expenses make up 6.10% and 3.43% respectively. The share of revenue from adjustment values of other assets described at a fair value in the income statement in the structure of total expenses of medium-sized enterprises registered on the territory of

the Republic of Serbia within the sector Construction in the 2013-2014 period of time amounted to 2.20% and 2,91% respectively.

**Sector G:** operating income make up on average 96.18% of total revenues. Financial and other income on average account for 1.99% and 1.76% of total revenues respectively. The share of revenue from adjustment values of other assets described at a fair value in the income statement in the total revenues in the 2013-2014 period of time amounted to 0.19% both. Operating expenses in the structure of total expenses on average account for 95.46%, while financial and other expenses make up 2.46% and 1.83% respectively. The share of revenue from adjustment values of other assets described at a fair value in the income statement in the structure of total expenses of medium-sized enterprises registered on the territory of the Republic of Serbia within the sector Wholesale and Retail trade and Repair of motor vehicles and motorcycles in the 2013-2014 period of time amounted to 0.62% and 1.63% respectively.

**Sector C:** operating income on average account for 94.96% of total revenues of medium-sized enterprises registered on the territory of the Republic of Serbia within the sector Manufacturing. Financial and other expenses on average account for 2.47% and 2.44% of total revenues respectively, while the share of revenue from adjustment values of other assets described at a fair value in the income statement in total revenues in the period 2013-2014 amounted to 0.27% and 0.38% respectively. Operating expenses in the structure of total expenses on average account for 91.24%, while financial and other expenses make up 5.73% and 2.36% respectively. The share of revenue from adjustment values of other assets described at a fair value in the income statement in the structure of total expenses of medium-sized enterprises registered on the territory of the Republic of Serbia within the Manufacturing sector in the period 2013-2014 amounted to 1.64% and 1.66% respectively.

**Other sectors:** operating income make up on average 89.50% of total revenues. Financial and other income on average account for 6.39% and 3.88% of total revenues respectively. The share of revenue from adjustment values of other assets described at a fair value in the income statement in the total revenues in the 2013-2014 period of time amounted to 0.32% and 0.86% respectively. Operating expenses in the structure of total expenses on average account for 83.93%, while financial and other expenses make up 10.47% and 3.88% respectively. The share of revenue from adjustment values of other assets described at a fair value in the income statement in the structure of total expenses of medium-sized enterprises registered on the territory of the Republic of Serbia within the "other sectors" in the period 2013-2014 amounted to 5.20% and 3.83% respectively.

**Table 2. Analysis of total gross financial result structure**

in 000 EUR -

Position	Period of time				
	2010	2011	2012	2013	2014
<b>AGRICULTURE, FORESTRY AND FISHING (sector A)</b>					
Financial result from operating income	43	64	67	56	66
Financial result from financing income	-20	-17	-23	-18	-34
Financial result from regular operations	23	48	45	38	31
Result from revenue from asset adjustment	0	0	0	-4	-8
Result from other income	6	2	4	11	-4
Total gross financial result	28	50	49	45	20
<b>CONSTRUCTION (sector F)</b>					
Financial result from operating income	52	85	24	37	43
Financial result from financing income	-35	-23	-19	-16	-32
Financial result from regular operations	17	62	5	22	11
Result from revenue from asset adjustment	0	0	0	-13	-16
Result from other income	18	8	-29	17	12

