

**Management of
innovative development
the economic entities**

**Collective monograph edited by
M. Bezpartochnyi, I. Britchenko**

Higher School of Social and Economic
Przeworsk (Poland) 2018

**Zarządzanie innowacyjnym
rozwojem podmiotów
gospodarczych**

**Monografia zbiorowa
pod redakcją naukową
M. Bezpatochnogo, I. Britchenko**

Wyższa Szkoła Społeczno-Gospodarcza
Przeworsk (Polska) 2018

UDK 658.589

Management of innovative development the economic entities: collective monograph / edited by M. Bezpartochnyi, I. Britchenko, in 2 Vol. / Higher School of Social and Economic. – Przeworsk: Wydawnictwo i Drukarnia NOVA SANDEC, 2018. – Vol. 1. – 263 p.

The authors of the book have come to the conclusion that it is necessary to effectively use modern approaches the management of innovative development the economic entities in order to increase the efficiency of activity, to ensure competitiveness, to intensify innovation activity. Basic research focuses on assessing the competition of economic entities, internal control in organizations, analysis of credit risk, diagnostics of sources of funding for innovation, assessment of social innovation and human development factors. The research results have been implemented in the different models of reengineering business process, development of alternative agriculture, the digital economy, knowledge management. The results of the study can be used in decision-making at the level the economic entities in different areas of activity and organizational-legal forms of ownership, ministries and departments that promote of development the economic entities on an innovative basis. The results can also be used by students and young scientists in modern concepts and mechanisms for management of innovative development the economic entities in the context of efficient use the resource potential and improvement of innovation policy.

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The collective monograph is approved for publication at the meeting of the Scientific Council of the Higher School of Social and Economic in Przeworsk of 05^h June 2018, *Minutes No. 27.*

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ISBN 978-83-65196-83-5

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INTRODUCTION

Progressive institutional and structural transformations of the economy require intensive updating and provision of programs, plans and projects for the management of innovative development the economic entities, positive changes, significant improvement of the regulatory environment, creation of appropriate conditions for modernization of industries and enterprises on the basis of latest technologies. Providing innovative development the economic entities is impossible without reorganization and improvement of the theory and practice of development of management systems of these processes.

In order to ensure the development of economic entities on an innovative basis in modern conditions of activity the necessary foundation is to intensify innovation processes in all spheres of activity and to direct the efforts of all elements of the organizational structure to the implementation of the tasks. The effectiveness of innovative development the economic entities is determined by the ability of the management system to influence on all business processes of the enterprise and to coordinate its internal capabilities with the challenges of the environment in order to ensure competitiveness and strengthen market positions.

The purpose of writing this collective monograph is to substantiate theoretical-methodological foundations and development a management system of the development of economic entities in a globalizing environment, taking into account transformational changes in the international economic environment.

The object of the authors' research was the process of management the development the economic entities in conditions of resource constraints, the specifics and trends in the development of economic entities under the influence of factors of the internal and external environment, the generalization of world experience in the management of development the economic entities in order to improve efficiency of the formation and use of the resource potential and innovative activity the economic entities in various spheres of the national economy in conditions globalizing.

The subject of research were various processes of formation and effective use of innovative potential the economic entities; formation of organizational-economic mechanisms for management of innovative development the economic entities; use of credit-financial and investment instruments to stimulate innovative development the economic entities; improving of intellectual and personnel potential of innovative development the economic entities; consideration of practical aspects of innovation development management in different sectors of the economy.

Chapter 1

THEORETICAL BASES OF FORMATION AND EFFECTIVE USE INNOVATIVE POTENTIAL THE ECONOMIC ENTITIES

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REENGINEERING BUSINESS PROCESSES AS A MODERN INNOVATION OF DEVELOPMENT WHOLESALE ENTERPRISES REGION

Introduction

At the present stage of functioning the wholesale enterprises region to creation and effective use of development system at various levels of management the economic entities is of paramount importance.

Despite the difficult economic situation of many wholesale enterprises region at the present time there is a tendency to increase their innovative activity based on reengineering business process. This requires adequate financial, personnel and logistical resources, as well

as special training, retraining and advanced training of personnel in the field of economics, organization and management of business processes in wholesale trade.

Reengineering business processes should create necessary and sufficient conditions for expanding, accelerating and increasing the efficiency of creating and implementing various innovations: product, technological, economic, social, etc., aimed at developing and implementing competitive products and technologies at the level of world standards. This should allow in the short term to create highly profitable commercial wholesale trade structures in the regions and numerous commercial organizations in the sphere of trade services (infrastructure of wholesale enterprises region).

Especially relevant reengineering business processes of is for crisis enterprises, since the consequences of dominance of traditional management for them are particularly destructive, and radical redesigning is most justified and economically effective.

The operation of wholesale enterprises region has an important reverse effect on market transformations and their effectiveness, especially in the social sphere. The solution of an important social task – satisfying the needs of consumers in consumer goods largely depends on the development of the wholesale trade infrastructure in the regions.

The growing trend of creating and developing wholesale trade networks in the regions requires constant improvement of their activities, using various methods for this. All of them are quite effective, but much more, in our opinion, the economic effect can be obtained on the basis of reengineering business processes of wholesale enterprises region.

At present, there is a need to develop a theory and methodology for the development of wholesale trade enterprises region, reflecting market economic conditions, regional specificity and resource support, taking into account the processes of globalization of economic activities that meet the current practical needs of the formation and development of wholesale enterprises region based on business process reengineering.

Literature review

The scientific provisions of this study were formed on the basis of studying, analyzing, rethinking the theoretical and methodological developments of both domestic and foreign scientists on the problems of trade development in general and wholesale trade in particular.

Most research in the field of trade development, including wholesale

enterprises region, belongs to foreign authors: Alexander N., Myers H. [1]; Arnold S., Kozinets R., Handelman J. [2]; Bagwell K., Ramey G., Spulber D. [3]; Brown S. [4]; Doms M., Jarmin R., Klimek S. [5]; Dukes A., Geylani T., Srinivasan K. [6]; Fernie S. [7]; Siebers P.-O., Aickelin U., Celia H. [8]; Zentes J., Morschett D., Schramm-Klein H. [9], etc. These studies, unfortunately, can not be fully used in Ukraine's theory and practice, since they do not reflect the specifics of the national economy in the new economic conditions. Reengineering business processes is one of the most modern tools of this type. The foundations of this theory were laid in the USA in 1984-1990 and since then the methodology of reengineering is used in its work by the largest companies – world leaders, significantly improving the results of their activities.

In addition, reinforces the need to reorganize the reengineering type, one of the global trends in the economy is the identification of consumer behavior. In conditions of a high level of saturation of demand and availability of information about products and services produced, the wholesale trade wins that is able to react as flexibly as possible to customers' requests.

The theory of reengineering has accumulated substantial scientific and practical material, mainly presented in the works of foreign scientists. Hammer M. and Champy J. were the first to outline the concept, principles and main features of the reengineering business processes [10-11]. Jacobson I. proposed to divide the processes into internal and external [12]. Greasley M. determined the ratio of reengineering and quality management system as management reorganization concepts [13]. Irani Z., Hlupic V. and Giaglis G. evaluated the role of business process reengineering in implementing a long-term organizational strategy [14]. Havey M. formulated the social preconditions for carrying out organizational reengineering [15]. Fettke P., Loos P. and Zwicker J. presented a common methodology for reengineering based on an integrated approach and described some tools for supporting business process reengineering [16]. Davenport T. highlighted the reengineering of innovative entrepreneurship [17]. Boar V.N. focused on the use of information technology during the reengineering [18].

However, in modern economic literature, the subject of reengineering is not sufficiently developed and is, as a rule, illuminated from the point of view of describing the principles and experience of reengineering business processes. A small number of works offering

specific technologies, tools and methods for implementing business reengineering at wholesale enterprises region have been published.

Methodology

In the current conditions of the establishment and development of the consumer market, the survival of wholesale enterprises region is possible only if they are constantly adapted to the external environment. The strategic tasks arising from this are solved in the design and development of processes in wholesale trade.

In our opinion, it is necessary to distinguish three types of wholesale enterprises region for which reengineering is necessary and expedient:

- wholesale enterprises region, in a crisis situation due to unfavorable situations in the field of pricing, assortment, quality requirements, demand. Such enterprises have no way out. If they do not take decisive directions, they will inevitably go bankrupt;

- wholesale enterprises region, whose leaders foresee the inevitability of the emergence of intractable problems associated with the emergence of new competitors, changing customer requirements, the behavior of industry competitors, the supply of commodity resources, the state of the macro environment;

- wholesale enterprises region, pursuing an aggressive innovative policy, which have no problems. However, they are not satisfied with the current good state and want to achieve better.

As the reengineering business processes is increasingly becoming part of the practice of the region's foremost wholesale enterprises, its formalization is necessary.

An important component of the definition of a business process is the availability of a specific consumer or market segment, where its main outlet is located. Most often, consumers are divided into groups, each of which has a certain set of requirements.

In our opinion, the business process is a sequence of logically related actions that use resources to obtain results that allow achieving the main business goals. There is a hierarchy of business processes. The whole organization can be divided into 6-10 macro processes, which are usually divided into main processes – these are the workflows required to achieve the main business goals. The main processes can be divided into sub processes, and the latter can be divided into actions.

Next, we propose an approach to formalizing the improvement of business processes. The methodology of formalization provides for its division into five stages:

- during the first stage, a group of specialists in reengineering business processes for improvement learns its methodology, chooses critical processes and appoints their managers. The process manager forms the target creative group (TCG) to improve its process, which sets the process boundaries, the measured parameters for the entire process, identifies the process improvement goals and develops an innovative project plan;

- during the second stage, the TCG compiles the directions of the existing process, analyzes compliance with existing procedures, collects data on costs and cycle times, and coordinates daily activities with procedures. This step contains the following actions:

- construction of flow diagrams of process flows;
- preparation of a simulation model;
- systematic inspection of the process;
- analysis of the cost the process and the cycle time;
- process alignment with procedures;

- the third stage of rationalization during the reengineering business processes is the most critical and the most creative. It is here that the methodology of business processes is being improved, and the creative abilities of the participants of the TCG are really being used. The rationalization phase consists of the following:

- process redesign;
- development of a new process;
- benchmarking;
- analysis of improvements, costs and risks;
- selection of preferred processes;
- preliminary implementation plan.

Development of a new process. This approach requires a new look at the objectives of process. Here, the existing process and the organizational structure of enterprise management are completely ignored. The methodology for designing a new process begins with the preparation of the image of the ideal process. Then a new process is developed that reflects this image. The approach has the advantage that it takes into account the latest achievements in mechanization, automation, computerization and information technology, which are only available.

Benchmarking is a popular tool that allows you to compare the existing process with the best similar process available in the world. At the same time, processes from one industry can be compared, or may not be compared.

Not all analyzed processes go through redesign, development of new options and benchmarking. Depending on the circumstances, one, two or all of the three mentioned methodologies of rationalization are used.

Process redesign is most often used, because usually lower risks and less cost are involved. Typical results of this approach are an improvement in the range of 300-500%. This is true for approximately 70% of business processes.

The development of a new process provides the greatest degree of improvement and requires the greatest expenditure and time for implementation. At the same time, there is also the highest degree of risk. Often the development of a new process involves the restructuring of units and is very damaging to the enterprise. Most enterprises are able to effectively implement only one change of this scale at a time;

- during the fourth stage, TCG meets together to implement the selected process, measurement and control systems. New measurement and control systems should be designed to provide instant feedback from personnel, giving them the opportunity to experience the improvements already made and improve the process further. This phase consists of the following:

- final planning of the implementation the process;
- introduction of a new process;
- creation of measurement systems in the process;
- creation of a feedback data system;
- determination of the cost of poor quality of the process;

- in the fifth stage, now that the process indicators have undergone a radical change, we can not stop the improvement. This is not the end of the improvement activity – this is just the beginning. Now the process should improve further, usually at a much slower rate, but it needs to continue to improve. During this part of the cycle, the process manager will continue to monitor the effectiveness, productivity and adaptability of the entire process. TCG on reengineering business processes in the units, each in its field of activity, will continuously work on improving its part of the process, setting its own goals. This is a rational approach, since the process manager continues to monitor the performance of the process as a whole.

Implementation of reengineering business processes on the wholesale enterprises region

The introduction of reengineering business process at wholesale enterprises region should be based on the results of the definition of

organizational and technical level and structural analysis. We have revealed that at present, progressive methods of networking are not sufficiently used and the opportunities for rationalizing their organizational structures at wholesale enterprises region are underestimated.

The formation of an organizational structure at the wholesale enterprises region is one of the most important strategic decisions taken by top management. While developing the concept of structural transformations of the management system, it is useful to take into account the basic principles underlying the organizational structures of the wholesale enterprises region.

To solve many problems of introduction the corporate systems also it is possible by means of information technologies, namely – methods of reengineering.

The necessary integration can be ensured through the creation of an electronic business model, which includes all formats of business organization at the initial stage. This model generates clear intra-company regulations for managers across all enterprise control loops, which is no less important than the information integrity of the system at the program level.

Principal moments in the reengineering business processes at wholesale enterprises region are:

- processes of setting and computerization of management are divided;
- the computerization process is preceded by formalization and revision, if necessary, of management schemes and methods;
- the regular control is produced using simple stencil modeling techniques and the use of special computer programs of structurizers (orgware);
- restructuring of management is performed in accordance with a certain sequence of work. An obligatory starting condition is the construction of a business model, after which the stage-by-stage work is selected in accordance with the priorities of managerial problems of wholesale enterprises region. Computerization of individual control subsystems is carried out as they are set up, sequentially (in parts) based on software already existing in the wholesale enterprises region and standard software products. Such a scheme is a natural and least expensive way of implementing effective management at wholesale enterprises region, through reengineering methods. Its other advantage is the gain in time. The complex solution here refers, above all, to the

upper control loops. At the lower level, it is better to start with a specific solution that gives quick feedback: collateral management, liquidity, control over certain types of costs, etc. i.e. start with bottlenecks.

On the basis of the proposed general approach, the following basic steps can be distinguished in the development of information systems:

- express survey of wholesale enterprises region;
- regularization and formalization of activity of wholesale enterprises region;
- development of an information system project and a scheme for its implementation;
- implementation of the information system project.

At the first stage, the rapid inspection stage, the general diagnostics of the wholesale enterprise region management is carried out (including the identification of those bottlenecks) and the composition of the computerized control loops is determined and the overall plan is the work schedule.

In the second stage, the main focus is on setting up a regular management based on the technique of reengineering. As a result, an electronic model is created that describes the links, functions and processes of wholesale enterprises region, as well as the agreed data formats for the components of the corporate information system. Thus, the subject of the task description for automation appears, and all formal requirements to the functional and information structure of the system are determined.

At the third stage, formal design of the executive levels of the system, structures and data stores, exchange protocols is carried out. As an analytical subsystem (for example, financial analysis programs or other programs of analytical data processing) it is expedient to use ready-made software products.

The fourth stage includes the creation and processing of the hardware and software parts of the system, pilot operation and external monitoring of the functioning of the system as a whole. Let's consider now the key stage connected with business-modeling as an element of reengineering at the wholesale enterprises region.

A generalized model of the wholesale enterprise region, which is subject to further detail, can be represented in the form of a scheme (Figure 1.1).

In the main production cycle, under the influence of the management unit, resources are transformed into goods and services. At the same time, the goals of the wholesale enterprise region are achieved, using the

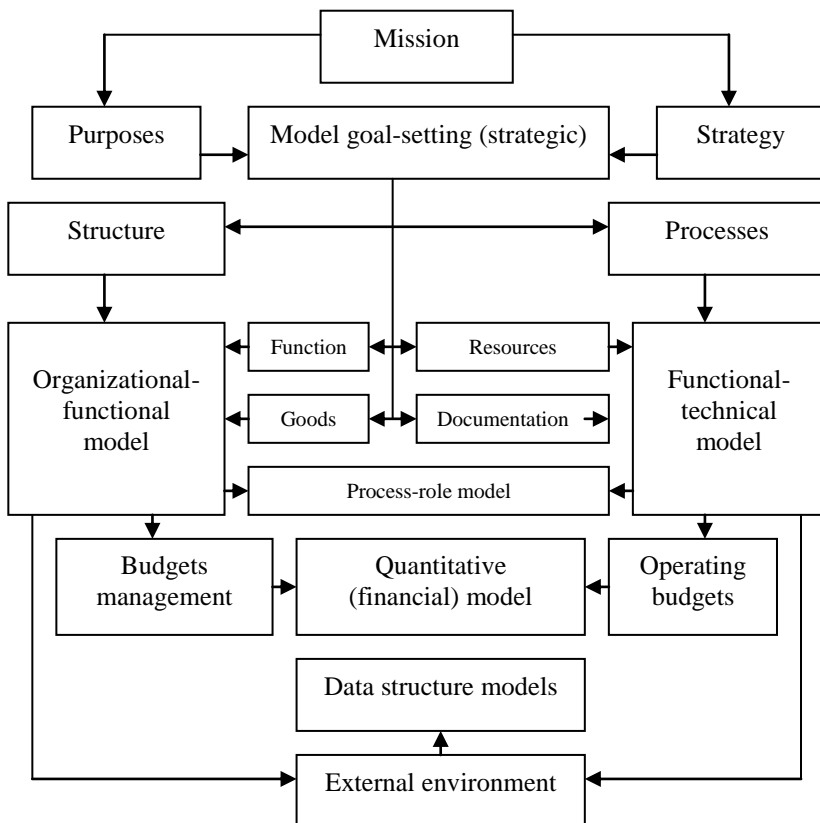


Figure 1.1 Generalized model of wholesale enterprise region
Source: developed by the author

chosen resource, commodity, management and process strategy. In fact, the establishment of regular management and the formation of requirements for the information system supporting it are reduced to the development of this generalized model to the level of a complete business model of the wholesale enterprise region. The correct approach to its construction provides:

- ensuring the unity of the “vertical” and “horizontal” description of the wholesale enterprise region;
- combination of qualitative and quantitative approaches;
- description of not only the existing business, but also its virtual

possible future through reflection in documents.

When building electronic models, several points of view are combined for a wholesale enterprise region:

- the vertical description includes a list of objectives, methods and management functions that ensure the achievement of objectives by the chosen method, as well as a description aligned with the hierarchy of management, the structure of the wholesale enterprise region that is able to implement the specified functions. This approach is essentially a description of the potential of the wholesale enterprise region (a set of skills mastered and assigned to the staff) and is performed in the format of orgware (“who and what” does on the network);
- the horizontal description reflects the technology for implementing functions in the form of processes (aligned in the time series of the workflow) and executed in the workflow format (“what-who-to-whom”);
- the quantitative description reflects the necessary resources (primarily financial – “how much”) the day of implementation of the described business processes.

Such an electronic picture of business provides the following set of components.

The strategic model aligns the goals of the wholesale enterprise region with a set of appropriate strategies (ways to achieve them). The selected strategies further determine the content of the main classifiers (goods, functions, resources, processes) used in building the business model of the wholesale enterprise region.

The organizational-functional model assigns responsibility for the representation on the market of goods and the performance of the corresponding management and support functions beyond the structural links of the wholesale enterprise region. The construction of this model is an obligatory initial condition.

The functional-technological model describes business processes in the form of a time sequence of simple operations that transform material and information flows. This model details the technology for executing the business process, describes the necessary input and output forms of documents, as well as specifies the rules for performing certain operations.

Process-role model fixes for each operation of the business process a personal performer. At the same time, it clarifies the consolidation of business functions for personnel performed earlier (when building an organizational-functional model).

The financial model is a system of the main budgets of the wholesale enterprise region (operational budgets, cash flow budget, revenue and expenditure budget, budget on the balance sheet). For their construction, operational budgets are used for individual business processes. The latter are obtained by consolidating the costs necessary to implement individual transactions, as well as the revenues generated by the implementation of the business process. In addition, budgets of management processes, or overheads, corresponding to the developed organizational and functional model are taken into account.

The model of data structures defines the formats for describing the objects of observation (buyers, suppliers, competitors, etc.) and conversion objects (resources), as well as formalizes the composition and content of internal rules of management reporting.

The totality of these models gives a holistic and interrelated description of the wholesale enterprises region. Changing any of them inevitably causes corresponding changes in other models.

Thus, the correct scenario of automation of management begins, in our opinion, not with the introduction of a unique software system, but with the setting up of the management of a wholesale enterprise region with the help of fairly simple software such as orgware. In other words, first a model of the future management system is formed, where the individual components are assembled into a single whole, and their interrelations are spelled out and optimized. And only then should proceed to the selection of executive software systems.

Management reporting at the wholesale enterprises region, when the reengineering business processes is conducted, is based on an important principle: the report should support the adoption of management decisions, be oriented to planning the future. It is the correctly constructed reporting system that transforms the “data” accumulated during the implementation of business processes into “information”.

Therefore, the reengineering business processes must set the requirements for the organization of information at all levels in such a way that the reporting system gives a clear picture of the status of the main indicators of the wholesale enterprise region, so that it is possible to actively manage its activities.

Process-oriented management structure, where the management of the processes of movement the resources and information occupies a central place is one of the basic principles for building modern wholesale enterprises region.

Conclusions

Modern approach to business organization of wholesale enterprises region should include reengineering business processes as one of the most important tools. Especially relevant reengineering business processes is for the crisis wholesale enterprises region, since the consequences of dominance traditional management for them are particularly destructive and radical redesigning is most justified and economically effective.

The development of wholesale enterprises region has an important reverse effect on market transformations and their effectiveness, especially in the social sphere. The solution of an important social task – the satisfaction of consumers' needs in consumer goods – largely depends on the development of the wholesale infrastructure.

The growing trend of creating and developing wholesale enterprises region requires constant improvement of their activities, using various methods for this. All of them are quite effective, but a much greater economic effect can be obtained on the basis of reengineering business processes at wholesale enterprises region. The methodology of reengineering is used in its work by the largest companies – world leaders, significantly improving the results of their activities. In addition, reinforcing the need to reengineer the reengineering type is one of the global trends in the economy – the individualization of consumer behavior. In conditions of a high level of saturation of demand and availability of information about the products and services produced, those wholesale enterprises region that are able to react as flexibly as possible to the consumers' requests win.

Modern information technologies, as a basis for reengineering business process, allow us to propose an approach to understanding the process of business transformation, to give an opportunity to take into account its principles in the development strategy of a wholesale enterprise region, making decisions, changing management processes.

When considering issues related to the development of wholesale enterprises region, it is necessary to use the approaches of the general theory of systems and system analysis. The reasonableness of this approach can be based on the representation of the wholesale enterprise region as a system. The main task of the system approach is to develop methods for studying and constructing complexly organized objects-systems of various types and classes. In the system study, the analyzed object (in our case, wholesale enterprises region) is viewed as a certain set of elements, the interrelation of which determines the integral

properties of this set. The properties of an object as an integral system are determined not only and not so much by the summation of the properties of its individual elements, as by the properties of its structure, by the system-forming integrative links of the object under consideration.

At the present stage of development of wholesale enterprises region, it is difficult to overestimate the role of information technologies for effective management and implementation of reengineering projects, both in small companies and in multinational giants.

Unconditional evidence of the active impact of modern technology on the activities of enterprises of any industry is the success of those companies that build their information policy on a long-term basis, based on a strategic assessment of their near and more distant future. The information system is then the foundation in the leadership strategy, when flexibly supports changes in the concept, flexibly gropes the optimal segments, helps to manage the assortment using analytical programs, builds consumer loyalty through personal marketing systems, flexibly manages logistics in real time. Wholesale enterprises region introduce advanced information systems, optimize supply chains, improve interaction with customers and develop mono-channel wholesale programs.

The wholesale enterprises region can not be stable, they must change constantly to satisfy the needs of consumers, not to yield to competitors in the conditions of tough competition, improve their internal processes, develop the range of goods and services offered, set real goals for personnel, actions within the framework defined by management, ensuring focus on those business processes that are consumer-oriented.

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**PROSPECTS FOR
ALTERNATIVE
AGRICULTURE
DEVELOPMENT IN
UKRAINE**

Today, problems associated with environmental preservation, rational nature management, biodiversity conservation on the planet, health of people and safe food are becoming more acute. They are global in nature and specialists in many countries are turning their attention to efforts that is reflected in development strategies. Sustainable development issues were first raised in 1992 at the United Nations Conference on Environment and Development in Rio de Janeiro and have been part of international politics for several decades. Despite efforts of several international organizations and governments in many countries, the implementation of the sustainable development strategy is still inadequate, so the 2030 Agenda for Sustainable Development was developed and it consisted of 17 Sustainable Development Goals. UN member states adopted it at a summit held in September 2015 in New York.

It is especially important to study issues of safe agricultural production which will result in the production of environmentally safe food products, as there is a contradiction in which it is necessary to combine three mutually exclusive factors:

1) Providing a rapidly growing population of the planet with food which is possible only if there is a significant intensification of production, the use of GMOs etc.;

- 2) Getting the maximum profit that is the goal of any manufacturer;
- 3) Environmental preservation, careful use and protection of natural resources used in the process of agricultural production and the use of environmentally sound management technologies.

Solving these problems requires development of a new economic system that respects the need for environmental protection, resource efficiency and social justice. That is why there is a need for further study and introduction into the production of alternative farming systems. Its essence is the complete or partial refusal of synthetic fertilizers, pesticides, growth regulators and feed additives. The purpose of alternative agriculture is to obtain products that do not contain residues of chemicals, preservation of soil fertility, and, ultimately, environmental preservation.

The purpose of the article is to study systems of alternative agriculture and prospects and obstacles in their application in agriculture in Ukraine.

The use of alternative agriculture in the world has been observed since the beginning of the twentieth century. It is considered one of the systemic approaches that solve problems of structural policy and modern economic, agroecological and social problems in harmony with the principles of sustainable development. After all, it is considered that 24% of lands in the world today are degraded of which 20% is arable land (Baietal, 2008). In Europe, except Russia, the size of lands degraded from water erosion is 105 million hectares and there are 42 million hectares of lands degraded from wind erosion. In 45% of the European soils, organic carbon content is low or very low (0-2%) and 3.8 million hectares of soils are affected by salinization (Jonesetal, 2012). Agricultural production under intensive production technologies will only worsen the complicated situation.

The priority of alternative agriculture is not to maximize the volume of agricultural production but to produce high quality and environmentally friendly food products using renewable resources, rational use of natural resources and preservation of the natural environment. According to O. Hronec (2001), the main objective of alternative agriculture is the collaboration of nature and a man as a component of nature, as well as the quality of products being produced. This is the main principle of the sustainable development of society today.

Table 1.1 shows a comparison of the main aspects of traditional and alternative agriculture.

Table 1.1

Comparison of the main aspects of alternative and traditional agriculture

Characteristic	Traditional agriculture	Alternative agriculture
Yield	higher	lower
Costs of material resources (fertilizers, toxic chemical and pesticides)	higher	lower
Manual labor expenditures	lower	higher
Product quality	lower	higher
Negative impact on the environment	higher	lower
Production profitability	higher	lower

Source: proposed by the authors

Eco-alternative agriculture is conducted on the principles proposed by Kvasničková D. (2002) and Ecotrend (2018):

- Minimization of all forms of pollution in the process of agricultural production, processing and distribution of products;
- Rational nature management;
- Waste-free production, the maximum possible use of secondary resources;
- Use of such agricultural practices that promote the development of soil microorganisms, flora and fauna and, thus, support the functioning of biogeochemical cycles;
- Ensuring of soil fertility in the long run;
- Promotion of biodiversity of agricultural ecosystems and their environment;
- Strict adherence to crop rotations;
- Crop rotations and cultivation technologies should prevent soil erosion;
- Control of weeds by agrotechnical methods;
- Use of herbicides is not allowed; plant protection against diseases and pests is to be carried out on the principle of self-regulation of agricultural ecosystem functions, biotechnical and biological methods;
- Refusal to use synthetic fungicides and insecticides;
- Optimal consumption of farm's own resources;
- Restriction of industrial means of production;
- Maximally effective use of natural factors of production;
- Synthetic fertilizers are not allowed;
- Healthy food with the highest qualitative characteristics in the field

of human cooperation and nature management.

The fulfillment of these principles is to bring the maximum possible biological purity of the products. At the same time, many researchers, along with the positive effects of alternative ecological agriculture, also note some negative aspects (Lančarič J., Kozáková-Lubomír & R. Savov, 2012). They include higher costs of manual labor; complex ecological and economic relations and growing demands for organization of work; higher requirements for marketing and professional skills of managers; instability of economic efficiency of production and dependence on natural and climatic factors; difficulties in implementing environmental products due to rising prices and so on. Today, there is the search for the best methods of land use which will combine principles of ecological agriculture and minimize negative aspects of their use. The most important are organic farming; biological agriculture, organic and biological agriculture; biological and dynamic agriculture; ANOG method; vegetarian agriculture; macrobiotic method and sustainable agriculture.

Let us consider in more detail each of the above methods and define their advantages and disadvantages in practical application.

Organic farming. Organic farming has the most widespread use of alternative farming systems in the world. According to the IFOAM (International Federation for Organic Agriculture Movements), in 2015 the area of organic lands with wilderness in the world amounted to 90.6 mln ha which is 20.8% more than in 2010 (Figure 1.2).

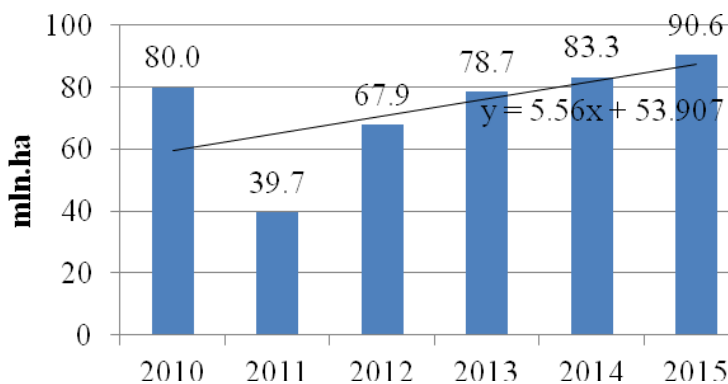


Figure 1.2 Area of organic lands with wilderness in the world in 2010-2015

Source: https://www.ifoam.bio/sites/default/files/annual_report_2016.pdf

The largest organic areas are concentrated in Australia (22.7 mln ha), Argentina (2.1 mln ha) and USA (2 mln ha). Europe has 23% of all organic world agricultural lands and there are four countries where more than 10% of all agricultural lands are located under organic agricultural production. This is Liechtenstein (30%), Austria (16%), Switzerland (11%) and Sweden (10.8%). Spain (1.1 million hectares), Italy (1 million hectares) and Germany (0.9 million hectares) have the largest area of lands occupied by organic production in Europe. Italy is the European country with the largest number of enterprises engaged in the production of organic products (more than 44 thousand producers) (Belinska Y.).

In Ukraine, by the end of 2015, agricultural area for organic farms was more than 410 thousand hectares, twice more than 12 years ago. By this indicator, Ukraine in 2015 took the 22nd place in the world.

Organic farming is a certified production of crop production by producers who are listed in the organic producer list. It is based on methods, principles and technologies that ensure the production of environmentally friendly products and aimed at protecting the environment, preserving the health of consumers and ensuring sustainable economic development.

The prerogative of organic farming is the complete refusal to use herbicides, pesticides, mineral fertilizers, preservatives, artificial colorants, growth stimulants, chemical protection agents, hormones, antibiotics, flavors, stabilizers, flavor enhancers and others. The use of GMOs, GMO derivatives and products produced from GMOs is prohibited, as well as food products, feeds, technological additives, soil improvers, seeds, plant material of vegetative origin, microorganisms and animals, etc. Production is carried out exclusively from organic raw materials which meets the requirements of the current legislation on organic production.

It is important to note that the land intended for organic farming must undergo ecological examination, as well as for three years not to be treated with substances of chemical origin. Also, the production is considered organic only after obtaining an appropriate certificate for the production of organic products.

Along with the positive results of organic farming, it is possible to note certain negative ones. Namely, organic farming is more labor-intensive and longer; the percentage of lesion damage to diseases and pests is slightly higher; higher production costs, so organic products are more expensive; it is allowed to use some insecticides that are low toxic

to humans which may result in the organic production of residues of pesticides, but in much smaller quantities (Ichuk, V.P., Shtirkhun, H.I., 2016).

Biological agriculture. This farming system was developed in France but it is also used in Belgium, Switzerland and other European countries. It is aimed at preserving the biological dynamic balance in agricultural ecosystems and provides for the refusal to use mineral fertilizers, pesticides and other synthetic chemical preparations. According to Bombi M. (2007), biological farming has been implemented on small areas: in the Netherlands (0.15%), Sweden (0.07%), France (0.4%), Germany (0.11%) and Austria (0.14%) of arable lands. In France, this method employs more than 5000 farms, in Austria and the Netherlands there are 1500 and 500 farms, respectively, and in Denmark 400 farms. Biological farming is based on the maximum possible and efficient use of crop rotation, sowing remains and by-products, manure, compost, green manure crops, organic waste recycling plants, mechanical soil cultivation and biological methods for controlling the amount of weeds, pests and pathogens. Biological methods of plant protection should include the use of plant natural enemies (predators, parasites and antagonists), products of their life (antibiotics, pheromones and biologically active substances) and entomopathogenic microorganisms for the purpose of protecting plants from harmful organisms in order to reduce their number and create favorable conditions for the activity of useful species in agricultural biocenoses (Veremeenko S., 2011).

Organic and biological agriculture. Organic and biological farming is based on the research of H. Rush and H. Muller and is most common in the countries of Western Europe. In this system, attention is focused on the functionality of the soil as the main biological unit in agriculture. The soil is considered as a living organism. All organic and inorganic components in the soil must be balanced and be as close as possible to nature. This corresponds to the overall technological, protective, food and environmental nature of the functioning of this agricultural model (Kočík, 1998). Biologization is achieved through the creation of the most favorable conditions for the development of soil microflora. Bean and forage crops are increased in the structure of crop rotation. Manure and non-synthetic fertilizers, such as Thomas meal, dolomite and limestone are allowed to be applied only superficially.

Biological and dynamic agriculture. Biological and dynamic farming is the oldest alternative method in management practices. It is based on

the philosophy of the Austrian scientist Rudolf Steiner. According to it, life on Earth is under the influence of cosmic forces, especially light, heat, as well as the force fields of the celestial bodies which supposedly regulate and affect life processes. Representatives of this system believe that these cosmic influences and forces can be used in agriculture, that is, agriculture is conducted taking into account not only natural (earthly) but also cosmic rhythms. That is because everything is alive. It is a balanced whole which is in interconnectedness with space. All manufacturing processes are carried out taking into account the placement of celestial bodies.

It is allowed to use special biodynamic preparations: “humus” ones (from animal horns and manure, animal horns and quartz), “Compost” ones from manure and various plants: nettle, milfoil, horsetail, wormwood, chamomile and dandelion. Decoctions and infusions of these plants are used in the fight against aphids and fungal diseases (powdery mildew, etc.) (Tkach O.V., 2013).

According to studies of Sidoruk B.O. (2017), biological dynamics has the following characteristics:

- Careful attitude to biodiversity and environmental quality;
- Minimization of soil cultivation;
- Use of environmentally safe and renewable energy sources;
- Rational use of productive resources, etc.

Proper application of biodynamic technologies helps to restore the soil structure, increase the humus content in it and better assimilation of all necessary elements by plants.

ANOG method (Agrarische Natuurvereniging Oost Groningen). This is a commercial agriculture that focuses on growing fruits, vegetables, potatoes and other crops by methods that minimize the negative effects of conventional agriculture. In general, the used technologies are approaching the requirements of organic agriculture. However, it is allowed to use precisely justified doses of industrial fertilizers and apply the principles of integrated protection of plants with a small amount of synthetic pesticides. The method focuses mainly on the biological quality of crop production. They are used mainly in Austria and Switzerland.

Vegetarian agriculture reflects the vegetarian way of consumption, eliminates plowing and organic fertilizers of animal origin.

Agricultural sustainable farming system has become widespread in the United States. It is a very specific model of alternative agriculture that aims to use renewable natural resources.

Conclusions. The modern intensive agricultural system is characterized by high energy consumption, active use of mineral fertilizers and pesticides which pollute the soil, destroy its microflora and microfauna and enter the crop production reducing its quality. Deep mechanical soil treatment enhances erosion processes and reduces their natural fertility. Instead of intensive mechanization and agricultural chemicals, alternative systems are proposed that are aimed at resource conservation, minimal use (or rejection) of chemical nutrition and plant protection and the use of biological agents. Such systems are biological, organic, organic and biological, biological and dynamic, ANOG farming system and agricultural sustainable farming system.

The main drawbacks of alternative farming methods are lower productivity, higher production costs and lower profitability. However, the main advantages of their application are the quality of products and the environmental friendliness of production with the thought of future generations. Of course, today, alternative farming systems cannot completely replace traditional technologies but they must coexist to save lives on the planet.

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**COMPETITION AS AN
EFFECTIVE FACTOR
OF IMPROVING
INNOVATIVE
DEVELOPMENT OF
ENTREPRENEURSHIP
SUBJECTS**

An important component of the financial system of the state is the finances of enterprises, organizations and institutions. They serve the main link of social production, where they create material and intangible goods, concentrates the vast majority of material, labor and financial resources that provide an expanded reproduction process in society. That is, the finances of enterprises as a component of the financial system occupy a prominent place in the structure of financial relations of society. They operate in the tangible and intangible fields of production where the gross domestic product and national income are created – the main sources of financial resources.

The leading place in the system of finance of enterprises, organizations, institutions is occupied by finances of enterprises of the sphere of material production (economic entities). They are the basis of the entire financial system, because it is in this area that creates the overwhelming part of the gross domestic product, national income, monetary savings of the national economy. At the expense of financial resources of enterprises, the sphere of material production is formed mainly by the revenues of the state budgets, extrabudgetary funds. The state of finance of enterprises depends on the ability to meet the diverse needs of society, the overall financial state of the state. Therefore, at the macroeconomic level, the finances of enterprises ensure the formation of financial resources of the country through the budget and extrabudgetary funds. That is why the state of finance of enterprises depends on the ability to meet public needs and financial stability of the country.

The enterprises of the finances operate at the micro level, therefore, have common features and certain differences from the finances of the state as a whole. The general feature of the finances of enterprises is that they reflect the totality of economic relations associated with the distribution of gross domestic product. Specific features express the economic relations that characterize the primary distribution of the value of gross domestic product, the formation and use of monetary incomes and decentralized funds. The peculiarities of the finances of enterprises are conditioned by their functioning in various branches of economy, various organizational and legal forms of management.

Thus, the finances of enterprises are economic relations related to the movement of money, the formation of cash flows, the distribution and use of income and funds of economic entities in the process of reproduction.

In the context of the implementation of radical economic reforms in Ukraine, the interest in the historical fate of entrepreneurship, revealing

its role in pioneering economic development acquires not only academic but also practical character. Unfortunately, the actual functional-economic, socio-psychological, socio-cultural aspects of entrepreneurial activity remained outside the Marxist theory that for a long time prevailed in our country in all areas of knowledge, including the Soviet economy.

The state helps the development of the market, by regulating it through economic laws and incentives, implements antitrust program, and ensures the social security of all employees. The state provides privileged conditions for enterprises that introduce advanced technologies, create new jobs, use the work of citizens who demand social protection. The state should stimulate the development of small enterprises in Ukraine: to provide tax incentives, obtain state loans; create aid funds for the development of small enterprises. Business entities and other parties in the sphere of economic activity carry out activities within the established legal order. Relations in the sphere of economic activity are regulated by the Constitution of Ukraine, the Commercial Code of Ukraine, normative legal acts of the President of Ukraine and the Cabinet of Ministers of Ukraine, normative legal acts of other bodies of state power and bodies of local self-government, as well as other legal acts.

Legal economic order in Ukraine is formed on the basis of the optimal combination of market self-regulation of economic relations of economic entities and state regulation of macroeconomic processes.

The clarification of the essence of the market system of economic management is inextricably linked with such a fairly common concept in economic life as “competition”. This term is used in the economy as a synonym for the rivalry of market participants for the best realization of their interests. Among the participants the prominent place occupied by entrepreneurs. In their activity, they compare their own interests with the interests of other participants in the market system. Therefore, competition as a component of a market economy mechanism largely determines the prices, volumes and structure of the market of consumer goods and services, the interaction of producers and consumers. In turn, entrepreneurship, as a special type of business, implements its innovative, creative nature only in the conditions of the existence of a competitive environment. This gives grounds for considering competition as a means of implementing entrepreneurship.

Thus, we can say that competition in the form of competition is an important factor in a market economy, as well as an engine of business

entities before developing their innovation activity and creating an investment component. Since innovation is not possible without investment (additional funds), then competition itself will encourage business entities to engage in such activities. This is the main condition under which market mechanisms, generating price signals, generate incentives, form market diversity of assortment, high quality of products and services.

It is known that the market operates both sellers and buyers of goods. Competition is an economic competition for producers of the same products in the market, aimed at attracting as many customers as possible, thereby maximizing the benefits. This is an important means of control in a market economy. The effect of competition is based on the market mechanism of supply and demand and proves the wishes of consumers to enterprises – producers of products, and through them – to suppliers of resources. It is competition that forces producers and resource providers to meet the wishes of consumers. Each company seeks to increase its production, implementing this process on an expansion basis. However, this is possible only if the price of products is reduced to the level of production costs. In order to achieve this result, competition forces companies to intensify work aimed at introducing scientific and technological advances into production, to use more productive technology, energy-saving technologies, new methods of organization of production and labor, that is to create something new (investment activity).

At the same time, competition, as well as any economic concept, has its positive and negative consequences, as well as certain factors of the development of competition.

If competition among sellers is carried out for the largest sales volumes and, accordingly, the maximization of profits, among buyers – for the most favorable conditions for the purchase of goods or services. The latter, as a rule, means that the price and quality of the product must satisfy the buyer. Thus, competition ensures the equal position of sellers and buyers, their freedom of choice.

Coordination of actions of sellers and buyers on the basis of competition is carried out by applying the principles of free pricing. As a defining element of a market economy mechanism, the price in a competitive environment contributes to the most rational distribution of resources and end-products. Thus, competition creates conditions for self-regulation of the market. The actions of the entrepreneur become rational: after all, he tries to achieve the goal within the clearly defined

competition of certain alternatives.

Due to competition, the overall efficiency of entrepreneurship is achieved. After all, it allows us to determine the correspondence of the volume and structure of goods and services produced by entrepreneurs to the volume and structure of social needs. In other words, competition checks entrepreneurial activity to meet the needs and interests of society.

It is clear that due to competition, interest is created in improving production, sales, management and other aspects of entrepreneurial activity. Thus, competition contributes to productive business, creates incentives for reducing production costs, updating products, finding new forms of meeting the needs of consumers.

We have found that competition is a powerful means of business development. Without it, market relations can not exist and develop. That is why competition is strongly encouraged and supported by the state by finding the most effective means of regulating business conditions.

How does state regulation of competition take place? First of all, the state carries out legal protection of businessmen and consumers from unfair competition. In Ukraine, the Law of Ukraine “On Protection against Unfair Competition” is in force, which is aimed at the establishment, development and provision of trade and other fair means of competition in the conduct of entrepreneurial activity in a market economy. The law creates favorable conditions for the protection of the rights and interests of participants in market relations, forms the basis of civilized economic competition.

There are the following types of offenses stipulated by law:

- Unlawful use of business reputation of the business entity (entrepreneur);
- Creation of a barrier for entrepreneurs in the process of competition and the achievement of unjustified advantages in competition;
- Unlawful collection, disclosure and use of commercial secrets.

In addition, the state provides the necessary level of competition by applying certain criteria for assessing the state of the markets. For example, in the practice of developed market economies, the Hirschman index is used. According to this index, the safe level of the market in terms of its monopolization requires the presence of at least ten competing firms. In this case, the limit is set in the total sales for each case. Here is a limitation of the level of monopolization of companies:

- the share of one, the largest, company in the total volume of all sales of a certain product in the market should not exceed 31%;
- a specific share of the two largest companies should not exceed 44%;
- the share of the three largest companies should not exceed 54%;
- the share of four, the largest, companies should not exceed 64%.

Similarly, the monopoly position of the company in the markets is limited in accordance with the current legislation of Ukraine. If the share of an enterprise in the market of a certain product is more than 35%, its position is recognized monopoly. To such an entity, the state has the right to apply additional measures to restrict its monopoly position.

In addition, the state protects entrepreneurs from misuse of brand names, “deceptive” advertising. Antimonopoly regulation of business activities, protection against unfair competition is aimed at increasing the efficiency of the business sector, harmonizing its interests with the interests of society as a whole.

The main direction of the regulation of competition is to promote the development of medium and small businesses, to provide favorable conditions for the expansion of the network of new enterprises. The active policy of the state in support of small and medium-sized enterprises, strengthening control over the markets is a measure of creating a competitive environment. It is precisely this environment that best stimulates entrepreneurship, searches for new ways to meet public needs.

At the same time, the state takes into account the interests of the growth of firms, increasing the efficiency and competitiveness of their activities. Therefore, state interference in the growth of the company, an increase in its share in total production and sales cannot be straightforward, excessively rigid. After all, the desire of business entities to find additional support, to coordinate and protect their interests may be in creating forms of productive, financial and commercial interaction. Such measures are aimed at reducing production costs, improving product quality, developing new markets, and increasing sales.

It should be emphasized that state regulation of the entrepreneurial process is an integral part of economic policy, both central government bodies and regional and local authorities. The main purpose of regulatory policy is to ensure the optimal level of interference of regional government and local self-government bodies in the activities of business entities, the choice of such regulatory mechanisms that

would promote both the development of business structures and economic growth in the state. The main task of improving regulatory policy is to eliminate legal, administrative and economic barriers to entrepreneurship development.

An important condition for the formation and development of entrepreneurship in Ukraine is the guarantees and comprehensive support from the state. It legally provides guarantees for all entrepreneurs regardless of their chosen forms of entrepreneurial activity and property, the same rights and opportunities for access to material, technical, financial, labor, informational, natural and other resources, freedom of competition between entrepreneurs, protects consumers from unfair competition and monopoly in any field of entrepreneurial activity. The development of entrepreneurial structures and the expansion of opportunities for free enterprise require the state not only legal support, but also economic, logistical and organizational support. Economic support should be reduced to the following: the introduction of a reliable financial and credit support base for entrepreneurship by creating a network of specialized commercial banks and insurance companies to provide individual loans; opening access to support for foreign loans; formation of an extensive network of public and private nonprofit business development funds that would provide guarantees for loans; introduction of state insurance of commercial risk of enterprises in case of financial and other expenses caused by actions of state authorities; the establishment of preferential taxation of profits of entrepreneurs who carry out innovative projects, modernization and opening of new industries and other areas of crucial importance for the development of the country's economy and the solution of social problems. Logistic support includes: transfer or sale on preferential terms to business entities from the public sector of various equipment for production purposes in accordance with the process of denationalization and privatization; commercialization of the sphere of trade and catering; transfer of leased unloaded capacity of enterprises, sale on a competitive basis of unfinished construction objects, non-residential premises and unidentified state-owned equipment to entrepreneurs, provided that it is in line with the interests of economic development; the creation of technology parks and equipment rental facilities for the accelerated development of innovation activities.

Thus, the need for state intervention in the economy is traced and justified, and therefore, state regulation of a market economy is the state's influence on reproduction processes in the economy through

direct investment, legal and economic levers in order to target economic agents and individual citizens to achieve their goals and the priorities of the state socio-economic policy.

Consequently, the regulation of competition, control of the state of the markets corresponds to the interests of the business sector. In shaping the market relations in Ukraine, the state should promote the creation of a competitive environment by certain actions of the antimonopoly committee, developing and forming a network of small enterprises and expanding on this basis the sphere of competitive relations, which would force the monopolist to study market demand, analyzing the costs of its production and sales of products, and the basis of this determine the volume of production and sales. In a competitive environment, enterprises are forced to use the most economical combination of resources for the production of a particular type of product, since it corresponds to their own benefit, which, in turn, corresponds to the interests of society. Ultimately, if an enterprise maximizes its profit, then the social product is also maximized.

Thus, the problem of entrepreneurship development is relevant for Ukraine, especially for small enterprises. The development of small businesses would contribute to solving such problems in the national economy: first, would support competition, becoming a market alternative to monopoly structures; and secondly, it would fill the market with goods and services; Thirdly, it would create new jobs, mitigating the problem of rising unemployment; Fourthly, it would contribute to the formation of the entrepreneurial stratum, thereby giving people the opportunity to identify and realize their entrepreneurial abilities.

The main difficulties of the organization and functioning of small business in Ukraine are related to such major problems. First and foremost, the problem of financing: large capital tends to seek large economic structures, and small savings, which are not enough to create their own business, are diverted to trade-procuring intermediation. Another problem is high taxes, which, in the face of inflation, deprive small firms of not only opportunities to expand, but also put on the brink of survival. Finally, another problem is the legal insecurity connected with both the state and private rivers. Only those firms with a “crust” survive. Hence – the need to create a special legal field aimed at the development and protection of small commodity producers in Ukraine.

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Chapter 2

ORGANIZATIONAL AND ECONOMIC MECHANISMS FOR MANAGING INNOVATIVE DEVELOPMENT THE ECONOMIC ENTITIES

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**INTERNAL CONTROL
FRAMEWORKS IN
ORGANIZATIONS AS A
PREREQUISITE FOR
INNOVATION**

Introduction

Innovation in organizations and other economic entities is key to survival in today's ever changing environment. In order to innovate, entities need to have established a stable internal control environment (financial, regulatory etc. free of fraud. One of the mechanisms to ensuring this is the frameworks for internal control adopted by organizations. This article aims at giving an overview of the most popular frameworks of internal control used around the globe.

Internal Control Frameworks

Frameworks used for internal control: Although the term internal control suggests processes inside the organization all the relevant frameworks are obliged to take into account any external regulations or necessities for the operation of the entity. Altanmuro and Beatty (2010) argue that utilization of internal control frameworks could lead to producing fair financial information by preventing and detecting the instances of fraud and/or noncompliance. In internal control systems need to affect every level in the organization in order to be effective.

There are some general prerequisites (many of which are reflected within the frameworks) in order any system of internal control to be successful. Some of the more general ones include:

- Does the framework have the needed commitment from different parties in the organization (management, employees, board of directors etc.) including appropriate resources;

- Is the framework or its adaptation appropriate for the internal and external contexts of the organization;
- Is the framework established at the proper level of governance in the entity;
- Are there specific indicators assigned in order to measure the effectiveness of the framework;
- Is the internal control information properly monitored and communicated across the organization;
- Are the different components of the control framework understood and defined in the same way by stakeholders;
- Is the framework suitable to achieve compliance with the established legal, regulatory disclosure and other government requirements;
- Do people with appropriate knowledge and skill are responsible for their relative duties in the internal control structure;
- Is the framework adapted and modified as external or internal conditions change and organizational needs evolve.

Ratcliffe and Landes (2009) argue that for an internal control system over financial reporting to be effective it must meet the financial reporting objectives by being in compliance with any relevant laws and regulations. Moreover they call for a stricter control on the produced and reliable financial information.

This articles goes over ISO 31000, COSO, COCO, COBIT as a step to achieving effective internal control environment.

ISO 31000

The system of internal control not only plays crucial role in achievement the objectives of the entity but in deterring and detecting fraud as well. The framework can vary with the type and size of the organization, however in order to continue to be of effective use it needs to continue to help achieve the objectives of the entity overtime. Standard ISO 31000 (Figure 2.1) defines a framework as “a set of components that provide the foundations and organizational arrangements for designing, implementing, monitoring, reviewing and continually improving risk management thought the organization” (IIA Practice Guide (2010) p.3). In order to be successful implemented the framework’s design needs to be incorporated into the entity’s strategy policies and procedures. Moreover a continual monitoring and reviews open the door for future improvement of the framework and assurance

that the framework reaches its purpose by helping the organization achieve its objectives.

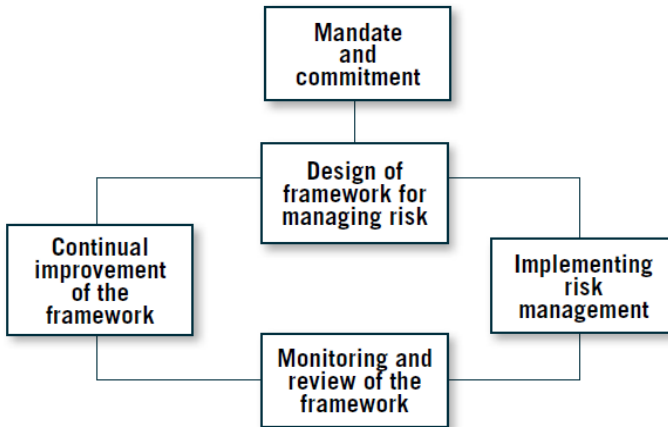


Figure 2.1 ISO 31000 (IIA practice guide, 2010)

ISO 31000 (IIA Practice Guide, 2010) includes three forms of process assurance that play an important role in the risk management (RM) of an organization: process elements, key principles and maturity model approaches. Risk according to the Institute of Internal Auditors represents anything that could diminish the probability that the company reaches its objectives.

Each one of the approaches is self-sufficient but offers a different point of view on the organizational risk management. The commonality between them lies in the goal of establishing an effective RM which ensures that risks are identified and analyzed; an adequate risk response system exists and monitoring systems are in place to determine if there are changes in the current risks and controls in place.

- Process elements approach:

ISO 31000 discusses seven elements through the process element approach that need to be addressed for an effective organizational risk management:

The first element is about communication – effective risk management is based on constant and organized flow of information between all the stakeholders of an organization and its activities.

The second element is concerned with the context – the need to

understand the context of both internal (objectives, goals, organizational structure, ethical rules) and external (social, political regulatory) environments in order to best manage the risk.

Third element is the risk identification – risk should be identified by structured formally established processes that take into account: 1) the possible sources of risk 2) where those risks could have the greatest bearing and 3) what could be the consequences of the risks.

Fourth comes the risk analysis- risk analysis is concerned with the likelihood and impact of each risk.

After the risk analysis, a need for risk evaluation exists which is the fifth element. Here the risks are organized in a ranking with their relevant importance which is used for their prioritization.

Sixth is the risk treatment – several risk responses are possible. The best way is to remove the risk altogether but in many cases this is impossible. The other methods for coping with risks are risk sharing or accepting which is dependent on the potential consequences arising from the risk.

Last is the element of monitor and review – this element makes sure that: 1) the nature of the risks has not changed overtime and 2) the risks are taken care of with the appropriate risk treatment. The communication and monitoring aspect should accompany and be the basis of an effective risk assessment.

In relation to any type of fraud an effective risk management system should be able to identify the areas where fraud is likely to occur in the environment as well as the relevant fraud schemes that can be leveraged from the environment. Furthermore the risk management should be able to identify the appropriate strategies to cope with fraud in case of its occurrence and be able to assess periodically not only the current but also the possible future risks. All in all such system should be able to prevent detect and respond accordingly to any fraud present in the organization's environment.

- Key Principles

ISO 31000 includes a “key principles” approach which suggests that the risk management process must conform to a set of characteristics or principles that lead to an effective use and implementation in the organization. The principles establish the foundation of the organization risk management processes also known as enterprise risk management. The principles are as follows:

Risk management (RM) is responsible for creation and protection of value – not only does an effective risk management is a predecessor of

the value creation of an organization, but needs to be in place in order to keep the value from being diminished by outside forces (risks). Value creation is embedded principle of an effective organization which leads us to the conclusion that risk management is to be embedded into all levels or organizational management. Which leads us to the principle – that the RM is an integral part of the organizational activities and should not be looked at as an addition to them?

Moreover the RM should be used as a building block of the decision making processes in the entity with a specific emphasis on the uncertainty. The more important a decision of an organization the greater the need to pin point and address this element of uncertainty in a systematic structured and timely manner by the RM processes.

The RM should be based on the best available information that the entity possesses. Since information in many cases can be an expensive commodity the balance between sufficiency and cost must be taken into account.

Each organization has different operation processes and aims thus the necessity of tailoring the RM process to the specific needs of the entity. Moreover this tailoring should take into account the human and cultural factors which play a crucial role into the organizational politics and risk management decisions.

Last but not least the RM should be dynamic opposed to static in order to accommodate any changes in the internal and external environments, ensure transparency and involvement of the stakeholders of the organization and mature alongside the organization processes.

- Maturity model approach

The maturity model approach is based on the notion that the organizational RM processes need to improve overtime with additional value added in each stage of maturation of the entity. Here the most important aspect is the link between RM performance (advancement) and the management measurement system which is then used as evidence of the overall improvement of the RM system. Such measurement system usually is comprised of performance standards for current and future organizational processes, a guide that aims in determined how whose standards can be applied in practice and a performance system that intends to measure the actual performance to the desired one. Moreover a way of recording this information needs to be in place as well as periodic independent verifications to ensure reliability of the results. An example of a visual representation of a system that is used to measure the maturity with the degree of compliance can be found in Table 2.1.

Table 2.1

System of measuring maturity

Measure	None	Very Little	Some	Good	Complete
Level of maturity	Little or no compliance with requirements set	Only limited compliance with the requirements. There is management support but poor compliance in practice	Limited compliance with in practice. Higher management support	Partially complete compliance in practice. Full support by management	Absolute compliance – at all times and in all places

Further development of the model is the so called Capability Maturity Model developed by Carnegie Mellon University describing the maturity levels in an organization. In the model exist five levels of control over the processes and their management in the organization which are used to standardize the processes relation to risk management. The levels are: Level 1 where the processes lack control and are unpredictable; Level 2 where the processes are somewhat managed; Level 3 where there is a clear definition and tailoring of the processes to the specifics of the organization; Level 4 where there is a measurement and control based on quantitative factors and level 5 where the main focus is optimization and process improvement. Level 5 could only be reached if all the stakeholders of an organization know their role and duties in relation to their responsibilities in the organization and other parties. Visually it's the model is represented in Figure 2.2.

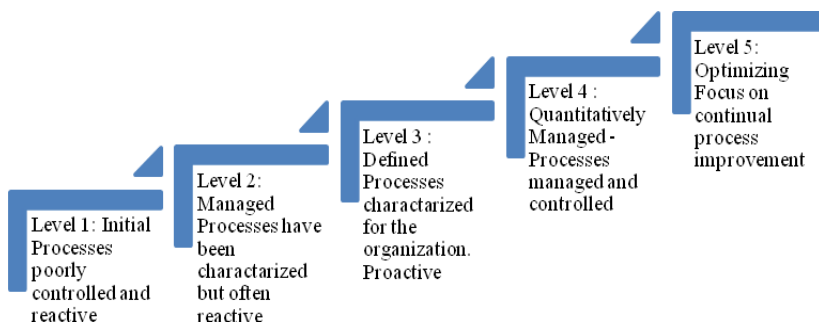


Figure 2.2 Capability Maturity Model

In relation to risks relating to financial statement fraud the model can give accurate results where the processes lie and what needs to be done in order to achieve the desired level of improvement in order to manage and reduce the risks of such fraud.

To sum it up the maturity model approach determines not only if RM is in place functioning and adding value but whether it is relevant for the current stage of the organization's processes development. In order to do that the parties responsible for the management of the company need to make sure that:

- Risk information management strategy is in place;
- Proper infrastructure is developed for communication information relating to risks in the organization;
- Adequate and sufficient resources are assigned to each of the processes;
- Proactive approach is adopted in fraud prevention and monitoring;
- Information that is based from the risk management activities plays role into decision making process as well is its integration with other important information.
- Up to date documentation is present regarding all major processes and activities of the organization.

There are a number of key control frameworks that are developed and used by organizations some have been mentioned in previous sections.

The Institute of Internal Auditors lists the following: The Committee of Sponsoring Organizations of the Treadway Commission's (COSO) Internal Control-Integrated Framework; The Canadian Institute of Chartered Accountant's Criteria of Control Framework (CoCo), Control Objectives for Information and Related Technology (COBIT). There could be as many frameworks as organization exist however the focus is on the above mentioned ones with main emphasis on COSO's framework due to its popularity and commonalities with the other frameworks.

COSO'S INTERNAL CONTROL INTEGRATED FRAMEWORK (COSO, 2016)

It was established in 1992 with an aim to establish internal control systems that helps organizations achieve their objectives effectively and efficiently. It defines internal controls as an ongoing processes that is

affected by individuals in all organizational levels (the board of directors, management and other personal) designed to provide reasonable assurance in three main categories – operations, financial reporting and compliance (Applegate and Willis, 1999). The Reporting and Compliance categories are subject to factors entirely in the hands of the organization making them easier to control and provide reasonable assurance. It has to be mentioned that the framework was not designed for small to mid-sized companies but rather large organization with complex structure.

Operations include objectives that relate to the entity's financial performance, quality of service, innovation, customer satisfaction, productivity and safeguarding of assets.