Total gross financial result	35	70	-24	26	6
<b>WHOLESALE AND RETAIL TRADE AND REPAIR OF MOTOR VEHICLES AND MOTORCYCLES (sector G)</b>					
Financial result from operating income	147	156	163	141	161
Financial result from financing income	-38	26	-31	1	-43
Financial result from regular operations	109	182	133	142	118
Result from revenue from asset adjustment	0	0	0	-20	-20
Rezultat iz ostalih prihoda	8	-11	0	-6	4
Total gross financial result	117	171	133	116	101
<b>MANUFACTURING (sector C)</b>					
Financial result from operating income	157	196	237	166	198
Financial result from financing income	-131	-85	-152	-86	-159
Financial result from regular operations	25	112	86	79	40
Result from revenue from asset adjustment	0	0	0	-56	-55
Result from other income	10	-6	12	6	-5
Total gross financial result	35	106	98	30	-19
<b>OTHER SECTORS</b>					
Financial result from operating income	137	135	172	153	107
Financial result from financing income	-129	-76	-92	-40	-128
Financial result from regular operations	8	59	80	113	-21
Result from revenue from asset adjustment	0	0	0	-122	-66
Result from other income	9	-31	-39	-10	76
Total gross financial result	17	28	41	-20	-11

Source: Authors' calculation according to SBRA data

By decomposing the total gross financial result of medium-sized enterprises in the sectors of Agriculture, Forestry and Fishing, Construction, Wholesale and Retail trade; Repair of motor vehicles and motorcycles, Manufacturing and "other sectors", the source of gross financial result was determined in terms of the type of revenue, and the balance sheet success was assessed. In order to evaluate the structure of total gross financial result, its decomposing at the level of net effect was conducted. The main characteristics of the structure of total gross financial result of medium-sized enterprises in the period 2010-2014 are the following:

- Medium-sized enterprises registered on the territory of the Republic of Serbia which were covered by the analysis recorded a positive result from operating income i.e. operating profit.
- Medium-sized enterprises registered on the territory of the Republic of Serbia in the sectors Agriculture, Forestry and Fishing, Construction, Manufacturing and "other sectors" recorded negative financial result from financing income. The only exception are the medium-sized enterprises registered on the territory of the Republic of Serbia within the sectors Wholesale and Retail trade; Repair of motor vehicles and motorcycles. In 2011 and 2013, medium-sized enterprises in this sector recorded a profit from financing income.
- Medium-sized enterprises registered on the territory of the Republic of Serbia in the sectors of Agriculture, Forestry and Fishing, Construction, Wholesale and Retail trade; Repair of motor vehicles and motorcycles, Manufacturing recorded an operating profit throughout the entire observed period.
- In the period 2013-2014, all medium-sized enterprises registered on the territory of the Republic of Serbia within all analyzed sectors recorded a negative result from revenue from adjustment values of other assets described at a fair value in the income statement.
- In the observed period of time no stable trend was identified regarding the result from other income. The sector of Agriculture, forestry and fishing recorded profit from other income in all years except in 2014. The Construction sector recorded profit from other income in all observed years except in 2012. Medium-sized enterprises registered on the territory of the Republic of Serbia in the sector of

Retail trade; Repair of motor vehicles and motorcycles recorded loss from other income in 2011 and in 2014. In 2011-2013 period, medium-sized enterprises in "other sectors" operated with a loss from other income.

- A positive total gross financial result was recorded in the entire observed period except in the Construction sector in 2012, Manufacturing in 2014, and in "other sectors" in 2013-2014 period.

**Table 3. Profitability analysis**

Position	Period of time				
	2010	2011	2012	2013	2014
<b>AGRICULTURE, FORESTRY AND FISHING (sector A)</b>					
ROA net effect	4.17	5.94	5.06	3.43	1.47
ROE net effect	7.65	10.91	9.70	6.10	2.73
<b>CONSTRUCTION (sector F)</b>					
ROA net effect	2.72	4.99	-2.75	1.91	-0.03
ROE net effect	7.28	13.78	-7.85	4.86	-0.07
<b>WHOLESALE AND RETAIL TRADE AND REPAIR OF MOTOR VEHICLES AND MOTORCYCLES (sector G)</b>					
ROA net effect	5.17	6.87	5.11	3.88	3.07
ROE net effect	13.61	16.70	13.40	9.66	7.64
<b>MANUFACTURING (sector C)</b>					
ROA net effect	0.73	2.26	1.85	0.28	-0.89
ROE net effect	1.79	5.56	4.71	0.68	-2.18
<b>OTHER SECTORS</b>					
ROA net effect	0.38	0.41	0.46	-1.33	-0.96
ROE net effect	1.07	0.95	1.02	-3.28	-2.43