Reporting category includes objectives that relate to financial and non-financial reporting as well as internal or external reporting. That is the information prepared for the use by the organization and other parties (stakeholders, suppliers of capital, customers etc.) in order to make rational decisions. Main attributes of such information are the reliability, timeliness and transparency. The main emphasis is on the adequacy and effectiveness of the management controls governing the reliability of financial data for reporting purposes.

Compliance – making sure that the organizations follows the relevant rules, laws and regulations as well as the prescribed procedures and policies. The emphasis is on the adequacy and effectiveness of controls established by management that govern the adherence to those laws and regulations.

To achieve the objectives in those categories the framework lists five components of internal control (some of them are connected with the elements of the ISO 31000):

- Control Environment

Control environment sets the tone for the organization and is said to be the foundation of the internal control structure. It is determined by the values, integrity and skill of the individuals in the organization. The established rules of conduct, oversight, accountability and structure of reporting lines play an important role in determining the control environment of the organization. For external and internal auditors the control environment can be a useful source of information since it shows the attitudes of the management – the more the top management cares about honesty and ethics the higher the probability the financial statements represent reality. Establishing the proper tone at the top is as important as the development of policies and procedures in order to

investigate suspicion of fraud and fraud after it occurs. The implementation of hotline or a whistleblower policy is important factor at limiting and detecting potential fraud in the financial statements.

- Risk Assessment

Risk assessment is concerned with identification, assessment and management of risks that have likelihood of impeding the achievement of the organizational objectives regarding: operations, external and internal (financial / non-financial) reporting and compliance. Significant changes in the organization are taken into account as well since they could lead to a change in the organization's environment, business model and leadership. Risk assessment plays an important factor in regard to planning since it shows where the organization needs to focus on and address relevant risks. Those risks include fraud risk factors as well as fraud scheme which need to be monitored by appropriate individuals and parties in the organization. Performing fraud risk assessments is crucial for keeping the fraud risk assessment process efficient.

- Control Activities

Control activities are present in all levels of the entity. Their purpose is to make sure that all the procedures and policies are carried out. Any discrepancies need to be identified and corrected. Control activities can include preventive and detective measures to achieve their objective. It is important to define and document specific control and linking them to their corresponding fraud risks. Continual modification of the already existing activities is necessary overtime to make sure that the most effective preventive and detective controls are applied in the organization's environment.

- Information and Communication

Information and communications is concerned with all the external and internal information that needs to be identified, captured and communicated in order for the appropriate parties to carry their responsibilities for day to day operation of the company. The information should flow both vertically and horizontally across the organization to be effective. Information and communication element plays an important role in the preparation of the financial statements. If the information gathered and commutated is not reliable and does not represent reality the financials would reflect this. Moreover education of stakeholders regarding fraud by delivering financial statement fraud awareness trainings is important for its deterrence.

- Monitoring activities

In order internal control to remain capable in fulfilling its functions to meet the needs of the organization, its performance needs to be monitored and assessed. The monitoring activities accomplish this task by providing evaluations on different control mechanisms and provide the basis for their improvement. Overall monitoring shows how effective are the organizational control activities and where the management needs to pay attention in order to provide relevant anti-fraud controls as well as to implement improved technology to assist in the monitoring and detecting of such fraud. It is important that the periodic assessments of the anti-fraud mechanisms comprise of independent party evaluations by the internal audit and other related groups.

Visually the COSO's objectives and their components are represented as a cube as in Figure 2.3. The rows are the components, the slice is the objectives, and the columns are the structure of the entity.

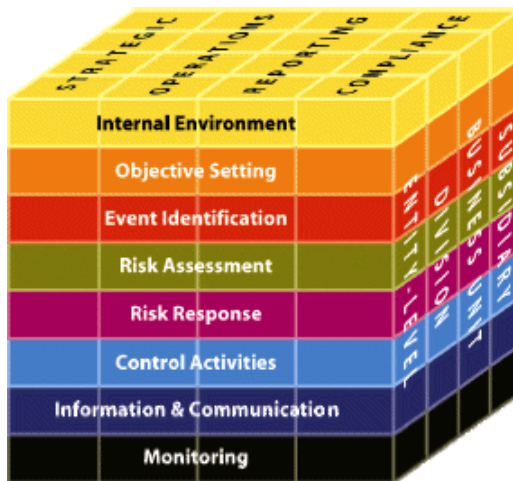


Figure 2.3 COSO framework and its elements

Source: Institute of Internal Auditors, 2016

However this model has not remained static. Dineva (2015) analyses the new concept for the framework named COSO-2013 by pinpointing several major differences between the two: first) the goal of the model remains the same with the exception of expanding the model to include non-financial reporting as well. Second) 17 new principles are added containing 77 focal points expanding on the previous model.

COCO model

The CoCo model was established with the purpose of improving organizational performance by relying on better governance, risk management and control establishment. The model consists of 20 criteria which are gathered in 4 components that held to achieve the organizational objectives of effectiveness and efficiency of operations, reliability of internal and external reporting and compliance with policies laws and regulations (Same as COSO's objectives). Those four components are:

Purpose – represents the direction of the organization and its long term plan for operations including mission vision and strategy and the applicable performance indicators and targets that need to be achieved.

Commitment – represents the integrity and values – or how exactly the entity wishes to achieve its targets. Commitment includes the human resource policies as well as the correct division between authority and accountability in the organization

Capability – represents the competence of individuals in the organization and their ability to fulfil their duties effectively and efficiently as well as the control activities and communication processes in the entity.

Monitoring and Learning – represents the evolution of the organization and its structure based on periodic assessments and evaluations of the internal control and other relevant factors in the internal and external environments.

The COSO and CoCo models emphasize the importance of soft controls – values, ethics, and trust- rather than hard controls which involve the enforcement of specific policies and procedures in day to day activities and responsibilities of individuals.

COBIT

COBIT was released in 1996 by the Information Systems Audit and Control Association (ISACA). It is based on several principles. The value creation as the foremost stakeholder need and principle in the framework. The value creation by itself depends on three components - realization of benefits, optimization of risk and optimal use of resources. The value creation changes in time since the needs of the stakeholders change overtime.

Other principles embedded in the COBIT framework are the application of a single integrated framework that covers the entity end to end in order to ensure proper governance and communicate the desired

information in a proper way, the framework is not specified for a specific entity but rather can be applied regardless of the hardware and software used by the organization.

Moreover seven categories of “enablers” are specified that drive the organization to achieve its objectives: policies, processes, organizational structures, culture (ethics), information, infrastructure and people. Those are applied in a specific way that ensures a clear separation between governance and management. COBIT sees governance as the overall direction of the organization and the oversight of the progress towards it whereas management represents the specific activities that lead to the realization of the general objectives of the entity.

It has to be remembered that no perfect control framework exists for deterring all types of fraud. All of the frameworks are effective as the individuals using them. Limitations include: scenarios arising from human judgment, mistakes, omissions, collusion, management override etc. Last but not least the cost associated with the maintaining the chosen organizational framework must be justified with the benefits provided by it.

In order to prevent financial statement fraud the frameworks need to make sure that all the employees have a clear understanding that this type of fraud is taken in a very serious manner. Moreover proper monitoring and assessment should be done in order to make sure that the control activities are performing as intended and will prevent or detect any tampering with the financial information. As any system of internal control the controls related to financial statement information and reporting should change overtime with the changing of the needs of the stakeholders (both external like regulators, and internal like top management) in order to remain relevant and give reasonable assurance of the risks associated with financial statements.

Once a financial statement fraud has occurred corrective measures need to be taken in order to prevent such fraud in the future such actions include:

Corrective action on the control weaknesses that lead to the financial fraud in first place, as well as their communication to relevant departments/organizations that might have similar weaknesses; Moreover the disciplinary action that the fraudster faces sets a message that such actions are not tolerated and are to be punished accordingly.

All in all the success of any internal control framework that aims to reduce fraud relies on several main factors:

- The commitment of management to establish the tone in the organization – by establishing code of ethics and ethical values as well as main principles to abide by fraud in the organization can be greatly deterred. The requirement for continual affirmation by the employees and other stakeholders to the applicable principles is the way to make sure everyone agrees and understands what is expected from him/her.
- Fraud awareness plays an important role in fraud detection and prevention aspects of combating fraud mainly by providing proper training to employees to recognize red flags and internal control deficiencies relating to fraud. Moreover the communication channels those facilitate the reporting of such acts in form of a whistleblower policies and/or hot line speed up the process and limit the negative effects of fraud. The whistleblower policies should protect reporters of fraud from any retaliation by the parties involved in the fraud.
- The correct assignment of roles and responsibilities in the internal structure of the organization which would include the best execution and application of controls and their related procedures as well as to institute proper oversight. The individuals responsible for policy and program design and implementation need to possess the needed expertise and skill to achieve the assigned goals. Furthermore the evaluation and improvement of the control structure should be systematic and structured also assigned to the appropriate parties in the entity.
- Since the effectiveness of the internal control depends on the individuals a mechanism to address disclosure of any conflicts of interest must be established.

Conclusion

Organizational environment with a stable and effective internal control is one of the key mechanisms being prerequisites to ensuring a successful innovation in economic entities. Each one of the frameworks encompasses different elements aiming towards a singular aim. Only by ensuring a stable and adaptive environment innovation can blossom in organizations.

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MANAGEMENT OF THE INNOVATIVE DEVELOPMENT OF COMPANIES IN TERMS OF THE DIGITAL ECONOMY: TRANSFORMATION OF ORGANIZATIONAL MECHANISMS

Today, market leaders are determined not by a long-term success story, the value of assets, the number of patents or access to capital, but the ability to change the business model in terms of digital economy development. Digital technologies have been developing at an exponential rate, radically changing the essence of business, dematerializing, demonetizing and democratizing all branches of the

national economy. The emergence of Amazon, Netflix, Google, Uber and Apple have destroyed a number of industries and opened new markets. So, we all know the example of Uber, which is not the owner of all machines that provide a service, it does not even have a license for taxi services, but we can watch the result. Technologies appeared during the last decade help to find sources of increasing efficiency and the possibility of additional innovative development of companies and business monetization. And this is only the beginning. Tomorrow's challenges are a rapid innovation development, globalization and competition with free products by creating new products and constantly rethinking the needs of our customers. This is a scaling of the concept of "client" to the category of humanity, which will contribute to the birth of new ambitious goals and business models based on partnership and synergy.

Innovation is a unique strategic tool at the intersection of unconscious human needs, new business models and efficient technologies that can help translate each company's vision into reality. The role of digital technologies in this transformation cannot be overemphasized: only constant modernization and automation of processes can reduce the influence of the human factor and increase efficiency.

Issues of theoretical and practical aspects of strategic management of company innovative development are devoted to scientific studies by famous scientists such as I. Ansoff, L. Balabanova, M. Bilopolsky, A. Voronkova, S. Illiashenko, N. Krasnokutska, R. Mansurov, I. Poddubny, M. Porter, R. Fathutdinov, J. Schumpeter, V. Chubay, A. Yudanov and others.

The innovations are natural powerful means for adaptation to environmental deformations, providing conditions for stable functioning and development. At the same time, it should be noted that market focus is absent in most innovative developments that have been used by companies, and this is considered the main reason for the problems of their innovative development.

Now, more and more often companies have significant problems: traditional management models do not provide the desired results; control functions require the attraction of more workers, additional resources and the complication of managerial hierarchical chains; the decision-making process requires more and more time and information; the number of financial transactions and business combinations exceed the limit, beyond which they did not understand the reasons and

prerequisites that determine the final results of the company. Digital technologies change modern management models, reformat communications, technologies and organizational structure of companies and at the same time, reduce managerial risks, increase unique competitive advantages of companies and increase its efficiency and competitiveness.

Today, companies should focus on their innovation activities to meet the needs and demands of consumers, engage in the search for and implementation of existing and prospective market opportunities. And this causes to increase in the degree of openness of the functioning of the company, as well as close interaction with the external environment, which should be taken into account when building an organizational management structure.

The organizational structure of the company should be based on the optimal distribution of functions between its elements and the formation of such a system of connections between them that allows managers to quickly exchange information, make management decisions and implement them in the optimal time.

At the same time, the management of the company's innovative development is an integral part of the overall management. Each company, regardless of size, plans innovative changes and implements them. But not always for this purpose separate innovative divisions are created. As a rule, implementation of innovations is carried out with the participation of managers and specialists of existing structural links, who perform certain functional duties depending on their place in the management hierarchy. This means that the organizational mechanisms should ensure the ability of the management system to perform all functions, including management of innovation. However, if the management of the organization considers innovations as the main way of gaining competitive advantages, it should construct an organizational structure in which all employees should be involved in the innovation process who capable to produce the interesting ideas and create innovations.

Focus on the innovative development way requires companies: “to identify market trends in a timely manner and to promote new products on the market that are oriented to meeting existing or prospective needs and demands of consumers” [2], fundamental restructuring of management, operating activities that involve the use of marketing tools, spheres and methods of realization of economic potential and which would rely on new business combinations, goods, technologies,

communications, production methods and marketing organization.

The most important task of strategic management of the company innovative development is expedient to determine the increase of its competitiveness. To solve this problem, it is necessary to evaluate strategic alternatives and guidelines for innovative development by searching for new tools to meet the needs of consumers, new approaches to communications, sales and sales channels.

“Traditional modifications of hierarchical management chains do not allow solving existing problems of coordination of functional links horizontally, increasing responsibility and empowering managers of grassroots and middle levels, releasing top managers from operational control, which increases the opportunities for creative activity due to the time released” [3].

The inefficiency of the management models of most domestic companies is manifested in a belated reaction to the pace of changes in the external environment. Therefore, there are fundamentally new problems of interaction with partners, customers, suppliers, power structures for domestic companies (attraction of investment resources, organization of marketing activities, construction of logistics chains, etc.), due to their weak adaptive capacity led to a drop in their competitiveness in world dimension.

Most modern companies are fundamentally not ready to solve basic management problems. The multifaceted nature of the activities of modern companies exacerbates the task of building a management model that is oriented not only to the internal business chain of a company, but also to external business opportunities. The old informal hierarchical management model should be replaced by a new informal one that is based on qualitatively new digital technologies using a network approach.

Therefore to solve new management problems, it is advisable to actively use ICT in activity of domestic companies. In recent years 95.2% of companies have used computers in their work, of which 98.2% of companies used the Internet [4]. The number of companies that received orders through computer networks for the sale of goods or services was 6.0%. The number of companies that carried out purchases through computer networks of goods or services was 17.2% [4].

Of the total number of companies that had access to the Internet, social networks were used by 24% of companies, a website with multimedia content – 12.6% (in 2015 – 11.1%), blogs and microblogs – 6.9% (in 2015 – 5.2%) [4]. Note that companies used social networks

mainly for: representing the company or advertising its work (goods, services); receiving customer feedback or providing answers to their requests; attracting customers to the development or innovation of goods and services; cooperation with business partners or other organizations; hiring of workers; exchange of views, thoughts or knowledge within the company.

Unfortunately, most domestic companies use ICT in a haphazard manner. Small businesses often use ICT to be able to survive alongside big ones. They can coordinate actions such as fulfilling orders or tracking inventory, keeping a small number of personnel. Large companies use ICT to increase maneuverability and sensitivity.

The highest level of computerization was found in companies that carried out activities in the field of information and telecommunications, it is 98.3% of full scope. The lowest level of computerization was observed in companies with activities in the field of administrative and support services (89.1%) [4].

We emphasize that in 2014 in the world, on average, mobile cellular services were used by 96.4 people out of 100, and 43.6 out of 100 people in the world used Internet services. Ukraine had taken seventy-first places in the global rating of technology use. While in 2000 access to the Internet was slightly more than 6% of the world's population, then in 2015 this value exceeded more than 43% (according to the UNO). As a result, 3.2 billion people are already connected to the global network of content and applications. By 2020, 70% of the world's population will have cellular devices, and mobile broadband networks will be available to 90% of the inhabitants of our planet [1].

Accordingly, new management tasks arise for companies, in particularity it is necessary: introduction of a client-focused approach; expansion of sales markets; rapid response to the actions of competitors; qualitative processing of large information arrays; improvement of business communications with partners; activation of innovative processes; diversification of activities; expansion of business combinations; accounting resource and time constraints; provision of 24-hour customer service.

Thus, the transformation of organizational mechanisms for managing the company innovative development should include the following general key provisions: recognition of the human central role; customer focus; democratization and multidimensional management based on a network approach; development of partner chains and communications; proactive nature of management; consideration of the company as an

“open system”; new values; the increasing role of knowledge and innovation and its management; globalization and integration; wide use of information and communication technologies.

New characteristics of the economic space require moving from the cult of efficiency and rationality to shifting the emphasis on openness, democratization, sociologization, the creativity of organizational processes, the non-equilibrium and non-linearity of managerial hierarchical chains, the unpredictability and variety of company development trajectories.

Today causes the necessity for company managers to have access to the Internet, wireless networks have always developed everywhere (the concept of Access Anytime and Anywhere). At present, we are witnessing the emergence of the Internet of Things (IoT), which means an ecosystem of billions (and by some estimates and trillions), of autonomous devices interacting with each other: sensors, controllers, robots, household appliances, cars, machines and the like. In the near future, what is called 5G is viewed, that is a set of organically integrated radio access technologies. We are on the threshold of an incredible revolution that will forever change the world of business. In this new world every manager, every device, regardless of where they are, will exchange information in real time. Over the next 10 years management and business technologies are experiencing more changes than in the last 100 years. “The Internet of Things” will soon radically change the style of business activity and will force to reconsider the fundamental managerial functions. The economy on demand will be a new client-oriented popular model of interaction between business and consumers.

A modern trend is the creation and rapid development of such a phenomenon as e-business (business that is conducted via electronic networks), including e-commerce (e-commerce,). Now the trade is conducted not only in offline mode, but also with the help of the Internet network (online). B-2-C segment of electronic commerce is the most dynamic in the size of the acquisition and sale of goods. The share of the global turnover of the B-2-C segment of electronic commerce is 16.8% of the total trade in services.

Now the quantitative growth of the Internet is gradually acquiring fundamentally new qualitative features, making an active impact on the socio-economic development of companies through various Web technologies. Automated devices begin to integrate successfully into the Internet. From the current trends, it can be assumed that soon off-line Internet sensors will become more than people with mobile phones.

According to forecasts, by 2020 the total number of Web-connected devices to the Internet of things will reach 26 billion. 15 billion of that which will make up cell phones, tablets, laptops and desktop computers. At the same time, the appearance of Internet sensors has caused the spread of environmental sensors.

One of the most promising tools for business is hosting and cloud technologies. These innovations allow you to save finances by reducing capital investments. This is especially true nowadays, as in recent years, more and more domestic companies are trying to minimize investments in the development of their infrastructure. And while “cloud” technologies are used by only 25% of managers of domestic companies, however, many of them plan to switch to this technology or study its advantages.

There is stably high demand in the Ukrainian market for ERP-systems. According to SAP estimates the segment of large companies saturated with these technologies is only 30%. However, the volume of sales of ERP-systems is increasing every year, considering that already now the share of ERP-solutions is almost 13% of the total volume of the Ukrainian software and IT services market. Quite popular for domestic business is the technology HPA (High Performance Analytic Appliance), which allows to process and analyze large amounts of information. Basic business solutions based on such technologies become more relevant.

The business world is now struggling to implement the 5G, the fifth generation mobile network. Although 5G will follow 4G and 3G, the managers are placing much more hope on this network. They expect that it will be different – fundamentally different, since the 5G-Internet is not only an insane data transfer rate, but also a significant revival of the economy, investment in the country, creating new jobs, filling the state budget and new opportunities for companies. 5G affects the economy, changing the usual management technologies and transforming established business models.

The main driving forces of the 5G development can be grouped into four blocks: new confidence models, new delivery service models, an expanded list of threats, and an increase in the level of confidentiality.

Now, the intensification of business activities implies an increase in the degree of openness and interaction with partners. The difficulty, multifacetedness and complexity of such interaction convince in the expediency and effectiveness of the application of the network approach. In fact, the network approach is a response to the challenges,

changes in business conditions and their expectations in economic space of uncertain and threatened information. In fact, it envisages the use of one of the types of horizontal integration, that promotes maximum attraction of available resources; innovations development; building competencies, competitive advantages; innovation, production, information and intellectual potential in the contour of a single multipolar information and communication space. Among the notable advantages of the network approach, it is necessary to allocate increased organizational capacity, more efficient use of resources, increasing competitiveness, expanding the horizon of opportunities to solve complex business problems and improving the quality of services, services for consumers.

The logic of the network approach includes [5]: decentralization, synergy, community, free access, concern for network values, maximization of innovation, multidimensional space, lack of discontinuity, technology balance, expansion of the space of innovative opportunities. Every business in the near future will have to either successfully pass through the processes of digital transformation, or dissolve in the archives of search engines. For each company, this is a change in the organizational culture and the introduction of new digital technologies and communications that expand the capabilities of the company and allow it to form its own so-called “ecosystem” in interaction with its contact audiences.

At the first stage of digital transformation of organizational mechanisms for the innovation development management it is necessary:

- the introduction of unified programs for use in various business units (in particular, a single IT support system – Helpdesk – with unified standards of service and single IT infrastructure, etc.);
- the unification of operational processes in the corporate center and in production units;
- the pilot implementation of selected digital management technologies (in particular, SAP ERP).

The next stage of digital transformation of organizational mechanisms for the innovative development management should be the development of organizational processes in all structural divisions of the company.

Fast, unified, secure and comfortable common information exchange system is extremely important to activate innovative development, especially for rapid decision making, flexibility and operational

efficiency.

At this stage, the key areas for the transformation of organizational mechanisms are:

- technological automation of business processes at companies;
- automation of business communications;
- deep development of IT infrastructure;
- the introduction of a budgeting system and a single electronic document management system;
- providing offices with modern IT tools and mechanisms, new communication channels, networks, data centers and servers;
- transition to a cloud server space.

We emphasize that storing information on remote servers or in the cloud ” is one of the main global trends in the IT industry, it allows, on the one hand, securely storing and effectively managing corporate data. On the other hand, there is rapidly increasing the amount of information repository as needed.

The goal of digital transformation of organizational mechanisms for managing innovative development is the implementation of a successful long-term business strategy of the company on innovative principles, provides for the activation of innovative development and the transition of the usual work processes to a qualitatively new level. At the same time, we note that there is a connection between the investments in IT and the financial results, not of the first order. IT projects are very diverse and very different from each other.

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**STATISTICAL
WASTE
MONITORING**

In order to monitor the implementation of European Union waste policy, the European Union requires regular statistics regarding waste generation and management by businesses and private households. This comprises the basis for the monitoring of the application of the maximization of recovery and safe disposal principles.

Statistical indicators for the evaluation of the application of the waste prevention principle are required, together with the creation of a link between the waste generation data and global, national and regional resource utilization catalogues. At the same time statistical waste monitoring is subject to regular term and classification updates, as well as changes in international guidelines.

In order to ensure comparability among waste statistics results, the terms related to the description and management of waste need to be clear.

The European Union waste policy has led to the creation of a system of principles that need to be followed by the units, generating waste, and when managing them. This necessitates monitoring of the different stages of waste generation, recovery and safe disposal. For comparability, waste statistics must be presented following predefined specifications and time periods.

1. Actions undertaken by the National Statistical Institute of Bulgaria in relation to waste monitoring

The National Statistical Institute of Bulgaria collects data regarding operational waste – generated waste by economic group; generated waste by type of operations; household and construction waste – household and construction waste at national level, household and construction waste in each statistical area and region, household waste at the municipal level; collected solid and liquid waste, cantal waters and ballast; total tax revenue from taxes and charges, expenditure related to household waste – at the national level, and production of packaged

goods and packages.

Waste data is collected through three statistical monitoring approaches, in accordance with Regulation (EC) No 2150 /25.11.2002 on EU waste statistics. Monitoring relates to:

The Regulation lists the types of waste and economic activities, for which representative data at the national level needs to be reported.

A main aim of statistical waste monitoring for operational waste is to provide information regarding the amounts of waste generated from all economic activities, excluding households, and regarding what happens with this waste. The amounts of waste, transferred to other companies for treatment or safe disposal, as well as the amounts of exported waste, are indicated.

Statistical waste monitoring is yearly and based on sampling, in combination with thorough monitoring of certain economic sectors and industries. In the first monitoring approach sampling is based on number of employees. In the second monitoring approach sampling is based on company revenue.

All companies, company units, departments and other legal persons, whose operations lead to the generation, recovery, safe disposal, collection or separation of waste, provide data. Data from the samples are forwarded to the national level using weighting based on number of employees and revenue.

Municipal administrations provide information regarding total revenue from taxes and charges as well as expenditure related to household waste. The National Statistical Institute (NSI) also provides information on waste generated from user or primary packaging, group or secondary packaging, and transport or tertiary packaging, used for the packaging of produce. Data on recycled and burned waste is also available.

A step-wise update of some of the used terms and concepts, suggested by Eurostat, which involve substantial new elements, is merited.

2. Basic terms and concepts

The aim of EC Regulations is the provision of a framework for the presentation of Union statistics regarding the generation, recovery and safe disposal of waste. This framework should encompass the following areas: waste generation; waste recovery and safe disposal; monitoring and control of the transport of waste within, for and from the European

Community.

In order to achieve this aim, the following chief terms are defined:

- **Waste** is any substance or object or part of an object, which the holder discards or intends to discard or is required to discard.

- **Separately collected waste fractions** – household or similar waste, selectively collected in homogeneous fractions by public services, non-profit organizations or private enterprises, working in the area of organized waste collection.

- **Waste recovery or safe disposal facility** – a facility, which requires a permit or registration for its operation;

- **Hazardous waste** – any waste, the content, amount, or properties of which constitute a risk for the human health and environment, with one or more properties, leading to their classification as hazardous, and/or containing components, which make them hazardous and/or are defined as hazardous in the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal;

- **Non-hazardous waste** – any waste not covered by the previous point;

- **Household waste** – waste, generated as a result of human domestic activity in households, administrative, social and public buildings. Household waste also includes waste from stores and manufacture supporting handicraft activities, recreation and entertainment facilities, when it is not hazardous and when its quantity and composition does not prevent it from treatment together with household waste. Generated household waste comprises the sum of collected household waste in depots with organized waste, waste transport and household waste, generated by households, which are not serviced by depots.

- **Burning** – the heat treatment of waste within burning facilities or within facilities for joint burning.

- **Depot** – facility for the safe disposal of waste;

- **Capacity of facilities to burn waste** – the maximal waste burning capacity expressed in tons per annum or gigajoules;

- **Capacity of facilities to recycle waste** – the maximal recycling capacity in tons per annum;

- **Depot capacity** – the remaining depot capacity for safe disposal, measured in tons per annum, at the end of the data reference year;

- **Capacity for safe disposal of other facilities** – the capacity of waste disposal facilities, measured in tons per annum.

3. Collection of statistical data and implementation measures

Member states, while complying with the requirements regarding quality and accuracy, collect statistical data, necessary for characteristic specification, through:

- Studies
- Administrative data collection and collection of data from other sources, for instance in compliance with the requirements of reporting under the European Union law on waste management
- Statistical estimation procedures based on sampling or waste estimates, and
- A combination of all these approaches

When the difficulties in providing a response are reduced, the national statistical bodies have access to the sources of administrative data, in compliance with the limitations and conditions in each member state for the respective competency area.

In order to reduce administrative burden on small enterprises, they are excluded from studies, unless they contribute substantially to the generation of waste. Member states provide data to Eurostat in the appropriate format and within set deadlines.

The Commission develops a program for pilot statistical studies regarding the import and export of waste. The program will be implemented by member states. The pilot studies are carried out with the aim to develop a methodology for regular data collection, regulated under the principles of Union statistics.

The Commission's program for pilot studies is in compliance with special requirements, regarding the scope and coverage of waste, waste categories for their classification, reference years, and periodicity.

The commission finances up to 100% of the expenditures for carrying out of the pilot statistical studies. Based on conclusions from these studies, the Commission informs the European Parliament and Council regarding the capacity to collect statistical data on activities and characteristics, falling within the scope of pilot studies on the import and export of waste.

4. Statistical monitoring of waste generation

Scope – all activities classified in the scope of sections A-Q from NACE REV 1, are subject to statistical reporting. These sections

include, in practice, all types of economic activity. Household waste and waste, generated through operations related to the recovery and safe disposal of waste, are also subject to reporting.

Categories of waste – statistical data on 45 waste categories, in accordance with a summary list, are recorded. The Commission finances up to 100% of the expenditure for pilot studies on categories of waste in this summary list. Regional characteristics involve the population or households, serviced by a system for the collection of mixed household and similar waste (level NUTS 2)

Transfer of the results to Eurostat – results are submitted within eighteen months from the end of the reference year. For each position, listed in the section activities and households, member states specify what percentage of the total waste under the respective position is covered by the collected statistical data.

The characteristic results are collected for sections, subsections, groups and classes under NACE REV 1. For economic activities the statistical units are units of homogenous production.

5. Statistical reporting of the recovery and safe disposal of waste

Scope – statistical information, which should be collected for all facilities for the recovery and safe disposal of waste, which belong to or are part of economic activities under NACE REV 1.

Waste categories – the list of waste categories, for which statistical data should be collected in accordance with each recovery or safe disposal operation, includes: burning, safe disposal (excluding burning), number and operational capacity with regard to the recovery and safe disposal for a region.

The report on quality should include a description regarding the way in which the respective statistical unit affects the distribution of NACE REV 1 data.

6. Statistical waste nomenclature

It's very broad and is therefore not detailed in this study. The nomenclature covers thirteen main sections, which are described in a lot of detail, and under which waste is divided into hazardous and non-hazardous:

- Composite waste;

- Chemical preparation waste;
- Other chemical waste;
- Radioactive waste;
- Medical and biologic waste;
- Metal waste;
- Non-metal waste;
- Discarded equipment;
- Animal and plant waste;
- Mixed regular waste;
- Total sludge;
- Mineral waste;
- Solidified, stabilized or vitrified waste.

7. Statistical reporting of packages and package waste

The statistical reporting of package waste is based on a special Directive of the European Parliament and Council. The Directive aims to harmonize national measures regarding the management of activities, related to packaging and package waste, in order to prevent their environmental impact in member states and other countries, or to mitigate impact by providing a high level of environmental protection. It concerns all packages on the market in the Community and all package waste.

7.1. Main definitions

Package – all products, made from any material, used to package, store, transport, deliver and present goods, from raw materials to processed goods, by the producer or users.

Package waste – any package or packaging material, covered by the definition of waste, excluding production waste;

Management of package waste – the management of activities, related to this waste;

Prevention – lowering of the quantities and environmental hazards from: materials and substances, contained in the packages and package waste, packages and package waste on the level of production process and trade stage, distribution, use and destruction, mostly through the development of “clean” products and technologies;

Reuse – any operation, through which a package, developed and

intended with a minimal number of changes and conversions within its life-cycle, is refilled or reused for the same purpose, for which it was intended, with or without the help of additional products on the market and with the possibility for refilling; such a reused package turns into package waste when it can't be used again;

Recycling – retreatment through a production process for waste, back to the original intended use or for other uses, including organic recycling, but excluding energy recovery;

Economic operators related to packaging – entities delivering packaging materials, producers of packages and persons, who convert, fill, use, import, trade with, and distribute packages, as well as bodies and organizations, established by law;

7.2. Prevention, restoration, recycling

Member states encourage the use of materials, obtained from the recycling of package waste, for the production of packages and other products. To facilitate the collection, reuse and restoration, including recycling, packages should be labelled with information regarding the material/s it contains, so that the respective industry can identify and classify them.

Appropriate information should be placed on the package – either on the package or on the label.

The Committee encourages the development of European standards regarding:

- Criteria and methodologies for the analysis of the life-cycle of packages,
- Methods for the measurement and demonstration of presence of heavy metals and other hazardous substances in packages and their release to the environment,
- Criteria for the minimal content of recycled material in packages,
- Criteria for recycling methods,
- Criteria for biological degradation methods,
- Package labelling criteria

7.3. Information systems

Member states take the necessary measures to ensure the creation of databases regarding packages and package waste in a harmonized

manner. To achieve this aim, databases provide chiefly information about the size, characteristics, and evolution of streams of packages and package waste (including information about toxicity or the hazards arising from packaging materials and components of their production) at the country level.

In order to harmonize the characteristics and the presentation of collected data, and in order to make member state data compatible, they provide the Commission with data following a format, accepted by the Commission.

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**ARTIFICIAL
INTELLIGENCE
SYSTEMS,
LEADERSHIP,
KNOWLEGDE
MANAGEMENT
AND INNOVATIVE
WORK BEHAVIOR**

Successful implementation of the most recent trends in technology has been helping to generate competitive advantage for the business for decades (Bass, 1985; Amabile, 1988). However, it is the phenomenon of recent significant increase of interest in artificial intelligence (AI) that promises to redefine modern business models and has a great impact on management methodology at organizations that will implement it. According to Kolbjørnsrud, Amico and Thomas (2017), previous waves

of technology development and diffusion have already disrupted blue collar and service jobs, but the recent advancements in Artificial Intelligence are forecasted to affect all levels of management, from the C-suite to the front line. While AI implementation for managers at different levels means mainly automation of processes, effective Big Data management and advanced Machine Learning, it is still unclear how adoption of these technologies will affect leadership behaviours of managers and ability of employees to innovate, as well as the knowledge exchange between the two parties, that was proven to be one of the most essential factors defining individual innovative work behaviour (Amabile, 1988).

Therefore, the major research question is as follows: *what is the relationship between AI systems implementation with leadership behaviours for innovation, knowledge management, and individual innovative work behaviour?*

The aim of the paper is to investigate the connection between AI systems implementation construct with leadership behaviours for innovation, knowledge management and individual innovative work behaviour, and to identify whether different stages of AI systems implementation in managers' routine tasks would require specific leadership behaviours to increase the level of individual Innovative Work Behaviour (IWB) of their employees.

To test the linkages between the constructs discussed in the paper, a research is carried out by applying an interview technique followed by content analysis within the international network of AI, Robotics and Machine Learning (ML) consultants of different industries. The reason why this research may be useful and unique in both theoretical and practical terms is that the study focuses on individual innovativeness, leadership and knowledge management in the context of AI systems implementation, rather than on productivity or cost-effectiveness of this technology. The research includes also managerial implications and provides some useful insights for organizations undergoing change management process and redefining the role of the management in this context.

Artificial intelligence systems

The twenty-first century has been experiencing a rapid growth in the amount of data produced by sensors, processes, and activities (Minku, Mendes, & Turhan, 2016). Artificial intelligence can bring a multitude of capabilities to machines which were long thought to belong

exclusively to the human realm: processing natural language or visual information, recognizing patterns, and decision making (McKinsey & Company, Inc., 2017). This puts a start to a new era for businesses worldwide – era of Big Data and Machine Learning (ML) that has already started. Typical applications of AI include autonomous driving, computer vision, decision making, or natural language processing. The most common definition of intelligence was suggested by Sternberg and Salter in 1982, which defined intelligence as “*an ability to adapt effectively to the environment, either by making a change in oneself or by changing the environment or finding a new one*”. This definition is now also used in Encyclopaedia Britannica to describe the term “intelligence”. In the field, the scientists differentiate weak AI and strong AI. According to Kremer (Kremer, 2001), weak AI describes the machines that can be made to act as if they were intelligent, while strong AI defines the machines that do act intelligently, and have real, conscious minds. These definitions are strongly related to the way how the system learns. There are two existing types of machine learning: supervised and unsupervised learning.

AI research uses tools and insights from various fields, including computer science, psychology, philosophy, neuroscience, cognitive science, linguistics, operations research, economics, control theory, probability, optimization and logic. Different researches, depending on their major goals of the research and academic background, define various AI dimensions. The major ones are listed below:

- ***Task supplementation.*** The dimension is used in this research to describe how much of the daily tasks of an employee grouped into certain categories can be replaced by AI system.

- ***Speed of learning.*** The most outstanding feature of AI is the ability to learn in ongoing regime. Depending on specific use case, the amount of data required to train the new system to perform a new function and the time needed for it may vary. Learning abilities of AI can be differentiated based on the need in human supervision. There are supervised and unsupervised methods of machine learning that let AI proceed various sets of information. There are different technical methods that allow to use supervised and unsupervised learning for the machines, depending on the actual need and final goal, amount of available data and hardware capacity (Ranzato, 2015). Considering the wide scope of AI systems implementation, speed of learning in this research is a dimension measured by the **time** needed to build and implement the new system and minimal **amount of data** required for

the system to perform the assigned operation with a smaller or acceptable error rate.

- **Accuracy.** In the context of working with the Big Data, it is important to evaluate if the AI system is performing the assigned function accurately enough, can proceed certain amounts of data, and deliver a required action.

- **Efficiency.** Operational efficiency is connected to how input resources are utilized and achieved when the marginal productivity per unit is equated across all resources that contribute to a firm's output (Keh, Chu, & Xu, 2006). To evaluate the efficiency of the AI system, in this research we refer to typical business dimensions such as **speed** of performed operation, **costs** of performed operation and its **quality**.

So, to conclude, major AI dimensions are task supplementation, speed of learning, accuracy, and efficiency.

Leadership behaviours for innovation

With the changing landscape of business, there is a strong uprising need in a new set of leadership skills that could address the most relevant business challenges and drive forward innovation strategies of the organizations (Webber, 2003; Schepers, Wetzels & de Ruyter, 2005; O'Brien & Robertson, 2009; Kolbjørnsrud, Amico and Thomas, 2017). Leadership, as a concept, has been attractive to researchers for a long time, however, scientists agree: leadership includes too many constructs and variables in it to be defined with absolute clarity. Bass (1990) divided the term of **leadership** into different functions or concepts, which include “a *focus on group process*, a *form of persuasion or influence*, a *power relation*, *initiation of structure* and a *function of personality*” (p. 23).

Behaviour, at the same time, has been more well-defined term and researched a lot by different interdisciplinary studies such as biology, philosophy, psychology, sociology and got a wide implementation in business administration studies. As defined by Minton & Khale (2014), “*behaviour is a range of actions and mannerisms made by individuals, organisms, systems, or artificial entities in conjunction with themselves or their environment, which includes the other systems or organisms around, as well as the (inanimate) physical environment. It is the response of the system to various stimuli or inputs, whether internal or external, conscious or subconscious, overt or covert, and voluntary or involuntary*” (p. 13).

In the context of fast-changing business environment, leadership

behaviours for innovation become a set of abilities, skills and personal traits demonstrated in work environment to foster individual innovative work behaviour of employees. As mentioned by Wallace and Catmull (2014), in business it is important that employees could proactively take ownership for solving arising issues and face challenges. This means that employees must be empowered by their direct manager to be more independent and innovative in seeking possible solutions. This is a real practical implication of IWB in work environment.

Many practitioners and academics endorse the view that individual innovation helps to attain organizational success (Van de Ven, 1986; Amabile, 1988; Axtell et al., 2000; Smith, 2002; Unsworth and Parker, 2003; as cited in De Jong & Den Hartog, 2007). To realize a continuous flow of innovations, employees need to be both willing and able to innovate. De Jong and Den Hartog (2007) researched 13 leadership behaviours that stimulate employees' individual innovative work behaviour in two main areas: idea initiation and implementation. Among these 13 behaviours, there are 6 items that significantly influenced individual innovative work behaviour of the respondents. Those are: ***Consulting, Delegating, Support for innovation, Recognizing, Providing resources and Task assignment*** with the highest scores from the respondents of the research. In the current research, De Jong and Den Hartog's classification is used to measure the top-6 leadership behaviours for innovation in context of AI systems implementation.

Knowledge management

Globalization has influenced business worldwide in a new and different competitive way where knowledgeable and effective behaviours have arrived to provide the competitive edge. These days, many organizations are striving to improve their competitive position through better usage of knowledge, looking for new ways to harness and enhance the expertise and intellectual capital they possess, while aiming to continuously leverage them into new applied knowledge (Nonaka, 1991; Wiig, 1993; 1997; Wilkins et al., 1997; Davenport & Prusak, 1998; as cited in Metaxiotis et al, 2003). Information and communication technologies support managing of knowledge. Without some degree of automation none of the contemporary knowledge management systems can succeed (Fernandes, 2000; as cited in Birzniece, 2011). Therefore, within the framework of the role of fast-emerging technologies in knowledge management, the role of AI in various forms stirs particular interest.

Knowledge can be defined as a combination of experience, values and expert insight that assist, evaluate and incorporate new experience and information (Abdullah & Sinha, 2009; as cited in Rashid, Bin Hassan & Al-Oqaili, 2015). Knowledge is divided into several types, and the most common ones are explicit and tacit knowledge (Nonaka & Takeuchi, 1995). Explicit knowledge is *the experience that can be formalized, documented, archived, codified and easily accessed by others because it can be expressed in words and numbers that can be managed* (Duffy, 2001; as cited in Rashid, Bin Hassan & Al-Oqaili, 2015). Tacit knowledge is *non-codified, disembodied know how that is acquired in the informal take – up of learned behaviour and procedures* (Howells, 1995; as cited in Richards & Busch, 2000).

Knowledge management is *the formal process of determining what internally held information could be used to benefit a company and ensuring that this information is easily made available to those who need it* (Roy, 2002; as cited in Harlow, 2008). Knowledge management has also been defined as the effective use of systems to collect, use, and reuse knowledge within the firm (Davis, 2002). Knowledge management is a strategic process, the desired goal of which is to harness the value of information by integrating it with processes that govern the manipulation of intellectual assets (Loshin, 2001; as cited in Overall, 2015). According to Fruin (1997), knowledge creation, knowledge integration and knowledge transfer are interconnected elements that define and become the outcome of team work, innovation and knowledge renewal.

In this paper, a framework developed by Seng, Zannes, and Pace (2002) is be used. The model includes 5 stages of knowledge management.

- **Capturing knowledge.** This stage includes recording the steps involved into problem solving.

- **Storing knowledge.** This stage describes the process of storing the captured information in a database, warehouse, application, or some other production system.

- **Processing knowledge.** This stage involves sorting, filtering, organizing, analysing, comparing, correlating, and mining the knowledge within the organization.

- **Sharing knowledge.** This stage includes distributing knowledge through information systems or through personal interaction, synchronously or asynchronously.

- **Using knowledge.** The last stage describes solving problems while

using the captured knowledge to advance the objectives of the organization.

Individual innovative work behaviour

In today's world, innovative work behaviour is the factor that significantly influences organizational innovativeness, and hence, the ability to generate the competitive advantage of the business (McLean, 2005; Khalili, 2016). In all sectors of the global marketplace, creative solutions to complex problems are critical for success (Agarwal, 2013). In this context, individual innovativeness and creative thinking gained attention of the businesses of various scopes worldwide. Current scientific discourse suggests that the main source of organizational innovativeness lays in employees and their innovative work behaviour stimulated by individual creativity (Amabile, 1997; Janssen, 2000; as cited in De Jong & Den Hartog, 2008; Mumford et al, 2002 as cited in Khalili, 2016). With this, focus on individual innovative work behaviour results in improvements in overall organizational innovativeness.

According to De Jong & Den Hartog (2008), innovation theory has continuously been stressing that innovation is broader than only creativity and contains the implementation of ideas (King & Anderson, 2002). Amabile (1988) underlined, that innovation is about successful implementation of new creative ideas. With this, IWB includes both: idea generation and those behaviours that are needed to implement ideas and achieve improvements that will enhance personal and/or business performance. Farr and Ford (1990) suggested, that innovative work behaviour can be defined as *“an individual's behaviour that aims to achieve the initiation and intentional introduction (within a work role, group or organization) of new and useful ideas, processes, product and procedures”* (p. 63). The four-dimensional model of De Jong and Den Hartog (2010) is used in this paper to measure the construct of IWB. The dimensions include: opportunity exploration, idea generation, idea championing and idea implementation.

Opportunity exploration stage is based on identification of possible potential improvements in products, services and incremental processes. Innovation usually starts with the detection of performance gaps – the mismatches between actual and potential performance (De Jong, 2007). According to De Jong and Den Hartog (2010), realization of a need for innovation can happen by chance, or, for instance, as a quick and needed response to suddenly occurred problem.

Idea Generation stage comes into play when potential opportunity

was identified and involves reorganization of available information into a clear concept. A creative idea is a necessary condition for innovation as it precedes the exploitation of opportunities. The key to Idea Generation appears to be the combination and reorganization of information and existing concepts to solve problems and/or to improve performance (De Jong, 2007).

Idea Championing stage describes the process of promotion of new ideas in organization and acquisition of the power required to transform an idea into reality (Kanter, 1988; Kroes, 2015; as cited in De Jong, 2007). This stage includes creation of coalitions to build support for the proposed innovation within the organizations and persuade other stakeholders to become a part of the implementation process.

Idea Implementation means doing what is needed to transform ideas into reality, it includes behaviours such as developing new products or work processes, and testing and modifying them (e.g. Van de Ven, 1986; Kanter, 1988; West & Farr, 1990; as cited in De Jong, 2007). It is the final element of innovative work behaviour construct and it represents the introduction of new ideas into regular organizational processes and its diffusion (De Jong & Den Hartog, 2010).

Based on West & Farr's (1989) definition, IWB in this research will be presented as an individual behaviour that involves intentional generation and implementation of new ideas, products, processes or procedures, that include specific benefit to the individual and the organization. The construct will be analysed based on four major dimensions presented by De Jong & Den Hartog (2010) – opportunity exploration, idea generation, idea championing and idea implementation.

Construct relationship analysis

Antecedents of IWB

Individual innovative work behaviour was researched in correlation with various constructs and variables. In this research we focus mainly on leadership (work group/organizational level), knowledge management (work group/organizational level), and AI systems implementation (organizational level/environment) and their impact on IWB. For the purposes of this research, the model suggested by West (2014) is used. In his study, West refers to so-called Communities of Innovation – any group of people focused on producing innovative outputs in a collaborative environment. In this concept, there are three

group of factors that determine individual innovative work behaviour of the members of a community of innovation. The groups include individual but socially influenced factors, group-level factors and organizational level factors. ***Individual but socially influenced factors*** connect a set of individual traits and aspects that determine individual innovation from the perspective of work ethic and motivation (so called Hacker ethic), dynamic expertise and entrepreneurship and autonomy. ***Group level factors*** represent a set of various traits and features that can stimulate collaborative innovation process. ***Organizational level factors*** include flexible and organic organization; productive failure; promoting mastery, purpose and autonomy; community and psychological safety.

Relationship between Leadership behaviours for innovation and IWB Leadership is a dynamic, evolving phenomenon, which is strongly dependent on the needs and structures of societies and communities at any given time (Marques, 2015). Despite the difference in leadership style, that typically describes the traits and features of leader in regards to team performance, in this research we will focus on the model of 13 leadership behaviours for innovation, developed by De Jong and Den Hartog (2010). However, from the above-mentioned 13 leadership behaviours for innovation only 6 showed significant impact on IWB in the research of De Jong (2007). Those behaviours are: ***Consulting, Delegating, Support for Innovation, Recognizing, Providing Resources and Task Assignment.***

Relationship between Knowledge Management and IWB

Innovation is one of the most knowledge-intensive activities, which encompasses the collective knowledge within an organization (Caselli et al., 2009; as cited in Overall, 2015). Collective knowledge and skill-set within an organization become a crucial resource to achieve success (Chisholm & Nielson, 2009; Henton, Melville, & Walesh, 2009; Mention, 2012; as cited in Overall, 2015). With this, it is important to understand the relationship between these two constructs. The interactionist model of organizational creativity and innovation proposed by Woodman et al. (1993) described “knowledge” as one of the components of individual creativity and “social information” as the mechanism for sharing such knowledge at an interpersonal level. In the conceptual framework of innovation and performance (Figure 2.4), the relationship between leadership, relationship quality (Leader-Member Exchange), and knowledge management are postulated to have positive impact on innovation and performance.

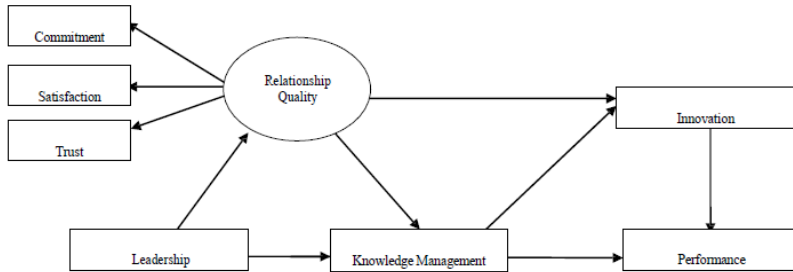


Figure 2.4 Framework of innovation and performance
 Source: Overall, 2015

In this research the idea of knowledge management having a strong influence on individual innovative work behaviour is used and elaborated.

AI as a new factor in existing relationship

Although previous researches have confirmed work automation, work standardization or information and communication technologies to have negative relationship with IWB (Hsieh & Hsieh, 2001; Luoh, Tsaur & Tang, 2014; Giustiniano, Lombardi & Cavaliere, 2016), the situation can be different when talking about AI systems. Job standardization refers to what extent employees should follow Standard Operations Procedure (SOP) to execute a task, including the degree of synergy between the hardware and software in use (Hsieh and Hsieh, 2001). In a formalized working environment, the opportunity to adapt non-standard and informal task environments is undermined (Kelley et al., 1996), as employees are expected to obey the rules rather than to develop new behavioural patterns (Cardinal, 2001; as cited in Luoh, Tsaur & Tang, 2014). This becomes especially relevant in context of the Big Data and Machine Learning opportunities.

Conducted literature review revealed significant lack of materials describing relationships between AI systems as a mediator or moderator in connection between leadership, knowledge management and individual innovative work behaviour. It is connected mainly to the novelty of the mass implementation of AI systems and speed of the technical development. To the authors' knowledge, there is also a gap in research of the impact of AI systems implementation on manager's

behaviour and on leadership practices. Thus, the **research question** is formulated as follows: *what is the relationship between AI systems implementation, leadership behaviours for innovation, knowledge management and individual innovative work behaviour?* It is followed by the uprising research issues:

RI1: How AI system implementation can be measured?

RI2: What is the connection between the AI systems implementation and leadership behaviours for innovation?

RI3: What is the connection between the AI systems implementation and knowledge management?

RI4: What is the connection between the AI systems implementation and IWB?

However, in order to investigate the proposed relationships and answer the research question, an empirical study is carried out. The **goal** of the research is to clarify the connection between the AI systems implementation and leadership behaviours for innovation, knowledge management and individual innovative work behaviour in modern business context. In order to illustrate the main idea and foundations of the research, a theoretical model was prepared (Figure 2.5).

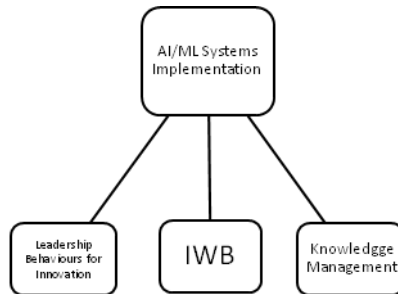


Figure 2.5 Theoretical model

Research instrument

The interview guide was designed to conduct content analysis based on four main constructs or the research: leadership behaviours for innovation, knowledge management, IWB and AI systems implementation. The research instrument is based on several different scales:

- **AI systems implementation** construct, due to its complexity, has to be broken down to the measurements of speed and

efficiency of machine learning. According to Ranzato (2015), every machine learning process is based on unique metrics and includes unique items for learning, depending on the specific of the use case.

- **Leadership behaviours for innovation** as a construct can be measured through the adaptation of the framework suggested in the research of De Jong (2007). The suggested scale focuses on 6 out of 13 behaviours for innovation that showed the strongest relationship to IWB.
- **Knowledge management** construct was operationalized based on the scale of Seng, Zannes, and Pace (2002).
- In order to measure construct of **Innovative Work Behaviour** (IWB), the scale developed by De Jong and Den Hartog (2008) was applied.

Research sample

The main AI respondents for the research were representatives from the Allianz Technology Global Headquarters – the digital backbone of the Allianz group of companies – one of the largest insurance and investments companies in the world that is currently undergoing change management process, related to digital transformation and AI systems global roll-out. Allianz Technology Innovation and HR departments, as the driving forces of the global transformation, have agreed to participate in the study in exchange for the accessibility to the results. The selected company was regarded as a suitable sample for the research primarily due to the following reasons:

Incorporation of high scale process global innovations in robotics ensures the innovativeness of organization. Particularly for this study, approaching organization with an active process innovation is more efficient, comparing to companies that focus solely on product innovation, since process innovation ensures that employees from all layers (without exceptions), are required to exert IWB at least to certain degree. With more than 7000 employees globally (500 working in innovations and HR), the company can be officially considered as a large organization. This fact significantly increases the probability to target individuals demonstrating different leadership behaviours or experiencing those from their leaders. Finally, IWB and AI relationship topic is not industry-related, therefore the research can be carried out in any industry undergoing AI systems implementation and having the necessity in stimulating IWB among its employees. Basic organizational

structure that includes hierarchy also is necessary to see the correlation with leadership behaviours for innovation.

Data collection method

Secondary data was collected through the literature review, online consultancies with the IT specialists in the field of AI and Machine Learning (ML) worldwide, including Microsoft AI Most Valued Professionals and Google Cloud Automation Department manager, as well as during IT Literacy workshop hosted by Allianz Technology for non-IT managers. The above-mentioned consultants also took active part in shaping the questionnaire for the interviewees and pilot interviews. To increase the probability of participation, respondents were granted anonymity. Primary data was collected during the physical or virtual semi-structured interviews with the selected respondents meeting the requirements that were recorded ending up with representation of 14 different ML use cases starting from pharmacology and chemistry, ending with insurance business and recruitment.

Empirical research results

Content analysis started with *Open coding*, where the basic units of the analysis were formed from distinct concepts and categories (Riffe, Lacy & Fico, 2005). Open coding also became the brief outline of the analysis. The second stage of the analysis was done through *Axial coding*. According to Riffe, Lacy & Fico (2005), in this stage, the previously defined concepts and categories are challenged from the perspective of representing the interviewees' responses and possible correlations. The third stage was dedicated to the final outcomes of the analysis, represented in the respondents' *data matrixes*, including the collected feedback from the experts (Aulls, 2004). Categorization of the available data followed the first stage. Categories that were defined in this stage: *General questions, AI and ML systems characteristics, Leadership behaviours for innovation, Knowledge Management, and Innovative Work Behaviour*, reflecting the main research issues.

One of the suggested criteria to measure AI implementation was the amount of data needed for the software to perform the operation with a smaller or acceptable error rate. All respondents mentioned that the amount of required data significantly varies from case to case and cannot be generalized, however, certainly can be defined in a narrower classification based on concrete AI/ML use cases. The respondents have used different measurement units and different technology for data processing, therefore it appeared to be impossible to apply the same

measurement units for all the variety of the use cases in this research. Another suggested criteria to measure AI systems implementation was the accuracy, measured in percentage comparing to the software error rate. In all cases, the accuracy was higher than 70%. Summing up, while business majorly is not familiar with the technology, or expects from ML and AI technologies faster processes, automation and cost reduction, the real shows that everything depends on data input in the specific use case, and the time of software development can vary from 1,5 weeks to couple of years. Minimal amount of data needed, and accuracy also can vary, and depend on the use case.

Task supplementation and replacement

The research aimed to measure AI systems implementation from the perspective of actual replacement or supplementation for existing tasks in the categories of Coordination and Controlling, Solving Problems and Collaboration, People and Community, and Strategy and Innovation. It turned, that absolute automation is still far away. When Kolbjørnsrud, Amico and Thomas (2017) were discussing possible 56% of tasks automation in Coordination and Controlling, the respondents in this research envisioned possible automation on the level from 26% to 50% of everyday tasks from this category. 20% of respondents thought that the automation was possible only up to 25% of tasks, and 13,3% envisioned automation up to 75%. In the category of Solving problems and Collaboration Kolbjørnsrud, Amico and Thomas (2017) discovered that 31% of everyday tasks could be possibly automated and replaced by AI systems. 40% of respondents in this research were more optimistic, envisioning up to 75% of possible automation in this area of responsibilities. Other respondents could think of 20%-50% automated tasks (26,7%) or less than 25% (26,7%). 7% thought that automation up to 100% of tasks in this category was possible. Possible automation of tasks in People and Community category, according to Kolbjørnsrud, Amico and Thomas (2017), was 5%. 86,7% of respondents in this research agreed ranking the possible automation in this area with <25%. Exceptionally, 6,6% of respondents were sure that community management and people communication could be fully automated by the ML solutions (up to 100%), and 6,6% of respondents ranked the possible automation with potential 50%. According to Kolbjørnsrud, Amico and Thomas (2017), possible automation in the category of Strategy and Innovation was 8%. Looking at this category from the perspective of trends detection and Big Data processing, 40% of the

respondents in this research rated this category with 25%-50% of possible tasks automation. 26,7% of the respondents could envision automation up to 75%, 26,7% of the respondents could see <25% of tasks in this category automated and 6,6% could envision automation reaching 100% of tasks.

Coming back to the main expectations of business about process automation, we can say that at the current stage of development automation of basic everyday responsibilities do not exceed 75% of tasks related to Solving problems and Collaboration, 50% in tasks of Coordination and Controlling, as well as Innovation and Strategy, and 25% in People and Community, in majority not reaching the mentioned benchmarks.

AI/ML solutions efficiency

One more question aimed to evaluate the efficiency of existing AI/ML software based on such indices as Speed of performed operation, Costs of performed operation and Quality of performed operation and correspondence with the existing expectations for the systems. Talking about the speed of performed operations, current stage of development of technologies fully meets the expectations from business, as 60% of respondents mentioned. In rare case, (20%) it even exceeded the expectations. More uncommonly it had slight improvements (13,3%) or improvements meeting the expectations partially (6,7%). Costs of performed operations were rated slightly differently, with 40% of respondents marking that costs fully met the expectations, 33,3% being sure that improvements in costs exceeded the expectations, 20% sharing that improvements in costs met expectations only partially and 6,7% indicating that there were no improvements in costs. Quality was also rated relatively high, with 53,3% respondents marking that improvements were fully meeting the expectations, with 6,7% sharing that they even exceeded the expectations, and others mentioning that expectations were met partially (33,3%) or that there were slight improvements (6,7%).

Overall, we can see positive trends, starting with slight improvements in operations, ending with AI/ML solutions partially or fully meeting the expectations of business when it comes to the question of efficiency. Cost efficiency tend to exceed the expectations of business, while there is still a way to go for quality improvements. Current level of speed of AI/ML solutions is already state of art and does not cause concerns from business at this stage. Tackling the raised

research issue about measuring AI systems implementation, the scales used in the research can be used for measuring AI implementation with certain limitations that will be discussed in the next chapter.

Knowledge management

This part of the chapter presents the findings from the primary and secondary data, labelled as *Knowledge management* (KM).

Capturing knowledge. According to Seng, Zannes, and Pace (2002), this stage describes the ways of recording the steps involved into problem solving. 71,4% of respondents stressed the significantly increased data input as the main change that came with the implementation of AI/ML system. With this, 50% of the respondents agreed that certain standardization for the ways of recording and capturing information was needed, and that usually came in play at that stage. 42,8% of the respondents described availability and accessibility of data as one of the crucial factors that defined the changes in capturing knowledge.

Storing knowledge. This stage of KM describes the process of storing the captured information in a database, warehouse, application, or some other production system. According to 71,4% of the respondents, with AI/ML software main change in this area was connected to transition to more dynamic databases, such as Cloud services, Hadoop or Blockchain that is explained with a need in affordable storage with immense capacity. Another definite difference was connected to mass openness of data and fast-growing amounts of it (35,7%). With this, 35,7% of the respondents agreed on the need in more structured, catalogued storing. 7,1% of the respondents did not see any changes needed in the process of storing knowledge.

Processing knowledge. As it was mentioned before, this stage involves sorting, filtering, organizing, analysing, comparing, correlating, and mining the knowledge within the organization. 100% of the respondents agreed, that all these functions within knowledge processing could be automated after AI/ML system implementation. It would depend on stability and quality of data input, domain expertise and resources within the company. On this stage of KM, AI/ML solution could process much more information than a human being would ever be capable to, and the software could do it in much less time. With automation, the change in processing knowledge would be related to reading and understanding the output received from AI/ML solution.

Sharing knowledge. According to Seng, Zannes, and Pace (2002),

this stage includes distributing knowledge through information systems or through personal interaction, synchronously or asynchronously. All the respondents mentioned increased importance of knowledge sharing and knowledge transfer. 85,7% of the respondents outlined the increased need in learning and additional education about the new systems for the employees, stressing mainly physical meetings, trainings and workshops about new software. 71,4% of respondents agreed that with the introduction of the new AI/ML systems, there was also more personal interaction within the affected departments, as well as proactive approach towards the consultancies with the domain experts and cross-departmental collaboration. 14,2% of the respondents pointed out that at this stage, transparency of the information might change the traditional ways of knowledge sharing, introducing more self-learning and digital learning. Transparency of the data could also significantly affect interaction between the stakeholders within the company. 7,1% of the respondents did not see AI/ML systems implementation influence on knowledge sharing processes.