*Source:* Authors' calculation according to SBRA data

The profitability assessment of medium-sized enterprises registered on the territory of the Republic of Serbia in the sectors of Agriculture, Forestry and Fishing, Construction, Retail trade; Repair of motor vehicles and motorcycles, Manufacturing, and "other sectors" was conducted based on the calculated values of ROA and ROE. The basic characteristics of the profitability of medium-sized enterprises in the period 2010-2014 are the following:

- **Sector A:** medium-sized enterprises in the Agriculture, forestry and fishing sector realized 4.01% and 7.42% of net profit respectively on every RSD invested in total assets and equity.
- **Sector F:** medium-sized enterprises in the Construction sector on average realized 1.37% and 3.60% of net profit respectively on every RSD invested in total assets and equity.
- **Sector G:** medium-sized enterprises in the Retail trade; Repair of motor vehicles and motorcycles sector on average realized 4.82% and 12.20% of net profit respectively on every RSD invested in total assets and equity.
- **Sector C:** medium-sized enterprises in the Manufacturing sector on average realized 0.85% and 2.11% of net profit respectively on every RSD invested in total assets and equity.
- **Other sectors:** medium-sized enterprises in the group entitled "other sectors" on average realized 0.21% and 0.54% of net loss respectively on every RSD invested in total assets and equity.

The asset position was assessed based on the analysis of the structure of total assets and liabilities and analysis of the efficiency of current asset management. In the 2010-2014 period of time, medium-sized enterprises in the sectors of Agriculture, Forestry and Fishing, Construction, Retail trade; Repair of motor vehicles and motorcycles, Manufacturing and "other sectors" recorded the following assets structure:

- **Sector A:** the assets structure of medium-sized enterprises in the Agriculture, forestry and fishing sector was shifted in favor of fixed assets. The share of fixed assets, current assets and deferred tax assets in the structure of total assets on average amounted to 55.90%, 42.87% and 0.30% respectively.
- **Sector F:** the assets structure of medium-sized enterprises in the Construction sector was shifted in favor of current assets. The share of fixed assets, current assets and deferred tax assets in the structure of total assets on average amounted to 53.99%, 45.71% and 0.30% respectively.
- **Sector G:** the assets structure of medium-sized enterprises in the sector of Retail trade; Repair of motor vehicles and motorcycles was shifted in favor of current assets. The share of fixed assets, current assets and deferred tax assets in the structure of total assets on average amounted to 63.62%, 36.03% and 0.35% respectively.
- **Sector C:** the assets structure of medium-sized enterprises in the Manufacturing sector was shifted in favor of current assets. The share of fixed assets, current assets and deferred tax assets in the structure of total assets on average amounted to 50.49%, 49.00% and 0.50% respectively.
- **Other sectors:** the assets structure of medium-sized enterprises in the group classified as "other sectors" was shifted in favor of fixed assets. The share of fixed assets, current assets and deferred tax assets in the structure of total assets on average amounted to 66.91%, 32.66% and 0.43% respectively.