Using knowledge. The last stage of KM describes solving problems while using the captured knowledge to advance the objectives of the organization (Seng, Zannes, and Pace, 2002). 85,7% of the respondents agreed, that solving problems would be affected by fast and easy access to relevant information, provided by AI/ML solutions. AI/ML systems could process huge amounts of data simultaneously and provide the required information in no time. 71,4% of the respondents mentioned that this would impact the decision-making process, fostering more data-driven approach on all the levels. 35,7% stressed the importance of adapted insights from Big Data, where it was possible to see the trends and understand the presented analysis without sophisticated domain knowledge.

It was agreed that implementation of AI/ML solutions would significantly affect KM practices, bringing more structure and standardization, open sources, availability and transparency of data, changes in technical set-up connected to more dynamic data bases and growing amounts of collected information and data input, fostering learning and self-learning culture, empowering personal interaction and exchange through information systems, and enabling faster data-driven decision-making process.

Leadership behaviours for innovation

In this block, the primary and secondary data collected and labelled

as *Leadership behaviours for innovation* is presented and summarized from the perspective of relationship to AI/ML systems. This block aims to find the answer to RI2: What is the connection between the AI systems implementation and leadership behaviours for innovation? Based on the framework, suggested by De Jong and Den Hartog (2007), changes in 6 key leadership behaviours for innovation were evaluated by the respondents, comparing how these behaviours evolve after implementation of AI/ML solution in the company.

Consulting. According to De Jong and Den Hartog (2007), consulting as leadership behaviour for innovation includes checking with people before initiating changes that may affect them, incorporating their ideas and suggestions in decisions. However, 71,4% of the interview respondents stressed visible increase in coordination and collaboration within teams after AI/ML solution implementation, based on the need of consultancy from both sides – management and subordinates. 28,5% did not observe any changes in this behaviour and 21,4% outline increase in feedback exchange, serving consulting purposes. However, according to De Jong and Den Hartog (2007), organizing feedback is considered as a separate leadership behaviour for innovation. Overall, all the respondents observed some changes in consulting behaviour.

Delegating. According to De Jong and Den Hartog (2007), delegating includes giving subordinates sufficient autonomy to determine relatively independently how to do a job. 71,4% of the respondents agreed about significant increase in autonomy and freedom to carry out work assignments after implementation of AI/ML system. 35,7% noted increase in empowerment from managers. 28,5% of the respondents stressed the importance of the freed-up capacities after the implementation of AI/ML solution, influencing the task delegation. 21,4% did not see any significant changes in delegating since AI/ML solution implementation.

Support for innovation. According to De Jong and Den Hartog (2007), support for innovation involves acting friendly to innovative employees, being patient and helpful, listening, looking out for someone's interests if problems arise. In this research, 92,8% of the respondents agreed that management became more open and receptive towards the new ideas coming from the employees in case of successful implementation of AI/ML solution, where they could see increased efficiency. 28,5% also noted, that in case of success management acted like role models in adapting the new systems and trying out all the

features themselves, spreading the positive feedback. 7,14% of the respondents did not observe any changes in support for innovation from the management.

Recognizing. When it comes to fostering innovative mindset, recognition of innovative efforts cannot be underestimated. As described by De Jong and Den Hartog (2007), recognition is about showing appreciation for innovative performances. 50% of the respondents in this research could notice increase in appreciation coming from management for innovative efforts and ideas of employees, however, 42,8% did not see any change in this leadership behaviour. 28,5% observed increase in rewarding, although rewarding is presented by De Jong and Den Hartog (2007) as separate behaviour.

Providing resources. De Jong and Den Hartog (2007) outline providing resources as a leadership behaviour for innovation and describe it as providing time and money to implement ideas. Based on the interviewees' insights, one more resource has been added to the evaluation: human resource. 100% of the respondents had observed increase in HR allocation for the new projects after successful implementation of the first AI/ML solution. 85,7% of the respondents agreed that typically financing increased as well. 78,5% had observed increase in managements' time allocated for the new projects development. Overall, all the respondents observed changes in resource allocation happening.

Task assignment. According to De Jong and Den Hartog (2007), this behaviour includes providing employees with challenging tasks, making allowance for employees' commitment when assigning tasks. This behaviour had been to have proven strong impact on IWB in various researches. After AI/ML solution implementation, according to the primary data, certain capacities are freed up, and as people receive more autonomy and freedom to carry out their assignments, 57,1% of the respondents agreed that the job description was enhanced, and subordinates could focus more on other tasks, apart from those being automated by the new system. 35,7% of the respondents observed new challenging tasks emerging with the implementation of the AI/ML software. 7,1% did not see any changes in the pattern of work assignments as necessary.

Finally, some important trends in managers' behaviour become visible: coordination and collaboration within teams significantly increased after implementation of AI/ML solutions, so did the autonomy and freedom to carry out tasks and assignments. Managers tend to open

for new ideas and act supportively in case of success of the first AI/ML solution implementation. There are much less changes happening in recognizing the innovative efforts, with a slight increase in appreciation. All the respondents agreed that with success of the first AI/ML solution more resources such as finance, time and human resources were allocated for the new innovative projects that involve new technology. There were slight changes in the pattern of work assignments, with majority of the respondents mentioning the job description enhancement and more focus on non-automated tasks, and some respondents mentioning emerging new tasks and jobs related to data management.

Innovative Work

This part is dedicated to discussion of the specific category of primary and secondary data, labelled as *Innovative work behaviour*, as the last research issue of this paper says: R14: What is the connection between the AI systems implementation and IWB?

Opportunity exploration. According to De Jong and Den Hartog (2008), first stage of IWB is called opportunity exploration and is described as identification of potential improvements in products, services and incremental processes. In this research, 71,4% of the respondents agreed that after implementation of AI/ML solution the interest of employees in new technologies tend to increase. 71,4% of the respondents also had observed the employees trying to think of application of new technologies to other problems, sometimes even out-of-the-box cases. 7,1% mentioned possible resistance of the employees to the new technologies in case of poor change management.

Idea generation. This stage, according to De Jong and Den Hartog (2008), is characterized by reorganization of available information into a clear concept how to solve certain problem, after an opportunity had been identified. According to the 78,5% of the respondents, employees tend to use more data to drive their creativity. With implementation of AI/ML solutions, they had wider overview of the current context, and more data to understand this context. Based on this, they thought of original approach to the old problems, applying AI/ML technologies. 21.4% of the respondents had observed significant increase in creativity. All the respondents agreed, that there was at least a slight change in employees' behaviour at this stage.

Idea championing. De Jong and Den Hartog (2007) described idea championing as a separate stage in IWB that involves process of promotion of new ideas in organization and acquisition of the power

necessary to move the idea into reality. In this paper, idea championing related question aimed to identify changes in the relationships with the key stakeholders involved into innovation process after AI/ML system implementation. 57,1% of the respondents marked, that these relationships tend to improve, stakeholders tend to be more involved after the implementation of the new software and after seeing first successes, they were usually more in favour of future innovations that involve AI/ML. 42,8%, however, did not see any significant changes in the relationships with the key stakeholders. 28,5% observed more flexibility in the relationships with the key stakeholders, not necessary meaning the improvement, but promoting less pressure in innovation process.

Idea implementation. At this stage De Jong and Den Hartog (2007) were describing the process of doing what is needed to transform ideas into reality, including development of new products or work processes, as well as testing and modifying them. The respondents in this research had to evaluate whether the extent to which new ideas get implemented within the department where AI/ML solution has been introduced increased or decreased. 100% of the respondents agreed, that after introduction of first AI/ML solution in the company or department, there was a high probability that more and more AI/ML software would be introduced afterwards, more resources would be allocated for these purposes and there was more probability of success, as people would be already familiar with the technology.

Based on the primary data collected, IWB tends to improve after implementation of AI/ML solutions, starting with increased interest in the new technologies and a desire to expand AI/ML solutions to different areas of application, followed by data-driven creativity and idea generation, improved relationships with the key stakeholders or certain degree of flexibility appearing in this relationships, facilitating and supporting innovation process, ending with definite increase in implementation of innovative ideas.

AI systems implementation

Despite wide spectrum of business representatives that have participated in the interviews, the pattern of managerial expectations appeared to be clear: 50% of the respondents expected faster processes, 42,8% ranked process automation and cost reduction among the top expectations. However, 64,2% of the respondents agreed, that people tend not to have any expectations, or have a vague idea of AI and ML

functions, that is created by the influence of media and does not present the current state of AI development. The main features of AI, such as processing Big Data and making sense of it with high accuracy, were rated very low (21,4%). With this data, we know that managers do not typically expect AI having any impact on the organizational practices, and that the key functions of AI and ML are underestimated by the business, being replaced by superficial features like faster processes instead. From the perspective of measurement of AI system implementation, the development of common scale and dimensions in non-technical terms for various use cases is possible, based on the time needed for the development of the solution, minimal data input and accuracy. It is recommended to add to the scale the specifics of the use case, more technical details, as well as efficiency measures mentioned earlier, such as speed, costs and quality of the performed operation.

Relationship between AI and Leadership behaviours

One of the research issues of this paper was the impact of AI systems implementation on leadership behaviours for innovation. As leadership behaviours for innovation, 6 the most highly rated behaviours from De Jong study have been picked, including consulting, delegating, support for innovation, recognizing an innovative effort, support with resources and task assignment. With the implementation of AI systems, managers did not change these behaviours significantly, however, certain trends had been observed. 71,4% of the respondents had observed increase in coordination and collaboration after the AI system implementation. 71,4% also agreed that there was more autonomy and freedom after the AI system implementation. 92,8% have agreed that managers tend to become more open, receptive and supportive for innovative ideas of their subordinates after AI system implementation. Recognizing an innovative effort, however, does not change significantly, as 42,8% of the respondents shared, with 50% mentioning slight increase in appreciation coming from management. 100% of the respondents agreed, that management started to allocate more resources such as financial, time or human resources, for development of innovative ideas after AI system implementation. In the pattern of work assignments, 57,1% of the respondents agreed that subordinates could focus on important, meaningful parts of the job and enhance their current job description after AI system implementation and successful automation of certain part of the tasks. With these results, it is possible that change in leadership behaviours of management will also affect IWB of their

subordinates.

Relationship between AI and Knowledge Management

One of the research issues raised in this paper was the connection between AI systems implementation and Knowledge Management. As it was previously mentioned, in the research of Sheng et al. (2013), the idea of ICT accelerating knowledge sharing and collaboration between colleagues was tested and confirmed positive, which, however, was not the case in the study of Giustiniano, Lombardi & Cavaliere (2016). With AI systems implementation, there was rapid increase of data input, as confirmed by 71,4% of respondents, almost absolute availability of different sets of data (mentioned by 42,8% of the respondents), and standardization of capturing and recording procedures to make sense of the available data (mentioned by 50% of the respondents). Human effort and domain knowledge was needed to transfer the collected information into knowledge or intelligence. Capturing and recording the knowledge was followed by storing it. In this stage, 71,4% of the respondents agreed about the need to transition to more dynamic data bases that could support fast-growing amounts of data. Storing also must become more structured, as 35,7% of the respondents believed, to ensure easy access to the relevant information any time. 100% of the respondents agreed, that knowledge processing, including sorting, filtering, organizing, analysing, comparing, correlating and mining the knowledge, depending on the use case, could be fully automated with AI/ML solutions, with lower or higher extent of human interference. Majority of the respondents agreed, that AI/ML systems implementation would have positive impact on knowledge transfer and knowledge sharing. 85,7% of the respondents envisioned more learning activities organized in order to provide needed education about the new systems. 71,4% observed increased interaction and exchange of valuable information for self-learning. Using the knowledge with AI systems implementation was more efficient, based on 85,7% of the respondents outlining fast and easy access to the needed information, and 71,4% mentioning data-driven decision making on all the organizational levels. Amabile (1988) has considered domain-related skills and knowledge as one of the components of the model of organizational creativity. Looking at the results of the knowledge management-related questions, we can assume that improvements in knowledge management connected to AI systems implementation, can potentially impact IWB of the employees in a long-run.

Relationship between AI and Innovative Work Behaviour

One of the research issues raised in this paper aimed to identify the linkage between AI systems implementation and IWB. And even though it was previously tested that work automation and process standardization tend to have negative impact on IWB (Agarwal and Ramaswami, 1993; as cited in Luoh, Tsaur & Tang, 2014; Kondo, 1996), in this research some positive trends were observed. IWB typically includes exploration of opportunities and the generation of new ideas (creativity related behaviour), as well as behaviours directed towards implementing change, applying new knowledge or improving processes to enhance personal and/or business performance (implementation-oriented behaviour) (De Jong, Den Hartog, 2008). 71,4% of the respondents agreed that after implementation of the AI/ML systems in the workplace, employees showed more interest in new technology and more readiness and willingness to apply the available technology to different problems and use cases on the stage of opportunity exploration described by De Jong and Den Hartog (2008). On the stage of idea generation, more data-driven approach to creativity had been observed, with 78,5% of the respondents mentioning it in their interviews. On the stage of idea championing, 57,1% of the respondents agreed about improvements in the relationships with the key stakeholders involved into innovation process, while 42,8% do not see any significant changes in this aspect. 100% of the respondents agreed that more innovative ideas tend to get implemented after successful implementation of first AI/ML solution, followed by increased budget, more experts allocated for the future projects and increased competencies and trust within the organization. Coming back to West's (2014) model of determinants of IWB, AI systems implementation potentially contributes to IWB on different levels, directly and indirectly, starting with individual level factors (Hacker ethic, dynamic expertise, entrepreneurship and autonomy), group-level (group flow, learning through critique and reflection, common vision), and organizational level (flat structures and flexible organizations, productive failure, promotion of mastery, purpose and autonomy, community and psychological safety).

Managerial implications

The conducted research demonstrates certain lack of preparation of current management in terms of knowledge and expectations towards

the technologies, readiness to adapt their behaviour with certain degree of everyday tasks automation, and relationships with the key stakeholders involved in the process. Intelligent automation can create growth through a set of features enhancing traditional automation solutions with an ability to automate complex physical world tasks that require adaptability and agility, and ability to learn by experience and improve, enabled by repeatability at scale. Growth is expected to come from enabling resources to be used much more effectively and valuably, by enabling humans to focus on parts of their role that add the most value, and from improving capital efficiency – a crucial factor in industries where it represents a large sunk cost. The next expected stage is innovation diffusion, where innovation begets innovation, and the potential impact of an AI solution expands to new products and industries. This diffusion also opens new business models and opportunities. Decreasing the gap in managerial understanding of the new technologies, aligning the expectations, and empowering focused work on data preparation in cooperation with data analysts can be beneficial steps in preparation for AI technologies being massively spread in the market. Understanding the impact that AI technologies can potentially have on organizational practices, as well as on IWB, can help business to maintain the competitive advantage and stimulate technology diffusion in a smart way, avoiding disappointment, mismanagement of expectations and unwarranted fear and anxiety, as well as losses in key resources.

Limitations and Recommendations for Future Research

This research has several limitations that should be considered when interpreting the results. First, the study sample (N=14) is relatively small. The sample frame also excluded representatives of small businesses (<250 employees), represented by fast-emerging start-up segment, focused on AI products development. Despite sample size being a research limitation, it did hinder the research from gaining valuable findings and reaching a saturation point that, in turn, allowed making some generalizations about the value of AI systems implementation. Second limitation is connected to the fact, that managers' leadership behaviours for innovation and employees' IWB were evaluated by AI developers and consultants having certain touchpoints with these stakeholders. The representatives of management and employees of the companies that have implemented AI solutions

could not have been contacted because of existing confidentiality agreements and personal data protection regulations between AI developers and the companies. For the future testing of the suggested impact of AI systems on managerial practices and IWB, further empirical research with wider sample is necessary. Third limitation is based on fact that AI and ML are wide concepts, applied in variety of use cases, and use case categorization was consciously skipped in this research, counting the need in extensive domain knowledge to conduct such classification. The application of AI in organizational practices and its impact has not been researched well enough yet, and lack of standard AI use case categorization serves as a limitation in this study. Next limitation is related to neglecting cultural and social differences between the respondents. These differences can be caused by different countries of origin, different current countries of residence, organizational culture and different social backgrounds of the respondents. This limitation does not affect the question of relationship between AI and organizational practices in technical terms but may affect the respondents' answers for the questions where the human factor and human judgement is dominant. Another limitation in this research is the fact that only knowledge management, leadership behaviours and IWB were included in scope. It is important to keep in mind also organizational trust and justice in context of innovation management, as well as current lack of knowledge in ethical and lawful regulations for AI systems. Taking all limitations into consideration, this study will assist future research investigating AI systems existing relationship to other organizational factors, as consistent and reliable research instrument was developed. It is recommended that future research would apply the theoretical model on larger scale, and expand the selection of AI systems providers, developers, managers and consultants. Also, future studies could examine not only AI impact perceived value of first-hand developers, managers and consultants, but also consider involvement of employees and managers, affected by AI system implementation.

Conclusions

Innovations in technologies are known to disrupt global economy and turn existing business models inside out. With intelligent automation, labour and capital augmentation and diffusion of innovation, AI is perceived as the new driver of economic value (Kolbjørnsrud, Amico and Thomas, 2017; McKinsey & Company, Inc., 2017). The aim of this paper was to theoretically and empirically assess

the existing relationship between AI technology implementation and organizational practices such as leadership behaviours, knowledge management, as well as on individual IWB. Literature review demonstrated certain lack of knowledge about the actual impact of AI both on individual and organizational levels. Nevertheless, it revealed some possible applications of AI in knowledge management practices, and allowed to prepare solid ground for this research and base the measurements of the key constructs on existing scientific theories. The researches of Kolbjørnsrud, Amico and Thomas (2017), De Jong (2007), De Jong and Den Hartog (2007, 2008), Seng, Zannes, and Pace (2002) and West (2014) served as the fundamental base for this research. Literature review also uncovered strong existing connection between leadership, knowledge management and IWB, where these constructs interact and influence each other in various ways (Amabile, 1988, 1997; Scott and Bruce, 1994, Overall, 2015). The qualitative research, conducted through interviewing 14 representatives of medium and large international companies that work with AI systems as developers, managers or consultants, showed strong presence of connection between AI systems and leadership behaviours for innovation and IWB, as well as strong presence of linkage between AI systems and knowledge management processes, fostering more standard operations for knowledge capturing, significant increase in knowledge sharing and knowledge transfer, as well as faster and easier knowledge processing and more efficient knowledge usage. Interconnection between the constructs allows to hypothesize potential additional positive impact of improved knowledge management practices and leadership behaviours on IWB. Empirical research findings were analysed in alignment with previously conducted studies and implications for current theory as well as managerial implications were discussed to support business in further development and diffusion of AI and ML systems. This paper, however, did not consider the perception of employees and management, affected by implementation of AI systems, of the impact of these systems on their everyday tasks, leadership behaviours and IWB, as well as it did not consider cultural or social differences among the respondents. Hence, further research and investigation is recommended. To conclude, AI as a technology can potentially affect other spheres of organizational know-how, expanding beyond direct area of application, and affecting such organizational and individual factors as knowledge management, leadership and innovative work behaviour. In the direct area of application, AI systems confirmed increased efficiency and high degree

of automation of everyday tasks, proving while majority of businesses are not ready to introduce the new technology due to lack of knowledge and understanding of it, together with vague and unclear expectations, and due to unprepared data and un-systemized knowledge management procedures.

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Chapter 3

CREDIT-FINANCIAL AND INVESTMENT INSTRUMENTS STIMULATING INNOVATIVE DEVELOPMENT THE ECONOMIC ENTITIES

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**MINIMIZATION OF CREDIT
RISK THROUGH REASONABLE
LENDING: INTERNATIONAL
EXPERIENCE AND THE
REPUBLIC OF MOLDOVA**

Introduction

Responsible lending benefits consumers and minimises the risk of abusive practices and over-indebtedness and this implies lower credit risk for the creditor.

In the Republic of Moldova this subject has strongly actuality due few factors:

First of all is the high level of the non-performing loans. According to the National Bank of Moldova, in recent years volume and the ratio of non-performing loans in total credit portfolio are continually increasing. For example at the end of year 2013 the ratio was 11.56%, at the end of year 2016 the ratio increases till 16.31% and in 2018 to 18%. These are only data for loans granted by Moldovan banks. For non-banking institutions such data are not available.

Another important aspect is connected to the bankruptcy of three banks from the Republic of Moldova, one of the reasons for bankruptcy being irresponsible lending.

1. Overview on responsible lending

In the economic literature, the responsible lending concept is presented in different ways and perspectives. As there are no internationally recognized standards on responsible lending, individual

countries have used a wide range of regulatory approaches. Some rely primarily on regulating information disclosure, expecting consumers to be capable of making adequate decisions. Other countries place the burden for responsible lending primarily on creditors, requiring them to assess the suitability of the loan for each consumer. Others opinions for more prescriptive solutions, defining interest rate ceilings, maximum debt-to-income or loan-to-value ratios or limits for penalties and late fees.

The responsible lending is understood as the development of lending activities of credit institutions where credits are granted in compliance with certain provisions creating preconditions for the proper assessment of the debtor's solvency and preventing from assuming the excessive credit risk.

The responsible lending shall be based on the following provisions:

- Prior to deciding to grant a credit, credit institutions shall make full assessment of the debtor's ability to repay the credit and all related amounts with a view to avoiding the default on the granted credits, their repayment in violation of contractual obligations or their forced recovery from assets mortgaged by the debtor.

- The assessment shall cover all objectively implied material factors on the basis of information provided by the debtor and available to a credit institution that might influence the debtor's solvency, in particular, the sustainable income and credit history of the debtor, and likely changes (increase and decrease) of income.

- The lending shall be based on the ratio of the credit amount and market value or price, whichever of the two is lower, of mortgaged immovable property, which is being acquired or constructed, applying the loan-to-value ratio.

- The lending shall be based (considering the historic data and cyclic nature of economy) on the limited debt service-to-income ratio.

- The lending process and conditions (including subsequent credit reviews or change of credit conditions) shall be based on the ability of prompt response to the changing situation of the debtor's creditworthiness.

- The debtor shall have the possibility of early repayment of the credit. In that case credit agreements shall explicitly stipulate the procedure and conditions of the calculation and application of fees for the early repayment of the credit.

- Prior to concluding a credit agreement, a credit institution shall

notify the debtor of the terms and conditions of the credit agreement having regard to the priorities identified and information provided by the debtor to adopting an informed decision on the conclusion of a credit agreement.

Financial institutions can approve principles of responsible lending in addition to those imposed by the regulatory and supervisory institution.

2. Lessons learned on responsible lending for Moldova

The importance of responsible lending was made aware in Moldova and the first steps were taken by:

- Approving on May 29, 2008 the Law nr.122 on credit history bureaus, in force from March 01, 2009, in order to create the conditions for the formation, processing, storage and presentation by credit bureaus of the information characterizing the compliance by debtors of their obligations under the credit agreements.

- Approving on July 12, 2013 the Law no. 202 on credit agreements with consumers, in force from March 06, 2014. This law creates the legal framework required to apply the provisions of Directive 2008/48/EC of the European Parliament and of the Council of 23 April 2008 on credit agreements for consumers and repealing Council Directive 87/102/EEC, its purpose is to develop the legal framework necessary to ensure the protection of consumers' economic interests by creating fair conditions for obtaining consumer credits, as well as by establishing responsible behaviour rules for creditors in granting credits to consumers.

But, we face rather with the lack of adequate enforcement or the content of the measures and whether the will and resources are available to support enforcement of the process. However, legislation is still too new to say for certain what the benefits for the consumer will be.

To determine the lessons to be learned for Moldova on responsible lending field is necessary to pass credit regulations and processes through the principle of the responsible lending, as following:

1. We have to identify that not all the creditors take care about debtor's poverty, financial situation etc., especially non-banking institutions. For example 10.000 MDL for 6 month can be contracted during few minutes only in base of presented identification document, monthly payment being 2.329 MDL. Another question is the level of effective interest rate for this loan, example that actually was taken by a web site of a microfinance institution. In a chase after a high profit such

creditors take increased credit risks, show irresponsible attitude towards the debtor, and if the debtor goes into default, he can resort to less legal methods to recover his money. Thus should be included into responsible lending regulation the request that all creditors on the lending market, banking and non-banking, should seek to ensure that debtors can repay their debts without suffering hardship. In this context, all creditors should make a proper assessment of a debtor's ability to repay:

- Before giving credit, creditors should assess a debtor's ability to repay the loan.

- The assessment should be based on a credible, standard methodology such as Loan to Value of Debt to Income and include income and expenditure, assessing existing credit commitments and leaving sufficient flexibility to deal with unexpected cost.

- Regulator shall ensure that evaluator loud out valuations of immovable property used as collateral has a licence, is independent and professionally competent.

- Information that is given to creditor by the consumer regarding income, expenditure and credit history should verified by creditor using all legal possible way.

- Creditors default position should be that repayments are allocated first to balances that attract the highest interest rate or are most effective in reducing overall costs.

- A loan application should be rejected if the requested loan amount is deemed to be unreasonable, and creditors should detail reasons for rejection and, if it is relevant, the amount the creditor could offer the consumer on the same terms as the loan that consumer initially applied for.

2. To solve the over-indebtedness when consumer become over-indebted as a result of a change in circumstances should be implemented a fair mechanism for debt resolution for such kind of debtors. Thus:

- Debt resolution should be available for consumers who have become over-indebted regardless of whether he has contracted a credit at banking or non-banking institution.

- Debtors become over-indebted as a result of a change in some circumstances should have access to a reasonable mechanism to agree some a timetable of payments, a temporary break from repayments and interest accruing or a reduction in the loan so that they can reasonably expect to return to a manageable level of debt.

- Creditors should apply forbearance measures in case if the debtor encounters some temporary financial difficulties.
- Creditors should not adopt coercive recovery methods and regulators should have monitoring in place to identify and punish violations.
- In case of litigation if the court considers that the totality of a relationship between creditor and debtor were abusive then the terms of a loan should be considered as invalid, which implies high credit risk and high legal risk.

3. Regarding to the subject of credit product quality, marketing products and advertising.

The financial service sold is appropriate to the debtor's needs and circumstances. This implies an assessment of the affordability of the loan as well as responsible and appropriate product design, provision of accurate and clear information and marketing.

In the local credit market often a credit product is more oriented to satisfy the creditor's desire to attract a certain category of clients, but not to appropriate to the debtor's needs and circumstances.

The same idea remains on the request of product design, provision of accurate and clear information and marketing. Thus lender should ensure that used marketing and advertising materials should not encourage irresponsible borrowing.

As a solution should be a specific marketing code for financial products enforceable with sufficient penalties to deter abuse and supervising institution should verify that:

- All kind of marketing and advertising of financial credit products and services are truthful, accurate and consistent with relevant regulations.
- The content, objective and inference of marketing should be to encourage responsible borrowing.
- Marketing shouldn't be used for solving bad debt through more borrowing.
- Credit product design should facilitate responsible lending.

4. Credit agreement.

Before signing a credit agreement the creditor will explain to the debtor all the contractual clauses, will communicate what the consequences of the delay for the monthly payment are, debtor's rights

and obligations.

Consumers should give their informed consent and have a real period of time for respite during which they can change their mind without incurring any cost before signing the credit agreement. This is especially relevant for long-term loan agreements. Unfortunately, the law provides for 15 days for pre-contractual information, but in practice it is signed on the same day based on the customer's written agreement.

Other conditions related to credit agreements are:

- Unfair contracts should be voidable.
- Credit contracts should not require consumers to waive their basic consumer rights.

- Consumers should not be encouraged to borrow more to maintain preferential rates or offered unsolicited increases in their credit limit.

- Consumers should not be inappropriately encouraged to rollover short-term loans in a way that is unsustainable, unaffordable or otherwise harmful.

- Tying should be banned: the consumer should always have the right to buy ancillary products from alternative providers and creditors should be required to clearly communicate this to the consumer.

- Regulators should take effective measures to protect consumers against the exchange rate risk of foreign currency loans. Informing consumers about the risks of foreign currency loans is not a sufficient measure to protect them.

- Consumers should always have the right of early repayment. Early repayment compensation, if any, should be calculated transparently and fairly. Consumers should be informed about their right to early repay and the amount of the expected compensation already at the pre-contractual stage.

5. Credit history report has a key role to play in responsible lending and should be transparent, available and used to assess a debtor's ability to repay.

- Now creditors are required to send credit data to the credit bureau to facilitate accurate and consistent assessments of a consumer's ability to repay. But this requirement can be realised only in base of written debtor's accept.

- Credit bureau should be required to publicly state the types of data that they do and do not hold.

- The regulator should widely publicize the cost and process of how consumers can obtain a credit report. Regulators should also provide or facilitate the compilation and public dissemination of independent comparison tables of the data held by all credit bureau in their jurisdiction, so that consumers can see the different information used to determine their credit rating. Actually in the law is mentioned only that customer has the right to require credit history report by free once in a year.

- Creditors should provide consumers with the name of the credit bureau used to assess their credit application and identify any gaps in the agency's data.

- Lack of positive data should not disqualify a consumer from accessing credit.

- Sensitive consumer data must be protected and privacy issues respected. Relevant regional or international principles covering privacy should be applied.

- Credit bureau should have quick, clear, and accessible mechanisms for consumers to check the data held about them, to correct errors and to resolve issues when there is a dispute.

- Credit bureau complaint data should be regularly monitored by the regulator. This evidence, and the insight derived from it, should be used to identify consumer detriment and inform changes to policy and practices to address those problems

- The generic complaint data, including reports on individual bureaux, should be made publicly available.

6. Information should be provided in a manner to help the consumer make an informed choice.

- All creditors should provide information that is clear, sufficient, reliable, comparable and timely for the consumer to compare different products and make an informed decision.

- Regulators should publish comparative tables with contract terms, interest rates and fees or support their publication by an independent body. Examples should be given to demonstrate how any charges and interest rates could vary over the course of the contract.

- All creditors should use standardized key information documents with comparable information on interest rates, such as effective interest rate, monthly payments, as well as illustrations of typical payments in cash terms over a given period.

- All creditors should use a standardized method for calculating effective interest rate, according to the law.
- Loan agreements which have not respected the above terms should be voidable.

7. Staff targets and incentives:

- Creditors' business practices should incentivize customer service not sales.
- Remuneration of creditors and intermediaries should be neutral. Instead, incentives should be linked to providing quality customer service. All inducements in kind to credit intermediaries should be banned.
- Creditors should be liable for the quality of the loans they make, even if the loans are sold to third parties.
- Regulators should ensure consumers who are miss-sold financial services are fully compensated and creditors face sufficient penalties to discourage further offences and that these penalties are made public.

8. Staff qualification is one of important topic. Creditors should train staff in how to identify and help consumers who are experiencing difficulty in making repayments and offer practical solutions, with clarity on any additional costs. Creditors should make information about independent debt counselling available.

9. Consumer education and advice should support responsible lending:

- Basic budgeting skills should be taught as part of the national curriculum and reinforced through public education campaigns that are accessible to all consumers.
- Independently-produced information about what to consider and look out for when purchasing credit should be given to consumers at the point of sale.
- Independent advice should be available for consumers who want additional support in choosing a product.

Conclusions

Accordingly to the actual regulation of consuming lending, creditors

are not directly responsible for consumers' decisions, considering that debtors has got all information about credit product and other relevant data.

If the responsible lending principles will be approved and come into force, the creditors will have to take a much more active role when considering the customer's ability to repay a loan and this is one of significant change in approach to the regulation of consumer lending. It has the potential to significantly change the processes and compliance obligations of creditors in the consumer's lending. This will result in a decreasing of credit risk and diminution the share of non-performing loans.

National Bank of Moldova should elaborate and approve regulations on responsible lending field, should define over-indebtedness for their authority, the methodology how to avoid over-indebtedness situations and solutions to apply in case of debtor's entrance into over-indebtedness. Also National Bank should take reasonable steps to require and monitor compliance with the regulatory acts in the field of responsible lending and should establish or support the establishment of independent debt counselling centres which also mediate on behalf of consumers.

All categories of licensed lending institutions in the Republic of Moldova should develop and implement the policies, procedures and provide trainings for their employees that are necessary to ensure compliance with the principles of responsible lending.

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**SOURCES OF FINANCE
FOR THE INNOVATION
ACTIVITIES OF SMALL
AND MEDIUM – SIZED
ENTERPRISES IN THE
SLOVAK REPUBLIC**

The most recent edition of the European Innovation Scoreboard which was published on 14 July 2016, revealed that the performance of Slovakia as well as of Croatia, Cyprus, Czech Republic, Estonia, Greece, Hungary, Italy, Latvia, Lithuania, Malta, Poland, Portugal, and Spain is below that of the EU average. These countries are Moderate Innovators.

The Regional Innovation Scoreboard 2016 revealed that Europe's most innovative regions are located in the most innovative countries, although regional innovative hubs exist in moderate innovator countries: Piemonte and Friuli-Venezia Giulia in Italy, País Vasco in Spain and Bratislavský kraj in Slovakia.

Based on the SBA's profile compiled for 2016, the European Commission assessed that one of major concerns in the core areas of the SBA for Slovakia is the area of Skills and Innovation.

This article aims to find the reasons of this state and propose measures for its improvement. It deals with the innovation activities of small and medium – sized enterprises (further as “SMEs“).

The creation of innovation in a particular economy is provided mainly by the business sphere. In Slovakia, it is represented by the SMEs, while they account for 99.9% of the enterprises.

The level and intensity of innovation activity in individual enterprises depends not only on the willingness, or the ability of an

enterprise to engage in innovation, but it is also influenced by external factors. Cost factors, particularly lack of finance and high innovation costs are considered by Slovak enterprises to be the most important factors hindering their innovative activities.

Market and knowledge factors are also important barriers to innovation. Most of these barriers, enterprises are not able to overcome with their own power and they need help from the state. In this article, therefore, we pay attention to the possibilities of SMEs to finance their innovation activities and to the possibilities of their support offered by the state / EU in this respect.

Main areas of activity and economic results of SMEs in the Slovak Republic

Small and medium-sized enterprises in the SR are defined according to the *European Commission* Recommendation 2003/361, which sets out the main factors for determining whether a company is a *SME*; number of employees and either turnover or balance sheet total. We can recognize three categories of enterprises: Micro (less than 10 employees, turnover or balance sheet total \leq 2 million EUR), Small (less than 50 employees, turnover or balance sheet total \leq 10 million EUR), Medium-sized (less than 250 employees, turnover \leq 50 million EUR or balance sheet total \leq 43 million EUR).

This categorization makes it possible to compare the situation of SMEs in the Slovak Republic with the state of the business sector in the European Union.

Based on the data processed from the Statistical Office of the Slovak Republic (further as “SO SR”), the development of the overall number of active SMEs continues to be positive also in 2016. Even the number of small and medium-sized enterprises – entrepreneurs which declined between 2009 and 2015, increased by 2.5% in 2016, as was the case of small and medium enterprises – legal entities (by 9.1%).

Out of the total number of entities, 97.1% were micro enterprises (541 719), 2.3% (12 662) small enterprises, and 0.5% (2 741) medium enterprises. There were 636 large enterprises which accounted for 0.1%. Natural entities – entrepreneurs comprised nearly two thirds (62.3%) from the total number of active SMEs in Slovakia.

The size structure of the business sector in the SR is to a large extent similar to size structure of enterprises in other EU Member States. We can mark as a characteristic feature of Slovakia a higher representation of microenterprises.

Approximately half (47.4%) of active small and medium-sized enterprises carried out their main business activities in trade and business services. The smallest representations were held by SMEs in the field of agriculture and in the area of accommodation and catering.

Every fifth (22.0%) active small and medium enterprise (including NP – entrepreneurs) operates on the territory of the Bratislava Region. Other regions are represented in the total number of SMEs ranging from 9.6% (Trenčiansky region) to 13.5% (Žilinský region).

The importance of small and medium-sized enterprises in the Slovak economy is represented by several indicators. In 2016 they employed around three quarters (74.1%) of the active labor force in the business economy, and contributed to the creation of added value with more than half (52.7%). The positive development of the national economy also turned into a positive impact on the development of these indicators, when compared to 2015, employment in SMEs increased by 3.5%, the added value by 4.3% and the generated profit by 3.3%. Only exports of goods to SMEs remained at the level of 2015.

In the foreign-trade exchange of goods, the dominant position is maintained by large companies.

From a territorial point of view, small and medium businesses cannot reduce dependence on EU demand. Exports of SMEs to non – EU countries represents only 8.7% of the total exports of SMEs and Slovak SMEs compared with other EU countries are characterized by the lowest intensity of exports on the markets of third countries.

Innovation activities of SMEs

According to the results of the survey "Community Innovation Survey (CIS) 2014" the decline in innovation activity of SMEs in Slovakia continued.

According to Eurostat data the share of small and medium-sized enterprises with innovative activity in 2014 was 30.5%. The achieved representation of innovative SMEs in 2014 was lower than in 2012 (32.3%) and 2010 (33.4%).

The innovation activity of Slovak SMEs does not show any signs of improvement nor in comparison with other EU countries. Slovakia is still included among countries with under-innovative innovation activity of SMEs. According to Eurostat, almost every third SME (30.5%) was innovative in Slovakia in 2014. However, in the EU - 28, nearly every second SME (48.0%) reports on the implementation of innovation

activities.

SMEs in Estonia (25.6%), Hungary (25.3%), Latvia (24.3%), Bulgaria (24.2%), Poland (19.4% (12.2%)) were placed behind Slovak SMEs. On the other hand, the most innovative SMEs are from Germany (65.6%), Luxembourg (64.2%), Belgium (63.2%) and the United Kingdom (59.9%).

According to data of the Statistical Office of the Slovak Republic, the highest measure of innovative activities is characterized by SMEs operating in the industry and services sectors. The lowest innovation activity is reported by SMEs in construction.

Analysing the development of innovative businesses in the Slovak Republic, we can find that the number and share of innovating businesses in Slovakia from 2001 to 2008 (except in 2003) had a rising trend. In 2010 the number of innovative businesses in comparison with the 2008 decreased from 3 494 to 2 106 and the share of innovative businesses of all enterprises decreased from 36.1% in 2008 to 35.6% in 2010. The reduction of innovation activity was influenced by depression in the years 2008 – 2010.

In the years 2010 - 2012, 31.3% of innovative enterprises were in the Slovak Republic. In industry and selected services, they were 34% together. However, the average level in the European Union stood at 48.9%. Compared to the previous period 2008-2010, when the share of innovative enterprises in Slovakia was 35.6%, the situation has become worse.

Compared to the previous survey in 2010, the share of innovative enterprises in industry decreased by 3.5 pp. and in the service sector increased by 0.6 pp., i.e. the overall decline in innovation activities was mainly due to the reduction of innovation activities within industry.

In individual sectors of economic activity, the share of enterprises with innovation activity was different and ranged from 11.1% to 85.7%. On average, it reached 32.4% in industry and 35.8% in services.

As in the period 2008 – 2010, innovation activity of enterprises was directly proportional to their size, although compared with this period in industry, there was a decrease in all enterprise size categories, most in the group of medium-sized enterprises. In this context, there was a stronger decline in innovation activities in large enterprises only, with small and, above all, medium-sized enterprises growing.

Although the share of the number of enterprises with innovation activity in industry and services together represented only 34% between 2010 and 2012, their share in total revenues was 66.9% and 58.3% in the

total number of employees. This suggests that the economic weight of enterprises with innovative activity is higher than their number.

The share of revenues from sales of new or significantly improved products (market or business innovations) in total sales is an important indicator of the impact of innovation activity. This share was 40.2% in 2012, i.e., enterprises with technological innovation have achieved more than a third of their revenues for innovative products.

On average, 42.4% of product innovations in industry and selected services were developed by innovating enterprises themselves. 30.8% of innovations were realized by modifying or changing products or services originally developed by other businesses or institutions, with 14.1% of product innovation in industry and 10.8% of service innovation being developed by other businesses or institutions.

An important aspect of the evaluation of the development of innovating enterprises in the SR is their belonging to the individual branches of the processing industry and services according to the intensity of research and development and not by the characteristics of their products. According to the definition of the technological sectors mentioned in the revised OECD / Eurostat classification, the levels of high, medium, low and low technology, and the level of knowledge-intensive services and knowledge-intensive services are differentiated in the manufacturing industry.

Of the total number of manufacturing enterprises, almost 36% belong to the low technology group, more than three quarters to a low and medium-tech group. Only a third of manufacturing enterprises were innovative in 2010-2012, with 61% of those enterprises' innovation being technological in nature (the remaining 39% being non-technological innovations). Secondary technology enterprises were 21.2% in the manufacturing and 3.3% high technology. Innovation was most active in the medium-tech sector.

In the service sector, 28.8% of all enterprises are in the knowledge intensive sector, and 10.3% of them are in knowledge intensive, high technology services. In this technology sector, 48% of enterprises were innovative and 64.1% of them implemented technological and 35.9% non-technological innovation. The knowledge-intensive sector of services includes almost three quarters of service enterprises. Only a third of them developed innovation activity, with more than half of these activities being technological in nature.

According to the results of the Statistical Survey of the Statistical Office of the Slovak Republic in the period 2008-2010 the low share of

innovating enterprises in the Slovak Republic is a result of the innovation barriers, which inhibit innovative activities in both innovating and non-innovative companies. Innovation barriers in Slovak enterprises are mainly costly, market and knowledge factors. Slovak companies consider cost factors as the main obstacles to their innovating activities. In particular, it is a lack of one's own resources to finance innovation, lack of finance from outside the enterprise and too much high innovation costs that significantly restrict business innovation activities in industry and services.

The highest item of innovation expenditure in 2012 was the purchase of machinery and equipment (62.8%). This expenditure item in industry accounted for 62.1%, 66% for services, and 47.1% for total innovation expenditure in construction. Compared to 2010, the share of spending on the purchase of external R & D, which was 20.8% on average, increased by 13.2 pp in technology innovation enterprises in 2012. 13% of the total expenditures on innovations were allocated for internal research and development in enterprises in the Slovak Republic, which represents a decrease of 4.5 pp compared to the year 2010. There was 1.8% of the external knowledge allocated and spending on all other innovation activities reached 1.6% of total innovation expenditure.

That is why we will analyze the specificities of SME funding and the possibilities they have for financing of their innovation activities, as well as what support from the state and from the EU they have in this direction.

SME FINANCE IN THE SR

Although small and medium sized – enterprises have many possibilities how to finance their needs, their access to sources of finance is difficult. This situation is even more pronounced aftermath the financial crisis from 2009.

In Slovakia, SMEs are primarily financed from their own sources, respectively from loans and leasing. According to Majkova (2011), these are the sources that they know and therefore they most often use them.

This fact is confirmed by the results of the research on access of the SMEs to external sources of financing which was realized by Slovak Business Agency in 2015 (SBA, 2016).

SMEs have more specificities, which are reflected in their financial management processes.

These are connected with their smaller size, lower degree of

diversification, more limited market and higher riskiness.

They have different structure of assets compared to large companies – share of their fixed assets to total assets is significantly lower. On the other hand, the share of current liabilities to assets is higher, which indicates their higher financial vulnerability (Cressy and Olofsson, 1997).

SMEs tend to have less financial strength, do not have sufficient collateral, which is usually the main reason why banks refuse to provide credit to them and why such businesses obtain it so hard. Smaller businesses and enterprises with a shorter history have only short-term contacts with the banks and therefore pay higher interest rates and the banks require higher guarantees from them. (Berger and Udell, 1995).

This makes it more difficult for SMEs to borrow than for bigger companies, and may make it effectively impossible for many SMEs to borrow money at all.

SME finance is more complicated due to the fact, that they require different spectrum of financial tools in various stages of life – cycle.

These companies often depend on the informal sources of finance at the initial stages of their life. External sources are getting to be important with the beginning of the expansion stage and access to them can influence the development trajectory significantly.

Financial, as well as debt crisis in the Euro area naturally influenced obtaining loans. Bank loans had been quite common and accessible source of financing even in Slovakia before 2009, which is true also for the risky segment of SMEs (depending on the core and genesis of their business). Commercial banks thanks to high levels of their deposits had started to create more flexible and affordable credit schemes.

The supply side replied to the financial crisis almost immediately, especially by the tightening of the bank lending conditions. The lending was almost completely frozen at the time of the deepest crisis (NBS, 2009). Risks associated with required guarantees had the highest impact on tightening of the standards, which were tightened especially for the category of SMEs.

It is clear that support for small and medium-sized enterprises (SMEs) is very important. Their functioning and growth helps further with the multiplier effect to support the national economy, which can be tracked through indicators such as Gross Domestic Product (GDP), Gross National Product (GNP) or Unemployment Rate.

Support of the SMEs in the Slovak Republic

In Slovakia, there are currently both state and private institutions that cooperate with each other to support SMEs. However, no attention was paid to small enterprises until 1990, as this category of enterprises did not exist.

Only in 1990, in connection with privatization and transformation of the economy, the importance of SMEs started to be considered more significantly in the SR. The rapid growth of SMEs in our conditions was recorded between 1991 and 1992, and their development was conditioned by a number of factors. We present the most important ones:

1. The gradual disintegration of large state-owned enterprises in the process of the first wave of large privatization and the emergence of a larger number of SMEs,
2. Return of property to citizens as part of restitution,
3. Liberalization of business relations and the emergence of a larger number of SMEs with foreign ownership (Belanová, 2015).

Regarding the support to SMEs it was necessary to accept the legal definition of state aid to SMEs.

The first attempts of the Slovak Republic for the legal definition of State aid to SMEs go back to 1995, when the Law on state support for small and medium-sized enterprises was adopted. The purpose of this law was to modify state support for small and medium-sized enterprises and also to make such entrepreneurship a firm part of the structure of the national economy.

The adoption of a law Law No. 290/2016 on Support of Small and Medium-Sized Enterprises, effective as of 1.1.2017, was a significant step in determination of forms of the state aid to SMEs.

The law defines and decomposes the so- called “Better Regulation.” Better regulation means a summary of activities aimed at reducing the disproportionate regulatory burden on businesses and improving the business environment in the Slovak Republic with an emphasis on micro, small and medium-sized enterprises.

Support is provided:

a) ***In a direct form as:***

1. non-repayable financial contribution under a special regulation,
2. grant
3. financial instrument under a special regulation.

b) ***In an indirect form as:***

1. Information and guidance in a field of business,
2. Education in a field of business

3. support voucher related to the acceptance of services in the areas of support
4. organizing and supporting of participation in traineeships, competitions, exhibitions or other business support events
5. targeted reinforcement of the potential of a micro, small or medium-sized enterprise to increase its performance
6. long-term professional counseling and training to improve entrepreneurial skills and professional growth

State instruments to finance innovative entrepreneurs' activities

There are various instruments and mechanisms in area for financing of innovative companies, which are provided both by state institutions and by public bodies. Various institutions and programs support the different phases of business projects. Some types of support are for startups (start-ups) and some for already existing businesses.

Government instruments for financial assistance to entrepreneurs in the field of innovation include in particular:

- a) the microloan programme
- b) venture capital funds
- c) business loans
- d) projects cofinanced from the EU funds
- e) funds of repayable financial assistance.

The microloan programme

Slovak Business Agency (till 28/2/2014 the National Agency for Development of SMEs) is crucial, and is the oldest specialized non-profit organization for the support of small and medium-sized enterprises (SMEs). Slovak Business Agency was founded in 1993 by a common initiative of the EU and the Government of the Slovak Republic. It is the unique platform of public and private sectors.

The Microloan Programme has been running since 1997. It has a revolving nature. Product "microloan" provided by the SBA is unique in Slovakia by its character. It is simple, regionally accessible and responsive to the financial needs of small businesses. It is provided within entire territory of Slovakia. Its minimum amount is 2 500 EUR, maximum amount is 50 000 EUR. Maturity of microloan ranges from 6 months up to 4 years (optional grace period for the initial/first payment up to 6 month). Disclosure of financial/credit resources to micro/small entrepreneurs in Slovakia under a more favorable terms comparing to commercial market conditions is the objective of the programme.

The Microloan Programme addresses the issue of access of small entrepreneurs to the capital. It focuses on increase of the rate of survival of micro/ small enterprises and start-ups, thus creating conditions for job maintenance and creation of new job opportunities in different regions of Slovakia. The purpose of the programme can be summerized into following points:

- providing financial support to micro and small entrepreneurs through microcredits with preferential terms but with no state aid element;
- increase the sustainability of small businesses;
- creating conditions for job/employment maintenance and creation of new job opportunities in the regions of Slovakia.

Venture capital funds

Venture capital represents the funds deposited by investors to the share capital of companies. Venture capital can be used to fund the establishment of businesses, their development or expansion. A venture capital investor, in return for providing a certain amount of financial capital, acquires a stake in the company's share capital, usually a minority, and participates in the adoption of basic decisions of the company, but he leaves the normal course of the company to the developers of the business plan. Investing in venture capital is a multi-year process of business venture with a venture capital investor.

National Holding Fund, (NHF) is an intermediary for state-owned venture capital funds in Slovakia. At present, the NHF manages three venture capital funds without legal personality:

1. Fund of Seed Capital
2. Regional Fund of Seed Capital
3. Fund SISME

It also manages four venture capital funds with separate legal personality:

1. Fund Seed Capital
2. Slovak Development Fund
3. Slovak Growing Capital Fund
4. Fund of Innovations and Technologies.

Business loans and bank guarantees

Slovenská záručná a rozvojová banka, a.s. (SZRB) is a support bank focused mainly on the support and development of small and medium-sized enterprises in Slovakia, but it also supports cities and

municipalities and the renovation of housing. The Slovak Republic, represented by the Ministry of Finance of the Slovak Republic, is the owner and sole shareholder of SZRB. The mission of the SZRB is to support and develop small and medium-sized businesses in Slovakia in order to look for market space where commercial banks do not enter for a variety of reasons or only enter a limited amount of resources. In addition to its credit products, the Bank uses partnering with commercial banks and other institutions to support the target segment in the form of bank guarantees to meet the mission.

Exportno-importná banka Slovenskej republiky (EXIMBANKA SR, Export-Import bank of the Slovak Republic) was established in July 1997.

The main objective of the institution is to support the maximum export volume of sophisticated production to the numerous countries, while ensuring the return on investment through the minimization of the risks arising from insurance, credit, guarantee, and financial activities. EXIMBANKA SR assist both large and small (SME) companies and is prepared to provide solutions tailored to companies's specific needs. It is the only institution in the Slovak Republic authorized to provide export financing and pure cover backed by the government.

EXIMBANKA SR offers its clients a range of banking and insurance products and their combinations, which are widely used by a majority of the Bank's clients. The main benefits of such products interlinking are the maximum possible level of credit security provided by insurance and simplified access to funding. The objective pursued by EXIMBANKA SR is to provide its clients with comprehensive support and security for their export operations.

EXIMBANKA SR supports Slovak exporters having their registered offices in or being resident in the Slovak Republic, and producing and/or exporting products and services of predominantly Slovak origin under contractually agreed conditions.

It offers a wide portfolio of products in two main areas; in financing and in insurance of export loans.

The banking products offer an easier access to financing possibilities by the means of loans acquired from commercial banks.

The insurance products of EXIMBANKA SR allow the elimination of risks (commercial, political or combined risks) of non-performance of foreign debtors, where the most common reasons of non-payment of debts is unwillingness to pay or insolvency of the foreign buyers.

Projects cofinanced from the EU funds

1. COSME is the EU programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises running from 2014 – 2020 with a planned budget of EUR 2.3 billion. The aim is to increase SMEs’ access to financial resources, to support entrepreneurs and their internationalization and to improve the business environment.

2. Horizon 2020 Horizon 2020 is the biggest EU Research and Innovation programme ever with nearly EUR 80 billion of funding available over 7 years (2014 to 2020) – in addition to the private investment that this money will attract. It promises more breakthroughs, discoveries and world-firsts by taking great ideas from the lab to the market. By coupling research and innovation, Horizon 2020 is helping to achieve this with its emphasis on excellent science, industrial leadership and tackling societal challenges. The goal is to ensure Europe produces world-class science, removes barriers to innovation.

3. InnovFin “InnovFin – EU Finance for Innovators” is a joint initiative launched by the European Investment Bank Group (EIB and EIF) in cooperation with the European Commission under Horizon 2020. InnovFin aims to facilitate and accelerate access to finance for innovative businesses and other innovative entities in Europe and consists of a series of integrated and complementary financing tools and advisory services offered by the EIB Group, covering the entire value chain of research and innovation (R&I) in order to support investments from the smallest to the largest enterprise. InnovFin is available across all eligible sectors under Horizon 2020, in EU Member States and Associated Countries. By 2020, InnovFin is expected to make over EUR 24 bn of debt and equity financing available to innovative companies to support EUR 48 bn of final R&I investments. InnovFin financing tools cover a wide range of loans and guarantees which can be tailored to innovators’ needs. Financing is either provided directly or indirectly via a financial intermediary, most usually a bank. Regarding SMEs, two forms are important:

a) InnovFin SME Guarantee provides guarantees and counter-guarantees on debt financing of between EUR 25 000 and EUR 7.5 m, in order to improve access to loan finance for innovative small and medium-sized enterprises and small midcaps (up to 499 employees). This facility will also be rolled out through financial intermediaries. Under the InnovFin SME Guarantee, financial intermediaries will be guaranteed or counter-guaranteed against a portion of their potential losses by the EIF.

b) InnovFin SME Venture Capital will provide, through selected intermediaries (e.g. investment funds, venture capital funds or vehicles that provide co-investment facilities for Business Angels or co-operate with Business Angels) equity finance for R&I, in particular in the form of seed and venture capital for enterprises in the early stage. The equity support will be channelled through intermediaries who target life sciences, ICT, or otherwise technological, non-technological, organisational or social innovation.

4. EU funds are financial instruments through which blurred the differences between the Member States of the European Union. EU funds allow reallocation economically stronger partner for the development of weaker states and bring them closer to the developed European countries. The funds are used primarily to ensure increased performance of countries in various fields of sustainable economic growth, living standards and reducing regional disparities. The essential feature of EU funds help the weaker partner, thus profiting subsequently developed EU as a whole. The EU gives small companies the possibilities of financing in various forms such as grants, loans, financing of the particular projects, guarantees, and other forms. At present, Slovakia is in the 2014-2020 period, for which the European Union approved Slovakia support from European Structural and Investment Funds through 9 national and regional programs of nearly EUR 15.32 billion. With a national contribution of EUR 4.72 billion, the SR has a total budget of EUR 20 billion to be invested in different areas from job creation and growth through promoting sustainable transport to protecting the environment and investing in research and innovation. Nevertheless, in drawing of the euro-funds, the Slovak Republic is on the lash of the EU member states.

Funds of repayable financial assistance

The Innovation Fund is a non-investment fund and it is a separate non-profit, non-governmental legal entity with a competence in the Slovak Republic established by the Ministry of Economy of the Slovak Republic. It provides return financial assistance to encourage the creation of appropriate conditions for the exploitation of research, development, innovation, patents, industrial and utility designs in close contact with scientific, research and technical institutions.

Private instruments to finance innovative entrepreneurs' activities

In Slovakia there is also private financial support for entrepreneurs and their innovative activities. We can talk about these basic forms:

1. venture capital,
2. crowdfunding,
3. mezzanine financing,
4. commercial bank products – business loans and so on.

Venture capital

Venture capital investors may include:

- a) individual business angels
- b) networks of business angels
- c) private equity funds.

In Slovakia, the following private networks of business angels and investors are involved in financial support for business ideas:

1. Klub podnikateľských anjelov Slovenska
2. Neulogy Ventures
3. 42angels
4. Y Soft Ventures
5. G4 Investments
6. LRJ CAPITAL
7. Limerock Fund
8. Credo Ventures
9. J&T Ventures

Some of them provide their services only to Slovak firms, some also to Czech companies, but most of them operate in the whole of Central and Eastern Europe (CEE – Central and Eastern Europe).

Crowdfunding

Crowdfunding is a form of common financing. It is an alternative source of financing. It is a new form, which has appeared only in past few years. It consists in obtaining smaller funds from a large group of people (i.e. crowd). Instead of usual providers of financial sources (banks or venture capital investors or business angels) the project, or the company itself is financed by the group of individuals. The collection of funds is realized by the use of internet. It used to be a help for financing a singular projects. Nowadays even a normal man can be an investor and get money in this way. It is popular esp. in the areas such as technology and marketing, media including film, music and video games. It connects two aims: source of getting money and promotion of the project before it is launched.

Reward based, lending based and equity based models of crowdfunding are relevant from the perspective of corporate financial sources. Especially the use of lending based and equity based crowdfunding is more flexible according to the situation and stage of company`s life cycle

Crowdfunding has slowly but surely come also to Slovakia. There have been two successful start – up projects: project Culcharge (smallest USB charge and data cable for iPhone and Android) and Košice`s start – up Goldee (light controller).

Mezzanine financing

RMS Mezzanine is one of the few companies that provide mezzanine financing on the Slovak market. Capital provided by RMS Mezzanine consists mainly of a subordinated loan, but if the structure of the project requires, the investment can also take the form of equity, classic credit, and so on. RMS Mezzanine does not actively interfere with the company in which it invests, but with its experience and contacts it helps its management to implement the corporate strategy.

Commercial bank products

Financing by commercial banks is mostly done through different types of business loans. For mature businesses with proven track record and accounting reports that they can submit for review, commercial banks provide funding most often through various product types.

In view of the current unsatisfactory state of participation of entrepreneurial subjects in support of science and research in the Slovak Republic, it would be appropriate to review the implementation of other indirect financing instruments. In developed countries, more and more tax incentives are being used to motivate the private sector to invest more in support of science, research and innovation. These incentives are compatible with EU legislation and the EU`s research and development funding is growing in this way, which accounts for only a very small percentage of investment in Slovakia. Another option is philanthropic funding of research through public foundations, grants providing research grants, fund-raising funds from donors, and so on.

Non financial support of SMEs

In addition to financial support for entrepreneurs, there are also different forms of non-financial support, such as services that make it easier for people to start a business or operate, especially in the early

years of business. These can be different services provided by different institutions, such as providing space, consulting services, organizing events, or helping to find the contacts needed for business and business development. Non-financial support to small and medium-sized firms is provided not only by state institutions but also by various private institutions founded by universities, cities or private companies.

Conclusion

The position of SMEs in national economy regarding the job creation, promotion of the local economy, balancing disparities in regional development, is important in the long run in Slovakia.

In 2016 they represented 99.9% of the total number of enterprises in the Slovak economy, offered job opportunities to nearly three quarters (74.1%) of the active work force in the corporate economy and participated with more than half (52.7%) in the creation of the added value. In the same year, the downward trend in the establishment of small and medium-sized enterprises has stalled.

Compared to other EU countries, Slovakia is characterized by high entrepreneurial activity and the dominant presence of microenterprises.

In 2016, it was not only the macroeconomic development, resp. a stable rate of economic growth that had a positive impact on SME business conditions, but also a range of support measures implemented within Slovakia's economic policy and its operation in the structures of the European Union. However, in the area of foreign trade and the introduction of innovations in economic practice, there has been no improvement in the position of Slovak SMEs, not only compared to larger enterprises but also compared to SMEs in EU countries. Expansion of these gaps can, in view of the aforementioned position of SMEs in the national economy, significantly affect the future socio-economic development of Slovakia. Stepping up the implementation of addressing national strategies and policies, creating a legal environment that takes into account the needs of SMEs as well as increasing the effectiveness of project implementation in the context of EU Structural Fund resources absorption in the 2014-2020 programming period presents the potential for reducing the gap.

To increase SME innovation activities, we recommend:

- ✓ to raise the awareness of entrepreneurs about the importance of innovative activities for SMEs;
- ✓ systematically support regional governments and regional structures created in previous periods to support innovation;

- ✓ to apply more effective incentives to continuously increase innovation activity in the business sector;
- ✓ to implement instruments to promote closer cooperation between the private sector and academia / research, using the best examples from the EU;
- ✓ to implement the measures from the Start-up Support Concept and the Development of the Start-up Ecosystem in the Slovak Republic into practice;
- ✓ to use innovative financial instruments to support the expansion and innovation of growth potential companies;
- ✓ to create tools to systematically support the participation of Slovak companies and organizations in European and international research and innovation programs (Horizon 2020 and similar);
- ✓ to support the establishment of cluster organizations.

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**BUDGET – CONTROLLING
INSTRUMENT FOR
ENHANCING PERFORMANCE
OF THE ENTITY**

With the evolution of the market economy, it becomes more and more applicative, the efficient use of budgeting tools within the economic entities. This is due to the need to maintain continuous performance through positive fluctuations in financial results. Given that “business” activity is tough and unpredictable, planning the figures of activities in different phases will reduce the risk of uncertainties and future economic gaps.

We consider that the study of the correlation between the elaboration of budgets and the control of their execution is a significant issue not only from the point of view of fundamental theories and concepts research, but also from the perspective of applicability, considered an effective criterion in the activity of the economic entity.

Budget is not just a useful tool for financial analysts. From the first people who carefully planned their springs and arrows, depending on the expected hunting, and up to the billions of euros of megacompanies, the budget evolved only in a few aspects not necessarily essential. One thing remained the same: if there is no budget, it makes no sense to initiate “business” activity. The time of the blindly taken decisions has completely sunk and the market is only for the organized ones.