Table 4. Assets structure analysis

in % -

Position	Medium-sized enterprises Registered on the territory of RS				
	2010	2011	2012	2013	2014
<b>AGRICULTURE, FORESTRY AND FISHING (sector A)</b>					
Fixed assets	58.14	56.92	53.27	57.20	53.97
Deferred tax assets	1.45	1.54	1.18	1.05	0.91
Current assets	40.41	41.53	45.55	41.75	45.12
Operating assets	100.00	100.00	100.00	100.00	100.00
<b>CONSTRUCTION (sector F)</b>					
Fixed assets	44.92	44.47	46.23	47.21	45.71
Deferred tax assets	0.20	0.24	0.37	0.37	0.32
Current assets	54.87	55.29	53.41	52.43	53.97
Operating assets	100.00	100.00	100.00	100.00	100.00
<b>WHOLESALE AND RETAIL TRADE AND REPAIR OF MOTOR VEHICLES AND MOTORCYCLES (sector G)</b>					
Fixed assets	35.96	37.88	35.75	35.90	34.64
Deferred tax assets	0.26	0.35	0.40	0.40	0.34
Current assets	63.78	61.77	63.85	63.69	65.02
Operating assets	100.00	100.00	100.00	100.00	100.00
<b>MANUFACTURING (sector C)</b>					
Fixed assets	48.82	48.24	46.91	50.03	51.02
Deferred tax assets	0.46	0.48	0.53	0.56	0.50
Current assets	50.72	51.29	52.56	49.41	48.48
Operating assets	100.00	100.00	100.00	100.00	100.00
<b>OTHER SECTORS</b>					
Fixed assets	64.42	65.46	65.08	68.67	70.92
Deferred tax assets	0.42	0.50	0.47	0.39	0.37
Current assets	35.16	34.04	34.45	30.94	28.72
Operating assets	100.00	100.00	100.00	100.00	100.00

Source: Authors' calculation according to SBRA data

The structure of liabilities is shifted in favor of equity only in case of medium-sized enterprises registered in the sectors of Agriculture, forestry and fishing and "other sectors". In the 2010-2014 period of time, the structure of liabilities of medium-sized enterprises in the sectors of Construction, Retail trade; Repair of motor vehicles and motorcycles and Manufacturing was shifted in favor of current liabilities.

**Table 5. Liabilities structure analysis**

in % -

Position	Medium-sized enterprises Registered on the territory of RS				
	2010	2011	2012	2013	2014
<b>AGRICULTURE, FORESTRY AND FISHING (sector A)</b>					
Capital	54.48	54.50	52.15	56.25	53.68
Long term provisions and liabilities	11.65	12.73	14.16	11.46	16.14
Current liabilities	33.54	32.46	33.35	32.35	30.32
Deferred tax liabilities	0.33	0.31	0.34	0.53	0.65
Loss above the equity value	0.00	0.00	0.00	0.58	0.79
Operating liabilities	100.00	100.00	100.00	100.00	100.00
<b>CONSTRUCTION (sector F)</b>					
Capital	37.41	36.22	35.07	39.27	39.07
Long term provisions and liabilities	15.98	16.87	17.40	20.71	22.35
Current liabilities	46.22	46.53	47.05	53.79	56.04
Deferred tax liabilities	0.39	0.37	0.48	0.60	0.56
Loss above the equity value	0.00	0.00	0.00	14.36	18.01
Operating liabilities	100.00	100.00	100.00	100.00	100.00
<b>WHOLESALE AND RETAIL TRADE AND REPAIR OF MOTOR VEHICLES AND MOTORCYCLES (sector G)</b>					
Capital	37.98	41.17	38.18	40.20	40.14
Long term provisions and liabilities	10.81	9.59	9.98	9.52	10.58
Current liabilities	50.99	49.05	51.56	51.32	50.81
Deferred tax liabilities	0.22	0.19	0.29	0.27	0.26
Loss above the equity value	0.00	0.00	0.00	1.31	1.79
Operating liabilities	100.00	100.00	100.00	100.00	100.00
<b>MANUFACTURING (sector C)</b>					
Capital	40.92	40.58	39.38	40.94	41.06
Long term provisions and liabilities	19.44	18.95	18.87	17.31	16.29
Current liabilities	39.28	40.09	41.19	46.64	48.96
Deferred tax liabilities	0.36	0.38	0.56	0.54	0.57
Loss above the equity value	0.00	0.00	0.00	5.43	6.88
Operating liabilities	100.00	100.00	100.00	100.00	100.00
<b>OTHER SECTORS</b>					
Capital	35.95	43.52	44.78	40.56	39.55
Long term provisions and liabilities	27.73	23.52	23.66	30.39	32.37
Current liabilities	35.76	32.42	30.62	32.70	33.31
Deferred tax liabilities	0.55	0.55	0.94	1.05	0.90
Loss above the equity value	0.00	0.00	0.00	4.70	6.13
Operating liabilities	100.00	100.00	100.00	100.00	100.00

Source: Authors' calculation according to SBRA data

In the period 2010-2014, medium-sized enterprises registered on the territory of the Republic of Serbia in the sectors of Agriculture, Forestry and Fishing, Construction, Retail trade; Repair of motor vehicles and motorcycles, Manufacturing and "other sectors" recorded the following assets structure:

- average amounts to 54.21%, 13.23% and 32.40% respectively, while deferred tax liabilities on average account for 0.43% of the total liabilities. The share of the loss above the equity value in the structure of liabilities of these enterprises in the period 2013-2014 amounts to 0.58% and 0.79% respectively.



- **Sector F:** the share of equity, long term provisions and liabilities and current liabilities in the structure of liabilities of medium-sized enterprises in the Construction sector on average amounts to 37.41%, 18.66% and 49.92% respectively, while deferred tax liabilities on average account for 0.48% of the total liabilities. The share of the loss above the equity value in the structure of liabilities of these enterprises in the period 2013-2014 amounts to 14.36% and 18.01% respectively.
- **Sector G:** the share of equity, long term provisions and liabilities and current liabilities in the structure of liabilities of medium-sized enterprises in the sector of Retail trade; Repair of motor vehicles and motorcycles on average amounts to 39.53%, 10.09% and 50.75% respectively, while deferred tax liabilities on average account for 0.25% of the total liabilities. The share of the loss above the equity value in the structure of liabilities of these enterprises in the period 2013-2014 amounts to 1.31% and 1.79% respectively.
- **Sector C:** the share of equity, long term provisions and liabilities and current liabilities in the structure of liabilities of medium-sized enterprises in the Manufacturing sector on average amounts to 40.58%, 18.17% and 43.23% respectively, while deferred tax liabilities on average account for 0.48% of the total liabilities. The share of the loss above the equity value in the structure of liabilities of these enterprises in the period 2013-2014 amounts to 5.43% and 6.88% respectively.
- **Other sectors:** the share of equity, long term provisions and liabilities and current liabilities in the structure of liabilities of medium-sized enterprises in the group referred to as "other sectors" on average amounts to 40.87%, 27.54% and 32.96% respectively, while deferred tax liabilities on average account for 0.80% of the total liabilities. The share of the loss above the equity value in the structure of liabilities of these enterprises in the period 2013-2014 amounts to 4.70% and 6.13% respectively.

Table 6. Analysis of current asset management efficiency

Position	Medium-sized enterprises Registered on the territory of RS				
	2010	2011	2012	2013	2014
<b>AGRICULTURE, FORESTRY AND FISHING (sector A)</b>					
Current Assets Turnover Ratio - CATR	1.73	1.83	1.63	1.47	1.23
Duration of a turnover	211	200	224	248	296
Receivables Turnover Ratio – RTR	3.35	3.61	3.18	2.78	2.58
Duration of a turnover	109	101	115	131	141
Payable Turnover Ratio - PTR	2.09	2.34	2.23	1.90	1.83
Duration of a turnover	175	156	164	192	199
<b>CONSTRUCTION (sector F)</b>					
Current Assets Turnover Ratio - CATR	1.21	1.52	1.64	1.28	1.43
Duration of a turnover	301	241	223	286	256
Receivables Turnover Ratio – RTR	1.56	2.03	2.15	1.75	2.05
Duration of a turnover	233	180	170	208	178
Payable Turnover Ratio - PTR	1.41	1.76	1.71	1.25	1.37
Duration of a turnover	259	208	214	293	266
<b>WHOLESALE AND RETAIL TRADE AND REPAIR OF MOTOR VEHICLES AND MOTORCYCLES (sector G)</b>					
Current Assets Turnover Ratio - CATR	2.73	2.91	2.98	2.99	2.82
Duration of a turnover	134	125	123	122	129
Receivables Turnover Ratio – RTR	4.35	4.68	4.90	4.86	4.54
Duration of a turnover	84	78	74	75	80
Payable Turnover Ratio - PTR	3.38	3.64	3.65	3.70	3.60
Duration of a turnover	108	100	100	99	101
<b>MANUFACTURING (sector C)</b>					
Current Assets Turnover Ratio - CATR	1.58	1.72	1.77	1.76	1.86
Duration of a turnover	232	212	206	207	196
Receivables Turnover Ratio – RTR	2.53	2.75	2.84	2.81	2.97