In general terms and simplified terms, everything is reduced to two simple parameters which, in free translation, are limited to:

✓ How much the entity sells, and, how much it spends.

A first objective pursued by the preparation of a budget relates to the forecasting of both financial aspects (profit, cash flows, financial situation of the entity, etc.) and non-financial (number of units produced or sold, number of employees, number of newly introduced products on the market, etc.) of the plan and serves the entity as a work schedule for a future period (Budugan 1998).

Factors that can cause a reduction in the efficiency of the entity’s planning and budgeting processes can be placed in order of importance:

1. The absence of a well defined strategy;
2. The absence of a visible relation between operational strategies and plans;

3. The absence of a individual responsibility regarding results;
4. The absence of pertinent performance measurement indicators.

Finally, we can mention that the main conditions for successful budgeting are the following (Diaconu 2006):

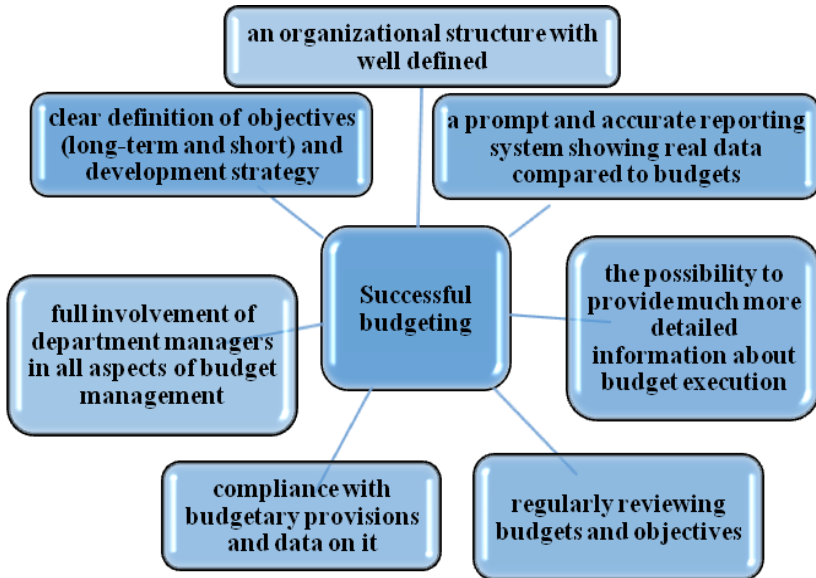


Figure 3.1 Content of budgets based on the responsibility centers

Source: elaborated by the author

The ways in which budgets are built differs considerably from the level of Moldovan companies. Thus, companies with significant experience in the field, with an organizational culture developed in time, already use complex budgeting methods tailored to industry and / or company specificity. In this category, we often find the names of the large multinational companies, the names of the companies with international experience. The second category is represented by local companies, which have developed from a business idea and have not benefited from the externalities that take place in large companies. These companies do not benefit from the existence of models built specifically for the company profile and already tested under similar conditions.

By establishing the budgeting process, it is in fact established the method of building the budgets. Thus, budgets can be built through a

top-down approach that translates expectations of the company's evolution into strategic objectives that are transferred at the department / function level into specific objectives and on the basis of which they will be built budgets. The second approach is bottom-up and involves understanding needs at department / function level, translating these needs into specific budgets, and aggregating / integrating these budgets at company level into a general budget – Master Budget. The advantages and disadvantages of budgeting approaches can be determined in Table 3.1.

Table 3.1

Approaches to budgeting

Budgeting processes	Pro and contra arguments
Top-down budget	The budget is imposed by the economic entity is efficient but by the non-involvement of the employees it is difficult to get their participation in the achievement of the objectives
Bottom/up participatory budget	Start with employees or departments, motivate them and give them a sense of ownership, so they will try to meet or exceed those expectations

Source: elaborated by the author

Taking into account the industry, at the level of the local companies on the Moldovan market, the fastest approach to budget construction is from top to bottom.

Once the budgeting approach is established and the objectives or needs of the company are identified, as appropriate, the correlation between them and the company's needs and objectives is to be achieved. For this and for the actual budget execution, the technique to be used in the budget must also be identified.

Broadly speaking, economic entities draw up the budget, summing up information at the revenue and expenditure stage, with some details according to managerial needs. In practice, budgeting techniques are known as classical and modern methods. Regarding classic models, these are most commonly used by local entrepreneurs.

The classic methods of sizing budget revenues and expenditures are: the automatic method, the method of increasing (diminishing) and the method of direct assessment.

Two main categories of methods have been structured in international practice (Vacarel 2004):

✓ American methods: Planned Programming Budgeting System, Zero Based Budgeting and Management by Objectives;

✓ Methods of French Inspiration: La Rationalisation des Choix Budgetaires.

As T.D. Lynch (1985) states: “Modern methods of sizing budget indicators also include projections of spending and income, and as long as these estimates are perceived as projections rather than as predictions of the future, they can improve people’s perception of implications long-term budgetary decisions”.

Thus, the performance of an economic entity’s activity is reflected in the results it achieves, the effectiveness being measured against strategic and operational objectives. Performance management is what companies do to make them more successful and to position themselves in front of competitors.

A tool for performance management is KPI indicators, which are tools that provide the means to quantify achievement, giving visibility to the performance of individuals, teams, departments and organizations, enabling decision-makers to take action to achieve the desired goals. The choice of relevant KPIs for a company takes into account many factors: the strategic objectives (turnover, profit, costs – intensive or extensive development), the timing of the activity (long-term orientation or “quick win” company (services, production, distribution), the current situation on the company’s growth curve (growth, maturity, decline), including the management style practiced in the company.

For example, according to the study conducted by James Henderson (Strategic Management Professor IMD Laussane), it was found that the companies in the organizational phase will mainly follow key performance indicators related to the increase in turnover, the penetration rate in new markets, the number of clients active, the development of sales and distribution channels, staff development.

Developing companies will focus their set of key performance indicators in the profit area on the invested capital, the operational and marginal profit, and the added value of the business. Finally, mature organizations will focus on indicators related to cash flow, ability to pay, investment / disinvestment, organic growth.

If we are to ask why implementation of the KPI system is needed and what are their strengths compared to other performance indicators and methods, then we have the following advantages:

- Employees and business managers can see group-wide strategies- understanding how their individual goals fit into the company’s business goals, so employees feel full of energy, adding value and success to the entity;

- Creating a system of responsibility sharing by “cascading” established goals with others;
- Improves the level of communication between managers and employees – by assessing the fulfillment of KPI indicators, the employee will receive advice and guidance on how to achieve the established indicators;
- Create an open and communicative environment, including quality feedback on goals and progress.

At the same time, the implementation of the KPI indicator system may be a disadvantage for the entity if its performance / realization is not pursued. First of all, it is necessary to assess whether the indicators are met by employees at company level or in comparison with competitors. Indicators should be periodically reviewed and adapted to existing conditions such as changes in the economy, product launch, or for any other reason that influences the ability of indicators to be achieved.

In its simplest form, a KPI indicator is a way of measuring and understanding the organization’s or department’s performance level. A good KPI indicator should act as a compass, helping management and its team understands if they are on track to achieve strategic goals. To be effective, a KPI indicator must meet the following requirements:

- to be defined and measurable;
- to be detailed communicated within the entity;
- to be essential in the objective achieving;
- to be applicable for the developed activity;

In the market economy KPI indicators expand their reach and are applicable in different departments such as production, logistics, marketing, sales, human resources, financial, etc. But the problem arises when the entity has to choose from the multitude of indicators, the ones appropriate to the activity being carried out. The best way to do this is by researching and understanding some of the most important KPI indicators. In this way, a better understanding will be created about those who are industry-specific and those who will not be helpful.

In the table below are presented some types of objectives of the logistics and production departments of the entity on which the KPI indicators are to be established.

By analyzing the above objectives, the entity will try to identify the relevant KPIs. It is obvious that cost-related, as a major objective will be to reduce them by optimizing costs.

Table 3.2

Objectives established within the production and logistics departments

PRODUCTION	LOGISTICS
Ensuring the quality of manufactured products	Distribute orders without delays
Replenish the required volumes	Effective stock management
Cost control (fixed, variable)	Control over distribution costs

Source: elaborated by the authors

However, it is important to note that in the economic practice, this optimization must take place in compliance with the “ceteris paribus” principle, ie not to alter other indicators at the same time as costs such as the volume of manufactured products or their quality indicators. Distribution of orders must be made in due time, under preconditioned contractual terms, in the appropriate quantities. Inventory management is related to the effectiveness of the evidence, but also to the functionality of valuation and sales processes.

According to the above, we conducted a research within the Efes Vitanta Moldova Brewery with the purpose of identifying the types of KPIs used, their calculation, as well as tracking them at individual, departmental and entity level.

The basic principle in selecting the KPI indicators within the group is to “climb” them by first imposing generic indicators at the entity level and then deploying them at different levels. By setting the overall indicators, it is possible to align all the enterprises within the group and their comparability with each other or with others. So for 2015 and 2016, Efes Vitanta Moldova entity had four KPI indicators at entity level, such as (Table 3.3).

If we are to refer to the importance of using the above indicators, one of the main selection criteria is certainly to ensure comparability between entities operating in the same industry. Namely such indicators as EBITDA or EBIT, allow the understanding of an entity’s ability to generate cash flows for its shareholders and directly to assess the operating performance of the company being analyzed.

Free Cash Flow or Net Cash Flow is an indicator that allows to perform analyzes of the cash inflows and outflows of the entity and find the causes for which they were higher or lower than the expected amounts.

Table 3.3

KPI indicators of Efes Vitanta Moldova

KPI	Calculation method	Level of appreciation
Sales volume	Sold thousand liters	Maxim
EBITDA <i>(Earnings before interest, tax, depreciation and amortization)</i>	Operational Profit + Interest + Income Tax+ Depreciation + Amortization	Maxim
EBIT <i>(Earnings Before Interest and Tax)</i>	Operational Profit + Interest + Income Tax	Maxim
FCF <i>(Free cash flow)</i>	Net Income + Depreciation - Change in Working Capital – Capital Expenditures + Proceeds from sales of PPE	Maxim

Source:Elaborated by the authors

The indicators described above have become very popular internationally and currently for the Anadolu Efes group, of which the analyzed entity is also part. These indicators help to consolidate and compare the results and performances obtained by entities within the group.

As mentioned above, following the “cascading” principle of bonds, besides the entity’s overall KPI indicators, it also establishes KPIs by departments and individual employees.

In the table below, we can easily determine the KPIs assigned to the departments.

Table 3.4 provides information on KPIs by departments and in turn they can be detailed and assigned to each employee. A KPI of the department manager and the entire department will normally be considered when each employee contributes to the achievement of the planned indicator, which denotes the idea of teaming and achieving the objectives in the group.

Regarding the implemented system and EVMB Group Policy, these indicators are set directly for department managers. It can be noticed that the established indicators can be calculated both on the basis of the Profit and Loss Account and on the basis of the Balance Sheet. Indicators are selected and assigned taking into account the specificity

of each department as well as the degree to which a person can influence the change.

Table 3.4

The list of KPI indicators by departments

NR	KPI indicatori - Contul de Profit și Pierderi	2016 Actual	Buget	Realizarea	Financiar	Resurse Umane	Marketing	Dep. Tehnic	Vânzări
1	Volume (mLt)	70,0	74,7	● -6,3%					✓
2	Net sales, mMDL	640,7	702,1	● -8,7%					✓
3	Net sales/per Lt, MDL	9,1	9,4	● -2,6%			✓		
4	COGS, mMDL	342,3	415,2	● -17,6%				✓	
5	COGS/per Lt, MDL	4,9	5,6	● -12,0%				✓	
6	OPEX, mMDL	212,12	223,5	● -5,1%	✓				
7	OPEX Margin	34,1%	31,8%	● 2,3 pp					
8	Sales OPEX, exc. Salary, Vehicles mMDL	29,5	29,4	● 0,3%					✓
9	HR OPEX + Total vehicles, mMDL	21,0	22,0	● -4,7%		✓			
10	Salary Expenses, mMDL	91,8	100,6	● -8,7%		✓			
11	Marketing OPEX excl. Salary, mMDL	32,6	32,8	● -0,5%			✓		
12	Supply Chain OPEX+COGP, mMDL	101,8	108,8	● -6,4%				✓	
13	EBITDA Margin, %	27,1%	24,3%	● 2,8 pp	✓				
Indicatori KPI - Balanța Contabilă									
14	Account Receivables, mMDL	69,0	76,6	● -9,9%					✓
15	Inventories turnover days (YE)	92,3	77,9	● -14,5				✓	
16	Account Payables, mMDL	63,3	63,1	● 0,2				✓	
17	Vacation pay liability, mMDL	-446,9	1.124,0	● -139,8%		✓		✓	

Source: Reports on KPI calculation of Efes Vitanta Moldova Brewery

For example, if we look at Inventories turnover days (YE) – The number of days of inventory rotation (at the end of the year), this indicator has been assigned to the head of the technical department because this department manages the level and volume of stocks. Thus, the basic objective is to ensure their efficient management, ensuring the availability of materials for the entity, and avoiding overburdening.

It is necessary to note that no matter how capable an employee would be, he can not form an economic entity that is to occupy all the functions and assume all possible bonds. In this context, it is necessary to mention the idea and principle of “cascade responsibilities”, where, for example, those 3 KPIs of the finance department manager will be taken over by its subordinates who, directly or indirectly, will contribute to their KPI department, as all the pooled indicators ultimately generate the achievement of those EVP entities’ KPIs: Volume, EBIT and Free cash flow.

Namely, the division of company objectives into the organization allows the alignment and concentration of all staff to achieve the overall strategy. This also ensures that all employees are focused on key objectives. Translating high-level strategic objectives into clear objectives for each employee creates a transparent, top-down and bottom-up line so that each individual understands how their daily actions contribute to overall success company’s.

This allows employees to develop goals that relate to organization strategies, understanding leadership, engagement, and personal responsibility.

From the research carried out at the performance indicators section, we note the importance of budgeting the KPIs, how this system can be implemented and how useful it is at entity level, however, the eternal market economy condition that the implementation of a new process, a new technique must always bear in mind that this phenomenon has more economic advantages than costs.

This efficient tool enables the entity's performance to be known in a timely manner as a whole and of each area of responsibility delimited within it. At the same time, it facilitates the adoption of corrective decisions in the case of identifying deviations from the budget and encourages managers to act in the interest of the entity by measuring their performance in accordance with the budget.

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Chapter 4

INTELLECTUAL AND HUMAN RESOURCES POTENTIAL OF INNOVATIVE DEVELOPMENT THE ECONOMIC ENTITIES

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THE PROS AND CONS OF ENGAGING CITIZENS IN SOCIAL INNOVATION

In recent years, Europe and all developed countries have been facing new social challenges that cannot be overcome using the standard methods traditionally applied by governments, businesses and civil society. There are various reasons for these problems, but the fundamental one is the existing disconnect between traditional services and emerging needs.

One response to the new requirements is social innovation. It is seen as a way to overcome social challenges, promote sustainability and support economic growth.

The need for social innovation usually arises when there are problems, when the systems are not functioning or when institutions follow the “beaten track” without dealing with the new challenges. As early as in the 19th century Lord Thomas Babington Macaulay (1856, p. 141) wrote: “there is constant improvement precisely because there is constant discontent”.

Of importance is also the awareness of the imbalance between what the current situation actually is and what it should be; between what people need and what they are offered by governments, private companies and non-government organizations. At the same time, this gap is constantly expanding due to the emergence of new technologies and new scientific knowledge. The power of the Internet and global media is harnessed for such causes as combating global poverty and environmental protection.

Social innovation comprises a very wide range of activities: development of new social products, services and programs; restructuring of social relations and institutions; new models of local development; transformation of the social systems and operations of businesses based on sustainable development and aimed at overcoming the social challenges. A uniform, generally accepted definition of social innovation is still lacking. This may be due to the fact that it is a field of activities where definitions and meanings emerge through people, companies or communities that do things in a new way, and the academic literature is merely reflecting them. The Center for Social Innovation at the Stanford Graduate School of Business, Stanford University, defines social innovation as a “process of inventing, providing support and implementing new solutions to social needs and problems” and as “dissolution of borders and a dialogue for mediation between the public, private and non-profit sector” (Phills et al., 2008). As with Mulgan (2007) social innovations are usually new combinations or hybrids of existing elements. And they (Mulgan, 2007, p.35) leave behind compelling new social relationships between previously separate individuals and groups. It can be concluded that they are new or improved ideas aimed at solving social problems at the community level.

Social innovations are usually associated with social enterprises. But in the past decade, a new resource has come to the fore: the population itself, consisting of individuals, families, communities, voluntary organizations, informal groups, etc. They play an important role in the identification of emerging social needs and solutions to social problems. It’s surprising to see how many (apparently) “ordinary people” are able to make the extraordinary possible, if given the opportunity (Meroni, 2007, p. 9).

How can citizens be engaged in social innovation? The International Association for Public Participation approaches the different purposes of public participation from the viewpoint of the state (Table 4.1). But the engagement of citizens can also occur within businesses: when the latter carry out research to identify customers, offer joint consultations and events, or adopts useful ideas from citizens.

There are various forms of such participation, but certain common characteristics can nevertheless be identified. The first is that citizens are active participants in the various stages of development of social innovations.

Table 4.1

Spectrum of Public Participation

	Inform	Consult	Involve	Collaborate	Empower
Public participation goal	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions	To obtain public feedback on analysis, alternatives and/or decisions	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision-making in the hands of the public.

Source: International Association for Public Participation (2007): Spectrum of public participation

They provide information on past experience, offer ideas (new or such that improve existing activities) and receive certain powers to be exercised in their cooperation with representatives of the sector to solve a certain social problem. The second characteristic is the common goal (e.g. social improvements in the local community, solving environmental problems, overcoming the isolation or social exclusion of groups of people, etc.). The third characteristic is the absence of coercion: some incentives may be offered, but the engagement of people is always voluntary. There are numerous ways to engage citizens: research and consultations, through more formal activities such as co-design workshops and idea camps to informal activities online (Simon, & Davies, 2013, p. 40).

Some authors (Oakley et al., 1991; Nelson and Wright, 1995) consider the advantages of citizen engagement in social innovation in two aspects: efficiency arguments (participation as a tool for achieving better project outcomes) and equity and empowerment arguments (participation as a process which enhances the capacity of individuals to improve their own lives and facilitates social change to the advantage of disadvantaged or marginalized groups). Conversely, according to others authors (Cleaver, 1999, p. 599) the scope (and limitations) of the empowering effects of any project are little explored; the attribution of causality and impact within the project alone problematic.

The potential of civil society to generate ideas and develop and

implement social innovations is rather strong and in most cases with positive effect. The downsides are the risks and limitations that may arise in citizen engagement. The results of this participation are usually related to the form and context of the activities performed and the structures that support them. In some situations, the disregard of side factors can lead to weaknesses and even jeopardize the ultimate goal.

The publications under the Tepsie project formulate three functions of citizen engagement in social innovations: (I) Providing information and resources, (P) Problem solving and (D) Taking and influencing decisions (Davies & Simon, 2013a, p. 7). This can serve as basis for further reflections on the appropriateness of involving the widest possible range of participants from the general public.

In the first place, the participation of civil society contributes to the identification of specific social problems. If the innovation process is managed by authorized persons from the public, private or NGO sectors, who have not been faced with a certain social challenge, they will not be able to define it properly. This can be best accomplished by the citizens themselves who know their own needs, past experiences and problems. They are “experts in their own lives and nobody – nobody – else can claim that role.” (Bason, 2010, p. 151).

The information provided by citizens is crucial to identify problems and suggest guidelines for action at all stages of social innovation. What sets it apart from the usual collection or provision of information is feedback. Therefore, in recent years the access to the greatest possible number of citizens is realized through electronic platforms specifically designed for certain social goals.

One example is the online platform “I Paid a Bribe” launched in 2010. By collecting data and creating a support network where people can share their experiences, the platform helps to limit corruption in public services in India¹. In May 2018, the platform is already used in 29 countries in Asia, Africa, the Americas and Europe.

The Streetbank website was started in 2010. Its purpose is to boost local communities, allowing people to connect and share information, ideas, things and opinions.

The Nesta Foundation, based in the UK, supports people and organizations working in the field of social innovation in over 40 countries worldwide. In 2014, Nesta announced a GBP 10 million prize challenge to tackle the issue of antibiotic resistance. The challenge is

¹ www.ipaidabribe.com

still open and is currently pursued by over 100 teams worldwide, including in the UK, the USA, Nigeria, Israel and Australia².

Secondly, citizens joining the teams can offer different, unconventional and innovative ideas to solve a particular social problem. People with different life experiences and different ways of thinking can initiate solutions that are far from the forms of impact commonly used by specialists. For example, Ashoka Changemakers is a global movement platform where anyone, anywhere, can take action to solve social problems in their community³. Another popular example is that of Family by Family, Australia – a program that provides resource support and connects families who have experienced difficult times with those who are presently troubled and seek opportunities for change⁴.

Much of social innovation cannot be accomplished without the active engagement of the citizens themselves through various forms of mutual support, environmental protection, prevention of chronic diseases and obesity, etc. One such initiative is the time credits offered by Spice, UK, which is aimed at building relationships between communities and public service organisations. For every hour which citizens spend offering their skills and activities to address a social problem in their community, they earn time credits, which can then be spent on a wide range of other activities: recreation centres, training opportunities, local theatres, cinemas or museums. Time credits can even be traded between participants to access additional forms of social support⁵.

Thirdly, citizen engagement entails a long-term commitment in the implementation of social innovation and the opportunity of taking decisions or having influence and control over these decisions and the spending of the budget. This role gives them a certain power within the institution or the community where the activities are carried out.

The benefits of engagement and empowerment of citizens within social innovation can also be seen in a wider context. The joint efforts together with other people, local institutions or NGOs contribute to the formation of stable communities, which translates into additional social impact. One example is the US national program “Love Your Block” launched in 2009. Under this program, municipal authorities in various cities award a series of grants from USD 500 to 2000 per local voluntary

² <http://www.nesta.org.uk>

³ <https://www.ashoka.org/en/program/ashoka-changemakers>

⁴ <http://familybyfamily.org.au>

⁵ <http://www.justaddspice.org>

group which proposes projects to improve their neighbourhoods. Towards the end of 2016 more than 10,000 volunteers have been engaged to remove over 480,000 pounds of trash, clean up nearly 600 lots, and create more than 180 art displays, in addition to numerous other community projects⁶. In addition, a study conducted in Birmingham, Alabama, shows that neighbourhoods renovated under this program manifested a side social effect: in the very first year crime decreased by 11%, theft of property by 13%, and car thefts by 16% (Myung & Levine, 2016).

Many agree that citizen engagement is crucial for the development and implementation of social innovations. Moreover, in many cases development projects which do not involve participation of citizens are seen as unethical and illegitimate (Cleaver, 1999). For example, in the UK it is stipulated by law that municipalities must consult with citizens, businesses and third sector organizations in the development and implementation of municipal services (Davies & Simon, 2013, p. 40).

In practice there is strong evidence that when citizens engage in certain ways with one another and with leaders from the public sector, the probability of success in the community is much greater (Myung & Levine, 2016). As it is expressed by Arendt (2006, p. 247), no one could be called happy without his share in public happiness, that no one could be called free without his experience in public freedom.

Along with this, significant studies have been conducted which suggest that citizen engagement can often lead to negative or poor outcomes (Davies & Simon, 2013b, p. 43). The concept of engagement can bear multiple meanings and is even described as “an infinitely malleable concept, used to evoke and signify almost anything that involves people.” (Cornwall, 2008, p. 269). To be effective, such engagement requires participation of a large number of individuals, so that they can represent and protect the interests of the whole community. But the presumption of greater involvement of citizens may not be justified. If certain individuals do not have a strong sense of belonging to the community, they may not want to be involved in the social problems of that community, as the time they invest may not result in a corresponding benefit. Others will refuse to get involved due to lack of confidence or the feeling that they lack the capacity to offer something substantial. According to Beetham et al. (2008, p. 11), social exclusion, in all its manifestations, inhibits the participation of poor and

⁶ <https://citiesofservice.org/resource/love-your-block>

disadvantaged communities and individuals.

Let us go back to the example of “I Paid a Bribe”. It is obvious that the majority of people who are poor, uneducated or living in remote areas where there is no access to the Internet cannot contribute information or assistance.

Who *is* participating then? How can we be sure that everyone engaged will act in the interest of the whole society, ignoring their own personal problems? If the engaged citizens represent certain groups or interests, it will mean that the process of implementation will not be representative of the entire community, although decisions are taken on its behalf. In this case the mechanisms of empowerment may be startlingly clear (i.e. empowerment of the individual through cash transactions in the market) or conveniently fuzzy (as in the assumed benefits to individuals of participation in management committees). The scope (and limitations) of the empowering effects of any project are little explored; the attribution of causality and impact within the project alone problematic (Cleaver, 1999, p. 599). This can lead to a situation where other persons involved in the project, frustrated with the direction of development, lose confidence and may withdraw. In the words of Cornwall (2008, p. 274), some communities have experienced so many such attempts to ‘participate’ them that they have become tired and cynical.

The existence of such challenges does not mean that we must reject or ignore people's participation in social innovation. Citizen engagement will always be an important factor for the spread of social innovation created in response to major social needs. But the role of the institutions that have initiated a certain social innovation is to live up to the challenge of engaging people with specific projects in the most effective way. They must be aware of the possible outcomes related to both the achievement of the ultimate goal and the possible failures. It is very important that the institutions which initiate the relevant social innovation provide as early as at the conceptual phase the necessary information, including the limitations and proper formulations. The use of terms such as “empowerment” or “local control” when citizens are simply taking part in consultation exercises is likely to raise expectations that cannot be met (Boelman et al., 2014, p.19). Unjustified expectations may result in disappointment in some of the citizens and their withdrawal from the project. This is why the forms of engagement should be clearly described and consistent with both the context and the resources available. As with employment contracts, there is a need for a

secure relationship and a clear definition of the rules. Thus each party has the right to demand that the other party perform its corresponding obligations (Andreeva, 2018, p.139). Each proposal requires the fulfilment of five conditions to ensure success: members of different groups must be included under the same conditions, only in situations where the overcoming of stereotypes is possible; the equality between them must be accepted as a social norm; participants must get to know one another well and ensure cooperation between groups (Hewstone, 2003). It is very important to pay attention to who is and who is not engaged, so as to avoid any forms of lobbies and dominant interests.

It is obvious that the effective inclusion of citizens in social innovation and the overall achievement of the desired result face many challenges. But the positive aspect of such engagement is unquestionable. Therefore, further efforts, research and concrete measures by initiating institutions will be needed, so that social innovation succeeds in providing a wide range of social benefits both for individuals and communities as a whole.

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**SOCIAL CAPITAL AND
SOCIAL COHESION IN
COMMUNITY
DEVELOPMENT**

The concept of social cohesion has been used since the mid of 1980s and was directly related to the development of the regional policy of the European Union, which includes the conceptions of social and economic cohesion. Thus, social cohesion is defined as the focused response to global challenges of the modern world: political and social transformations, accelerating economic competition, ecological, financial, energy, social and other crises. Community cohesion can help people to respond to social challenges and to overcome the problems they face as only cohesive and united societies address the emerging challenges and help their members more effectively (Green, Janmaat, Cheng, 2011). The senses of belonging, participation, inclusion, recognition and legitimacy prevail in a socially cohesive society, which promote social cohesion and contribute to its increase. Acevedo (2007) defines social capital as a measure of social cohesion, which is important for society development, while the commitments, based on participation, trust, and solidarity, are essential for seeking for active citizenship and good governance. The social well-being of all members of society is important, while establishing social cohesion and the creation of social well-being is associated with development of value systems, strengthening relationships between members, reduction of wealth inequalities, and responsibility for joint creation of the good. The society should understand that only by acting together one can solve the problems and succeed with implementation of social integration, which can ensure stability, safety, tolerance, solidarity, and equal opportunities to the vulnerable social groups. Thus, the basis of the concept of social cohesion is creation of the proper environment and factors, where all individuals would like to work together to achieve collective goals. While analysing social cohesion, the following indicators can be distinguished: support for development of education,

health, and social security; values, trust and compliance with social norms; civic participation (engagement).

The following public goals are considered as the essence of social cohesion: reduction of inequality, social exclusion and deprivation; increase of social capital by strengthening relationships between different groups of society (Berger-Schmitt, 2000).

Jenson (1998) describes social cohesion as the social process where the actors are engaged in public life, and their commitments encourage them to actively solve the problems by relying on institutions and democratic governance. At the same time, the author distinguishes the following aspects of social cohesion in society: belonging – isolation, it refers to shared values, identities, and feelings of commitment; inclusion – exclusion, it refers to possibility to take part in economic activity; participation – non-participation, defined in both local and central governance; recognition – rejection, toleration aspects; legitimacy – illegitimacy, it refers to mediation by social institutions among different individual or group interests.

While analysing the social cohesion, the scientists associate it with social capital. According to Jokubaitis, Norkus (2006) social capital is the axis of social cohesion, and their relationship has a positive impact on the society and community development: the higher the social capital is the greater the cohesion in society. Putnam (2001) argues that social capital includes the features of social organizations as trust, norms, and networks, which can increase the productivity of society. Thus, it can be stated that social capital guarantees the creation of social cohesion, i.e., social networks, norms, and trust help the members to act together to seek the common goals and to create social cohesion. According to Duhaime (2004), the basis of social cohesion is social capital, in particular: trust in institutions and voluntary participation in their activity, social inclusion, access to informal networks of social and economic support lead to demographic stability, satisfaction and safety at community level, and the latter components of social cohesion make up individual quality of life in community and society. Ache, Andersen (2008) state that a “good” society is a “strong” society, able to involve the majority of its citizens in the joint activity. Quite high power (legitimacy) is given to this society, appropriate resources are mobilized, leading to creation of long-term social cohesion, since social relationships between the groups of society are strong and constantly supported.

It should be emphasized that in the European Union, the concept of

cohesion was based on the convergence theory and described according to the steady development of the EU member states and their regions. This aim of social and economic cohesion was established in the Single European Act (1986), started to be implemented in 1988 upon adoption of the European Communities Regulations, and named as the Cohesion Policy with the aim to reduce development discrepancies between various regions of the European Union member states, in order to strengthen economic and social cohesion (Cohesion policy..., 2007).

Considering the differences in quality of life in different EU regions, it has been thought on how to improve the quality of life in remote regions since 1995. Therefore, the EU-supported measures were focused on the areas as improvement of local infrastructure, increase of employment, favourable conditions for business establishment and development. It should be noted that the start of implementation of social cohesion was accompanied by the concept of passive cohesion, based on the public subsidy grants for more lagging regions, in order to support them by reducing unemployment and eliminating the consequences and causes of economic downturn.