Duration of a turnover	144	133	129	130	123
Payable Turnover Ratio - PTR	1.97	2.12	2.16	1.86	1.84
Duration of a turnover	186	172	169	196	198
<b>OTHER SECTORS</b>					
Current Assets Turnover Ratio - CATR	1.38	1.66	1.96	1.87	1.97
Duration of a turnover	264	220	186	195	186
Receivables Turnover Ratio – RTR	1.53	1.84	2.19	2.09	2.21
Duration of a turnover	238	198	167	175	165
Payable Turnover Ratio - PTR	1.32	1.70	2.14	1.77	1.69
Duration of a turnover	276	215	170	207	216

*Source:* Authors' calculation according to SBRA data

The efficiency of current assets utilization was assessed based on the analysis of the basic activity indicators. The speed and duration of a turnover was measured by the activity coefficients, as well as the position of an enterprise on the sale and purchase market. In the period 2010-2014, the analysis pointed out to the following main characteristics of the efficiency of the medium-sized enterprises' current assets:

- **Sector A:** in the Agriculture, forestry and fishing sector, the average value of the current assets turnover ratio amounts to 1.58, while the average duration of a turnover is 236 days. The enterprises recorded a conditionally acceptable position on the sale and purchase market. Their position was acceptable because in the short period of time they collected their receivables before their liabilities were due. Also, their position was conditionally acceptable because owing to low turnover coefficients, the prolonged periods of receivables collection and liabilities payment were recorded. Enterprises collected their receivable on average on every 119 days, while their liabilities are due for payment every 177 days.
- **Sector F:** in the Construction sector, the average value of the current assets turnover ratio amounts to 1.41, while the average duration of a turnover is 261 days. The enterprises recorded a conditionally acceptable position on the sale and purchase market. Enterprises collected their receivable on average on every 194 days, while their liabilities are due for payment every 248 days.
- **Sector G:** in the Retail trade; Repair of motor vehicles and motorcycles sector, the average value of the current assets turnover ratio amounts to 2.89, while the average duration of a turnover is 127 days. The enterprises recorded a conditionally acceptable position on the sale and purchase market. Enterprises collected their receivable on average on every 78 days, while their liabilities are due for payment every 102 days.
- **Sector C:** in the Manufacturing sector, the average value of the current assets turnover ratio amounts to 1.74, while the average duration of a turnover is 211 days. The enterprises recorded a conditionally acceptable position on the sale and purchase market. Enterprises collected their receivable on average on every 132 days, while their liabilities are due for payment every 184 days.
- **Other sectors:** in the group referred to as "other sectors", the average value of the current assets turnover ratio amounts to 1.77, while the average duration of a turnover is 210 days. The enterprises recorded a conditionally acceptable position on the sale and purchase market. Enterprises collected their receivable on average on every 189 days, while their liabilities are due for payment every 217 days.

The financial position was assessed based on the liquidity, solvency and indebtedness analysis. The determined value of liquidity ratio participates in the assessment of the enterprise ability to pay its financial obligations in due time while maintaining the necessary volume and structure of current assets and preserving good credit rating. The liquidity of medium-sized enterprises is assessed based on the value of the third degree liquidity ratio (Current Ratio – CUR).

Table 7. Liquidity and solvency analysis

Position	Period of time				
	2010	2011	2012	2013	2014
<b>AGRICULTURE, FORESTRY AND FISHING (sector A)</b>					
Current Ratio - CUR	1.20	1.28	1.36	1.29	1.49
Solvency Ratio – SR	2.20	2.20	2.09	2.26	2.12
<b>CONSTRUCTION (sector F)</b>					
Current Ratio - CUR	1.16	1.16	1.04	0.97	0.96
Solvency Ratio – SR	1.57	1.54	1.42	1.33	1.27
<b>WHOLESALE AND RETAIL TRADE AND REPAIR OF MOTOR VEHICLES AND MOTORCYCLES (sector G)</b>					
Current Ratio - CUR	1.24	1.25	1.22	1.24	1.28
Solvency Ratio – SR	1.60	1.69	1.60	1.64	1.62
<b>MANUFACTURING (sector C)</b>					
Current Ratio - CUR	1.25	1.23	1.22	1.06	0.99
Solvency Ratio – SR	1.64	1.62	1.58	1.55	1.52
<b>OTHER SECTORS</b>					
Current Ratio - CUR	0.96	1.02	1.09	0.94	0.86
Solvency Ratio – SR	1.52	1.73	1.76	1.56	1.50

Source: Authors' calculation according to SBRA data

The conducted analysis indicated the following main characteristics of the liquidity of medium-sized enterprises registered in the sectors of Agriculture, Forestry and Fishing, Construction, Retail trade; Repair of motor vehicles and motorcycles, Manufacturing, and "other sectors" in the period 2010-2014:

- **Sector A:** according to the third degree liquidity ratio, whose value in the observed period of time amounted to 1.33, the operation of medium-sized enterprises registered in the Agriculture, forestry and fishing sector is assessed as conditionally liquid. The enterprises are conditionally liquid because the value of their third degree liquidity coefficient is less than 2, and they are liquid because their inventory on average accounts for less than 50% of total current assets.
- **Sector F:** according to the third degree liquidity ratio, whose value in the observed period of time amounted to 1.06, the operation of medium-sized enterprises registered in the Construction sector is assessed as conditionally liquid.
- **Sector G:** according to the third degree liquidity ratio, whose value in the observed period of time amounted to 1.25, the operation of medium-sized enterprises registered in the Retail trade; Repair of motor vehicles and motorcycles is assessed as conditionally liquid.
- **Sector C:** according to the third degree liquidity ratio, whose value in the observed period of time amounted to 1.15, the operation of medium-sized enterprises registered in the Manufacturing sector is assessed as conditionally liquid.
- **Other sectors:** according to the third degree liquidity ratio, whose value in the observed period of time amounted to 0.98, the operation of medium-sized enterprises registered in "other sectors" is assessed as conditionally liquid.

In the period 2010-2014, medium-sized enterprises operated solvent. Medium-sized enterprises registered in the sectors of Agriculture, Forestry and Fishing, Construction, Retail trade; Repair of motor vehicles and motorcycles, Manufacturing, and "other sectors" on average disposed operating assets which were 2.17, 1.42, 1.63, 1.58 and 1.61 times respectively greater than their total debts.

Table 7. Indebtedness analysis

Position	Period of time				
	2010	2011	2012	2013	2014
<b>AGRICULTURE, FORESTRY AND FISHING (sector A)</b>					
Share of liabilities in total sources of financing (%)	45.52	45.50	47.85	44.08	46.74
D/E ratio	0.84	0.83	0.92	0.79	0.88
<b>CONSTRUCTION (sector F)</b>					
Share of liabilities in total sources of financing (%)	62.59	63.78	64.93	65.66	66.90
D/E ratio	1.67	1.76	1.85	1.91	2.02
<b>WHOLESALE AND RETAIL TRADE AND REPAIR OF MOTOR VEHICLES AND MOTORCYCLES (sector G)</b>					
Share of liabilities in total sources of financing (%)	62.02	58.83	61.82	60.32	60.57
D/E ratio	1.63	1.43	1.62	1.52	1.54
<b>MANUFACTURING (sector C)</b>					
Share of liabilities in total sources of financing (%)	59.08	59.42	60.62	61.17	61.58
D/E ratio	1.44	1.46	1.54	1.58	1.60
<b>OTHER SECTORS</b>					
Share of liabilities in total sources of financing (%)	64.05	56.48	55.22	61.26	62.74
D/E ratio	1.78	1.30	1.23	1.58	1.68

Source: Authors' calculation according to SBRA data

The indebtedness was assessed in terms of the equity structure of liabilities. The conducted analysis pointed out to the following main characteristics of medium-sized enterprises registered in the sectors of Agriculture, Forestry and Fishing, Construction, Retail trade; Repair of motor vehicles and motorcycles, Manufacturing and "other sectors:

- **Sector A:** the structure of liabilities of medium-sized enterprises registered in the Agriculture, forestry and fishing sector was shifted in favor of equity financing. In the period 2010-2014, equity financing on average accounted for 54.06% of total sources of financing. The value of D/E ratio (Debt/Equity) indicates that medium-sized enterprises recorded higher share of equity financing in total sources of financing meaning that the creditors on average ensured 0.85 of resources on every RSD of the equity owner.
- **Sector F:** the structure of liabilities of medium-sized enterprises registered in the Construction sector was shifted in favor of debt financing. In the period 2010-2014, debt financing on average accounted for 64.77% of total sources of financing. The medium-sized enterprises recorded higher share of debt financing in total sources of financing meaning that the creditors on average ensured 1.84 of resources on every RSD of the equity owner.
- **Sector G:** the structure of liabilities of medium-sized enterprises registered in the Retail trade; Repair of motor vehicles and motorcycles sector was shifted in favor of debt financing. In the period 2010-2014, debt financing on average accounted for 60.71% of total sources of financing. The value of D/E ratio indicates that medium-sized enterprises recorded higher share of debt financing in total sources of financing meaning that the creditors on average ensured 1.55 of resources on every RSD of the equity owner.
- **Sector C:** the structure of liabilities of medium-sized enterprises registered in the Manufacturing sector was shifted in favor of debt financing. In the observed period of time, debt financing on average accounted for 60.37% of total sources of financing. In case of middle-size enterprises registered in this sector, the creditors on average ensured 1.53 of resources on every RSD of the equity owner.

- **Other sectors:** the structure of liabilities of medium-sized enterprises registered in "other sectors" was shifted in favor of debt financing. In the observed period of time, debt financing on average accounted for 59.95% of total sources of financing. In case of middle-size enterprises registered in this group, the creditors on average ensured 1.52 of resources on every RSD of the equity owner.

## CONCLUSION

In the period 2010-2014, medium-sized enterprises in the sectors of Agriculture, Forestry and Fishing, Construction, Retail trade; Repair of motor vehicles and motorcycles, and Manufacturing are characterized by an acceptable degree of operating profitability. These enterprises recorded a positive rate of return on every RSD invested in total assets and equity. The conducted analysis of the structure of the total revenues and expenses point out to the dominant share of operating income in total revenues, as well as operating expenses in total expenses. Also, enterprises in all sectors except in the group referred to as "other sectors", recorded an operating profit.

Due to the determined efficiency of current asset management and the position on sale and purchase market, the operation of medium-sized enterprises is assessed as conditionally acceptable. The acceptable degree of liquidity and the satisfactory degree of solvency were recorded in all sectors except in the group of enterprises referred to as "other sectors", even though the majority of enterprises recorded the dominant share of debt financing in total sources of financing.

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