Since the EU social cohesion takes place in the situation of globalization, there are some debates on whether national identity helps to maintain social cohesion as the life of the nation, and economic, political and cultural power of the country is largely dependent on the number of population. Bauman (2006) argues that perception of identity occurs due to emerging crises, while the state with a monopoly of the national identity draws the boundary between the individuals. Thus, the persons, who have problems due to limited possibilities to participate in economic and public activity, face risk and exclusion. Therefore, social cohesion could help to address the issues, related with risk, safety, and social solidarity. In addition, Chan (2006) defines social cohesion as “glue that holds society together”. As a result, when community members are related by social cohesion, it is beneficial for economic prosperity of the country and for public welfare.

While analysing the associations between social capital and cohesion, it is worth noting that Putnam (2000) proposed the social capital index, known as index of civil community. It might be argued that in this way, the components of social capital can be associated with the concept of social cohesion, where active participation and citizenship of community is emphasized. Furthermore, social cohesion encourages people to observe moral standards, to seek for common goals, ensures and strengthens relationships in community, including

common values and norms. It might be stated that the factor of successful social cohesion is community development, which helps to solve economic, social and ecological issues. According to Onyx et al. (2004), in order the communities could develop and solve the emerging issues in civic way, constant interaction between community members and support of the created relationships is needed. While analysing the concepts of community in scientific literature, it is noted that in general terms, the community refers to the unit of people, residing in the defined area and having common interests, as well as the agreement on common activity, based on the principles of self-government, voluntarism and mutual assistance, which guarantee a safe environment and spiritual health. Meanwhile, according to Nisbet (1993), the basis of community is a human being. A community involves manifestations of feelings and thoughts, traditions and fidelity, collectivity, and community is identified in a local area through religion, nation, profession, or movement. In social cohesion, it is essential to assess the significance of social relationships and community values in community development, since the components of social capital, based on democratic principles, are built precisely in communities. The common interests, growing into social trust, can appear only in the activity between local community members. Nefas (2007) distinguishes the following criteria of community: there is a leader; a group of active citizens (formal community centre), which systematically gathers in meetings and shapes the community needs; a non-governmental organization; there is a communication system; it is deepened into spiritual values, ethnoculture, therefore, there is a favourable environment for the growth and development of an individual; there is interaction between individuals, neighbours, groups, organizations; social order is created; individuals trust themselves and their neighbours; democratic principles are realized, etc.

It should be noted that the concept of social cohesion defines a functional community in Europe as a civil society, characterized by civic participation in public affairs, while their interrelationships are based on horizontal relationships of reciprocity and communication, based on mutual respect and trust even when the attitudes towards the key things are different (Putnam, 2001), or on neighbourhood, which, according to Durand (1996), is the territory, where the residents occupy certain life areas, use the same services and facilities of common use, are able to participate in the same activities: to take care for, to strive to maintain and improve material things, to spiritualize the community life,

to enrich the environment, which also requires commitments.

However, the concept of social cohesion is an important civil society, which successfully develops and increases social capital. Jankauskienė and Ališauskas (2008) identify the following factors that contribute to successful community development (Table 4.2).

Table 4.2

Success Factors of Community Development

Factors	Description
Good management	Use of external and internal resources, division of works and motivation
Good leader	Proactive, committed to community, able to mobilize human and social capital
Involvement / participation of population	The more people are involved in the community development, the more effective and successful the activity is
Involvement of various new members	Community must include people of different education, social status, beliefs and values
Assessment and usage of available resources	Local experience and knowledge of resources are the key aspects for making decisions on community development
Motivation	Benevolent, sincere work, the need to act, to maintain confidence in the chosen activity must be properly motivated
Planning	Realistic planning of community actions based on the community situation and the needs of residents
Cooperation, network	Close cooperation, contacts with local authorities, businesses and district non-governmental organizations. Community network, which forms the basis for disseminating information and exchanging experience between rural development actors
Creativity	Creative activities, innovative use of local resources; assessment and adaptation of changes, implementation of innovations in activities
Funds and other sources of funding	Ability to fund the planned activities, project literacy, qualification of employees
Learning	Training, seminars, community education, and openness to innovation, skills development

Source: Jankauskienė, Ališauskas (2008)

In summary, it might be stated that successful development of civic community is associated with the following factors of social cohesion and social capital: participation, involvement, trust in norms and reciprocity-based community relationships. While analysing the theory of social capital, Woolcock (2001) included more formal institutional relationships and the factors as governance, political order, law and rules, court system, civil and political freedom. Thus, it might be concluded that social capital is the basis of civil society that promotes social cohesion.

The aspects of social cohesion are closely related with the components of social capital. Furthermore, the framework of social capital, developed by Narayan, Cassidy (2001), distinguishes volunteerism as one of the main dimensions of social capital. Meanwhile, R. Putnam states that participation and involvement are indispensable elements of social capital that help to form civil communities. It should be noted that volunteering is an unpaid activity. In general, volunteer activity is defined as altruistic activity, aimed at improving the quality of life of all people in the society, at spreading the good. In exchange of the activities, a volunteer gains more self-confidence. According to Kurapkaitienė and Kėžaitė – Jakniūnaitė (2011), a volunteer is the person, who chooses to dedicate his time and efforts for the society and its needs. A volunteer performs an unpaid work, which is beneficial for other individuals and community. Importantly, volunteering is one of the ways to involve the community members in decision-making and to promote the development of civil society (Urmanavičienė, Čižikienė, 2017).

In summary, it might be concluded that the level of social capital is closely related with development of social cohesion, since active civil communities and participation of community members in volunteer activities are the required factors of social capital, promoting and increasing social, civil, and economic activity of individuals, which is based on the mutual understanding, shared values and goals of community members. Thus, following the concept of social cohesion, which is defined as creation of the environment, where individuals, groups, communities would wish to trust and cooperate for achieving the common goals, an important part of social cohesion is ensuring the development of civil communities. This development requires regular interaction between the community members and continuous support of the community network, as well as search for the ways to incorporate the social capital. Finally, close associations between development of

social cohesion and high social capital level could help to solve the issues of social exclusion, arising the society and in the community.

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**HIGHER EDUCATION AND
RESEARCH AS FACTORS
FOR THE DEVELOPMENT
OF HUMAN POTENTIAL
AND INNOVATION IN THE
REGIONS**

Technological development, innovation and creativity are the key determinants of economic prosperity in a globalizing, knowledge-based economy. Research works on innovation systems shows that the key level at which innovative capabilities are shaped is the level of the region. For each country characterized by different, often distinctive, regional economies, the crucial factors of national prosperity are the relations between economic actors, organizations and institutions at regional and local level. Economic success in the current competitive environment also depends on the social qualities of the regions concerned and on the creativity and talents of their citizens, their ability to learn, create or take over and apply innovation. The human factor, and its social, socio-economic and cultural contexts, relationships, values, behaviours, are undoubtedly key issue to exploring the regional innovative potential.

In our chapter we will pay attention to the functions of higher education and research in innovation potential of the region. Human capital and research activities at higher education institution could represents the significant factor affecting innovation in the region. In the analysis we examine the share of tertiary educated active population in the NUTS2 regions. Most of the regions in Czech Republic, Hungary, Poland and Slovakia (V4) are still lagging behind EU average. However, metropolitan regions containing capital cities are leading in this indicator in all four countries. We perform correlation and panel regression analysis based on the sample of NUT2 regions from V4 countries.

1. The role of higher education and research in regional innovation systems

Innovation in our contribution we will understand in a broader and more complex way than corporate innovation. We will also understand social innovations in the public and social sense (see eg. Lubelcová et al., 2011).

Non-conservative (neoliberal) theories of regional growth underline, similar to neoclassical, the role of the market for resource allocation and the initiative of individuals. Neo-conservative approaches include new economic geography, the (new) theory of endogenous growth (Blažek and Uhlíř, 2002). However, according to the authors of path dependence theory (or also QWERTY) P. A. David and W. B. Arthur are the cause of inter-regional disparities: natural conditions, strong subject active in region, historical events or coincidence and divergence, which cause agglomeration benefits, economies of scale, imperfect competition whether the network effect (compatibility with other entities). On the other hand, P. Romer and S. Rebelo in the (new) theory of endogenous growth see the cause of interregional differences in the different levels of resource availability of the regions: of human resources and technologies. The main mechanisms behind convergence include rising returns on capital (including human), external savings (in particular from knowledge diffusion), knowledge transfer and technology. The basis for the neo-institutional approach in theories of regional development (so-called postfordism) is a number of closely related theories: the theory of the manufacturing district, the regulatory theory, the theory of flexible specialization and the learning regions.

According to the theory of production district of G. Becattini and S. Brusca, the source of regional prosperity is a good social, cultural and institutional structure and a non-hierarchical system of organizing small business cooperation through networking (network of trust, cooperation and management), economies of scale and specialization, companies, interdependence, information sharing, innovation, elimination of rigid segregation on manual workers and managers and adaptable workforce (Blažek and Uhlíř, 2002).

The new theory of growth (Romer, 1986, Arthur 1989, 1996) addresses the importance of information, knowledge, innovation and its dissemination for economic growth. The key definitive feature of the new growth theory is the key importance of human capital for economic growth and competitiveness. Even in the new theory of growth (as in the

new economic geography), there is a strong dependence on past development (path dependence). Unlike the neoclassical economics from which the new theory of growth emerges, it attributes importance to broadly understood institutions (e.g. the education system). These institutions significantly affect the environment in which knowledge arises and is applied.

The new growth theory belongs to the theory of endogenous growth because it does not consider human and technological capital as exogenous but as endogenous factors (Martin, Sunley 1998). There are several variants of the new theory of endogenous growth. One is to take into account the effects of innovation and technological progress by incorporating the human factor into the neoclassical model. The increase in human capital raises the productivity of other factors of production in the traditional neoclassical model – labour and capital – which predominates in the neoclassical models the originally intended effect of decreasing revenue, and allows for long-term, endogenously generated growth. Martin and Sunley – critic of the new theory of growth – are attributed, among other things, to an underestimation of the importance of socio-cultural factors, high abstraction of models, or the lack of empirical research. The current regional policy is aimed at exploiting and mobilizing local, endogenous development potential and mobilizing local assets (human potential, knowledge, contacts, cultural and natural factors and cultural and natural heritage). The differences between local / regional and national level are wiped out, and an attempt is made to link these levels for the purposes of policy decisions making process. Regional policy uses instruments based on the cooperation of public and private actors. Since the 1990s, the focus of regional policy has grown – from supporting infrastructure, through business support – to human resources development (this trend is also typical for EU regional policy, called economic, social and territorial cohesion policy). There is a strong belief in the sources of regional / local development incentives to ascribe the key importance of human initiative and human resources for regional development. In line with institutional theories, there is a key interaction between actors and institutions at regional level, both inside and outside the region (in a particular institutional setting).

In recent decades, regional development theories agree that the innermost resources (endogenous), the role of actor and bottom-up activity are the most important for the development of the region. It is therefore a concept of development based on local resources and abilities. Fundamental elements of endogenous approaches to regional

development support are the effort to change the atmosphere in the region, create conditions for learning and participation, inclusion of actors, empowerment, effort to create positive expectations, create a network of actors for active adaptation, They focus on creativity and innovation in the regions as an important social component of the economic prosperity of the current, innovations driven global economy.

Technological development, innovation and creativity are the key determinants of economic prosperity in a globalizing, knowledge-based economy. Research work on innovation systems shows that the key level at which innovative capabilities are shaped is the level of the region. For each country characterized by different, often distinctive, regional economies, the crucial factors of national prosperity are the relations between economic actors, organizations and institutions at regional and local level. Economic success in the current competitive environment also depends on the social qualities of the regions concerned on the creativity and talents of their citizens. The human factor is indisputable in these processes of learning, social interactions, the emergence, dissemination, sharing and application of innovation.

Regional development theories, as well as empirical research at home and abroad confirm the importance of universities for regional development, not only as educational institutions, educating work forces, but also as an important regional economic and social actor, as a partner of public and private institutions and entities in the region as well as at the national level. The issue of human factor and its role in regional development resonates in many theories of regionalists (Edquist, 1997; Lundvall, 1992). Problems are also concerned with the theoretical and empirical works of Etzkowitz and Leydersdorff (1999), Karlsoon and Zhang (2001), Hamm and Wenke (2005), Blažek, Uhlř (2011), Sloboda (2009), Liptáková (2008), Ručinská (2010) and international institutions (OECD, European Commission). Ručinská (2010) and Reháek et al. (2015) classify the activities of universities into the following groups:

- Education to improve skills and qualifications of the workforce;
- Research aimed at increasing technological level and innovation in companies;
- Community development to improve social cohesion, quality of life, the environment and better functioning institutions.

Higher education institutions are, according to Hanová et al. (2015) actors that can currently significantly affect the competitiveness of the regions. The dynamic development of the global economy puts new

Table 4.3

Effects of the University on demand and supply

Effects on demand side	Supply side effects
Expenditure on salaries for employees (most of them live in a given region), therefore most of their consumption is related to the region	Contributing to the growth of private production productivity by training a skilled workforce and its further education. Also transferring knowledge from universities to business practice through cooperation with business, student work as a trainee, or practically oriented diploma work.
Expenditure on consumption of goods and services of the university, often regional companies are their suppliers	Universities are a locating factor for businesses and households, especially students, young people who want to study at the university.
Investment expenditures such as buildings and facilities from which regional firms can profit	Contribution to expansion of regional flexibility to structural change.
Expenditures for students who change their temporary place of residence in a given region, close to the university, and most of the expenses are made within a given region	Increasing the response rate to structural change (it is higher with the better regional labour force qualification, because faster knowledge transfer from the university to the practice)

Source: Valenčáková, E., Žigová, S. 2005.

demands on people, businesses and the public sector and requires changes at the regional level. Claims relate to the skills of the workforce and its creativity, new technologies and innovations. Universities in the region are not only major employers and consumers of local production of goods and services. Their significance in the economy and society of the region is considerably wider and more compelling:

- the importance for life in the region,
- for other institutions in the region, including companies,
- as well as for the cities and municipalities of the region.

This multiplicative effect of higher education institutions in the region and regional development may not be “active” in relation to regional development. It is an important argument for the need for funding and infrastructure of public universities, including regional

financial and non-financial support and cooperation.

Local and regional government is, according to Reháč et al. (2015) a natural partner of universities. Nevertheless, in the reality of today in Slovakia, we are seeing the rather less active and intensive role of universities, especially in this third area – in regional development, including the closest community. Currently, this form of cooperation is most often the form of various civic associations that carry out volunteer or publicly beneficial activities, organize various events. In the field of community development, the school has a wide range of activities that aim at the use of cultural and sports infrastructure for the public and includes a number of activities such as the organization of exhibitions, concerts, festivals and other events, lectures for the public, public services, various popularizing activities, volunteering, children's universities, day-to-day openings, children's trust line, drug campaign and activities, third sector counselling, or working with him.

However, a potential area of cooperation and strategic regional development is mainly the preparation of strategic documents and analytical materials for municipalities, and consequently the participation of universities – as one of the key actors of regional development – also in their active fulfilment. A higher level of cooperation among regional actors is mainly the need for mutual communication of their needs and possibilities, so it is necessary to support the creation of communication platforms. The second proposed area is comprehensive institutional support with the aim the fulfilment of a university mission defined with the participation of regional players – regional self-government and potential collectors of the results of the activities of universities.

2. Methodology and data

Based on the theoretical knowledge and previous studies there seems to be an essential role of higher education and research in developing innovation in the region which could have positive implications for regional development. In our research we examine the share of population with higher education and R&D expenditure in higher education in NUTS 2 regions of V4 countries. Our main scientific aim is to identify potential link between variables directly related to higher education and the regional employment in high technology and knowledge intensive sectors. Employment in high technology and knowledge intensive sectors were both taken into account as proxies for

innovation potential of the region. We assume that regions with more employees in knowledge intensive and high-technology sectors have in general higher innovation potential. Moreover, we also assume that higher education via its education and research activities positively affect the employment in more technology and knowledge based sectors in the region. Furthermore, this can be seen as important determinant for increasing innovation performance of the region. We proxied the education level in the region by the share of tertiary educated on active population. The intensity of research at universities was proxied by the share of gross research and development expenditure used in higher education sector. In order to fulfil the main aim of our research we decided to conduct the analysis based on secondary data. Data used in the analysis are freely available in the Eurostat database in the section on regional statistics. Our sample consists of panel data for all NUTS 2 regions from V4 countries during the period from 2011 to 2015. This period was chosen according to availability of data for all regions in Czech Republic, Hungary, Poland and Slovakia. Despite the specifics of the regions, these four countries are characterized by geographic, economic and historical similarities. Thus we choose regions from these countries for the comparative analysis. All variables used in our analysis are summarised and described in Table 4.4

Table 4.4

Basic description of variables used in the analysis

High-technology employment	High-technology sectors (high-technology manufacturing and knowledge-intensive high-technology services) employment
Knowledge intensive employment	Employment in technology and knowledge-intensive sectors by NUTS 2 regions
Tertiary Education	Tertiary educated on active population (%)
R&D expenditures in higher education sector	Gross R&D expenditure used in higher education sector (% of GDP)
GDP per capita	GDP per capita in Price Purchasing Parity
Early leavers from education	The share of the population aged 18-24 having attained at most lower secondary education and not being involved in further education
Median age of population	Median age of population in each country

Source: authors based on Eurostat database.

The main indicator analysed in our paper is the share of the tertiary educated persons in the active population. The data for this indicator

were available in the reference period from 2000 to 2016 for all V4 regions. In addition, we also used an indicator capturing the expenditure on research and development spent in the higher education sector. This indicator was analysed as percentage of regional GDP or in euro per capita. However, for some regions, the indicator was not available in the reference period, thus we were forced to discard these regions from the part of the analysis. With respect to our main scientific aim we also set three main research hypotheses that we want to test in the analysis. These hypotheses are as follow:

H01: The educational level measured by the share of active population with tertiary education is the highest in metropolitan NUTS 2 regions containing capital cities of all V4 countries.

H02: Regions with higher share of tertiary educated population achieves in general higher employment in high-technology sector.

H03: Regions with higher R&D expenditure in higher education have in general higher employment in knowledge-intensive sectors.

In order to test potential link between mentioned two main indicators and employment in high-technology and knowledge intensive sectors in the region we applied correlation and regression analysis. We used especially a correlation analysis in the form of Pearson correlation coefficient to determine the strength of statistical dependence. In the case of regression we more specifically used panel fixed effect regression analysis. All independent variables were shown and described in the Table 4.4. We used two different depended variables capturing the employment in high-technology a knowledge intensive sectors.

3. The effect of higher education and research activities on regional innovation potential

As mentioned before regional innovation potential was indirectly estimated by two variables capturing employment in high-technology and knowledge intensive sectors. We examine the potential effect of higher education and research activities on the innovation potential proxied that way. It is obvious that the share of the tertiary educated persons in population is one of the key indicators reflecting the educational level in the region. At the same time, this indicator is usually to assess the human resources needed for innovation activities in the region. If some regions show a relatively low education level this could be seen as a negative factor affecting the innovation potential of

the region. Universities should play a key role in the region by increasing the educational level as well as fostering knowledge via research and development activities. Improvements in both of these two main roles of universities could help increase innovation potential of the region where the university is situated. In this section we firstly examine the education level in the regions of V4 countries. Figure 1 shows the development of the share of tertiary educated on the total active population in metropolitan NUTS 2 regions in V4 countries. These four regions were also the top performing regions with respect to tertiary education in each of V4 countries.

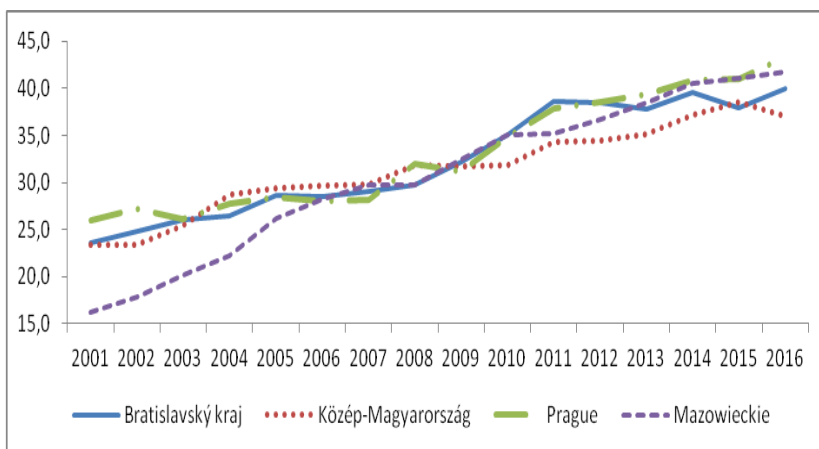


Figure 4.1 Development of the share of tertiary educated on active population in the top performing NUTS 2 regions in V4 countries
Source: Authors based on the data retrieved from Eurostat database.

It is clear from the chart that in the period from 2001 to 2016 there is a relatively stable trend of increasing educational level of all four regions. There is very similar development in all four regions. For example in the region of Bratislava, the proportion of tertiary educated people has risen from 25% to approximately 40%. The growth was even higher in Mazowieckie region. The Bratislava region ranks third behind the metropolitan regions of Prague and Mazowieckie. However, as we can see in Figure 4.2 other three regions of Slovakia are lagging not only behind the EU average but also behind the most of the V4 regions.

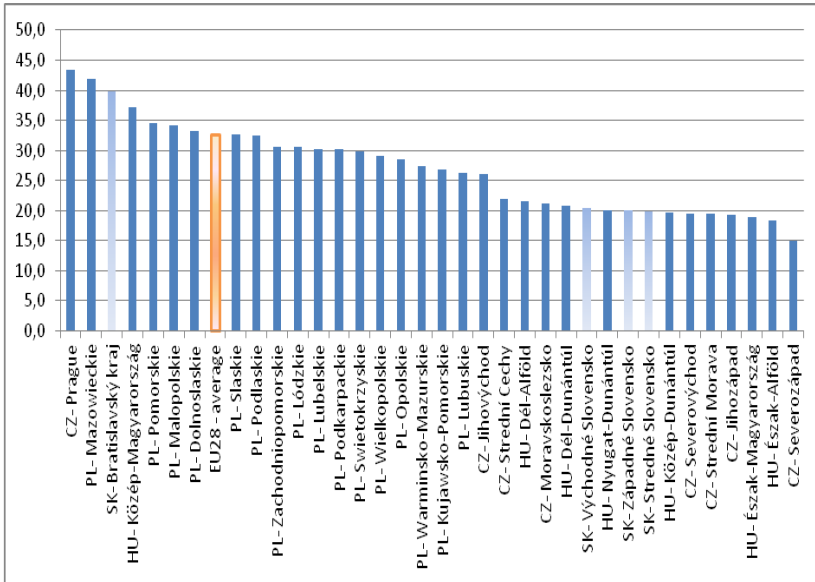


Figure 4.2 The comparison of population with higher education in V4 NUTS 2 regions (year 2016)

Source: Authors based on the data retrieved from Eurostat database.

Next we examine potential relationship between the share of tertiary educated in the region and regional employment in high-technology sector using the two-way graph. We used every region in every year from panel data as a single observation and to graphically show potential correlation between both variables. As it can be seen in Figure 3, there appears to be a relatively strong positive correlation between the share of tertiary educated population and high-technology employment in NUTS2 regions from V4 countries during the selected period (2011-2015). This is in line with our theoretical assumptions. However, we have to further test this relation using correlation and panel regression analysis.

Funding of educational and research activities at universities are important factors determining both the quantitative and qualitative aspects of higher education. This could further affect innovation in the region. Besides the educational outputs, research activities at higher education institutions seem to be another important factor related to innovation. Hence, we also decided to look at the volume of research

and development funding at universities in regions. We will examine the potential relationship between R&D expenditures at universities and the employment in knowledge-intensive employment as it can be seen in Figure 4.3.

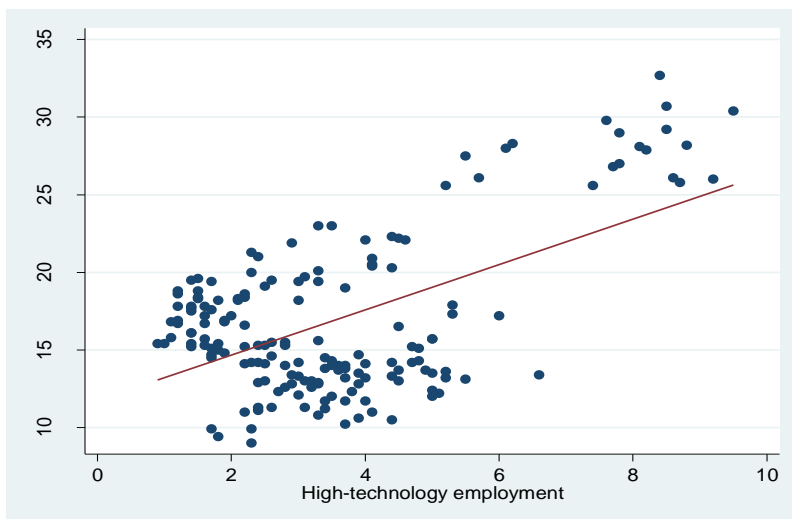


Figure 4.3 The potential link between the share of tertiary educated population and high-technology employment (NUTS 2 regions during years 2010-2015)

Source: Authors based on the data retrieved from Eurostat database.

Knowledge-intensive employment is a slightly broader term compared to employment in high-technology. However, in next part of our analysis we examine potential correlation between R&D expenditures at universities and employment in high-technology sector as well. As shown in Figure 4.4 there appears to be some positive linear dependence between both indicators. However, this potential relationship is relatively weak and to a large extent it is a consequence of data for the two most developed regions, Prague and Bratislava, which in this case represent potential outliers. Furthermore, it is likely that the relationship between these two variables will be reflected more intensively in the long-run rather than in the short-run.

The potential correlations between these two variables as well as

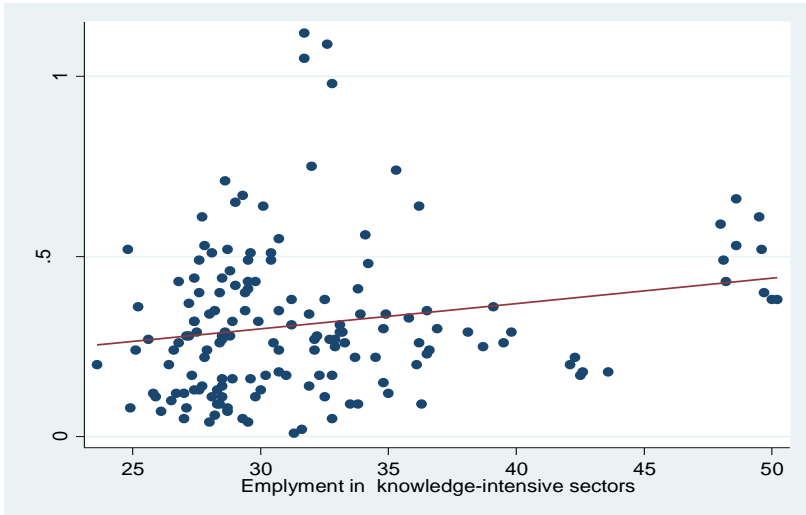


Figure 4.4 The potential link between the share of R&D expenditure in higher education and employment in knowledge-intensive sectors
Source: Authors based on the data retrieved from Eurostat database.

other selected variables have been further examined using correlation analysis. In the Table 4.5 we can see Pearson correlation coefficients for each pair of selected variables.

As expected, there is rather strong positive correlation between both employment in high-tech and knowledge-intensive employment. However, what is even more important is that both of these indicators are also positively correlated with the share of population with tertiary education. This positive correlation is rather strong. On the other hand, there is only relatively weak positive correlation between R&D expenditures in higher education and both variables capturing employment in high-tech and knowledge intensive sectors. Furthermore, we also found relatively strong positive correlations between GDP per capita and both mentioned variables. The same is true for share of tertiary educated population and regional GDP per capita. These results were expected for two reasons. Regions with better economic performance could often have higher proportion of science activities and more higher education institutions. The second and perhaps even more important reason are agglomeration forces. People with tertiary education tend to move to regions to better developed regions.

Table 4.5

**Pearson correlation coefficients between pairs of selected variables
(panel data for V4 NUTS regions during 2001-2015)**

	Tertiary educatio n	HT empl.	KE empl.	HE R&D	GDP per cap.	Early leavers	Median age
Tertiary education	1.00	0.58	0.71	0.19	0.71	-0.37	-0.11
High-technology employment (HT empl.)	0.59	1.00	0.71	0.15	0.76	-0.13	0.19
Knowledge intensive employment (KE empl.)	0.71	0.71	1.00	0.17	0.67	0.06	0.05
Higher education R&D expenditure (HE R&D)	0.19	0.15	0.17	1.00	0.21	-0.36	-0.02
GDP per capita	0.72	0.76	0.67	0.22	1.00	-0.45	0.06
Early leavers from education	-0.37	-0.13	0.05	-0.36	-0.45	1.00	0.34
Median age of population	-0.11	-0.19	0.05	-0.02	0.06	0.34	1.00

Source: Authors based on the data retrieved from Eurostat database.

In order to test assumed relationships more precisely and determine its statistical significance we used panel regression models with fixed effects. In the first set of models we used the employment in high-technology sector as the dependent variable. Results of these regressions are shown in the Table 4.6. As it can be seen we found certain empirical evidence for the positive effect of both share of tertiary educated and R&D expenditure in higher education on high-technology employment. The effect of tertiary education appears to be statically significant at 1% level in all three models using period, cross-sectional and mixed effects models. As motioned there is a possibility of positive causal relationship from both independent variables on employment in high-technology. However, we still could not rule out potential endogeneity problem, thus we decided to further interpret these results only as positive correlation between motioned variables. The same is true also for next model that contains another dependent variable. We also used variables capturing GDP per capita and the share of early leavers from education as variables controlling mainly for economic level of the region and level of primary and secondary education in the region. GDP per capita was

Table 4.6

Results of panel regressions using employment in high-technology sector as the dependent variable

	1.	2.	3.
C	-46.98*** (-66.04)	34.80*** (4.15)	40.49*** (1.70)
Tertiary Education	0.06*** (4.12)	0.74*** (3.36)	0.19*** (3.33)
Higher education R&D expenditure	1.17*** (3.74)	0.76 (1.59)	0.90* (1.82)
Log (GDP per capita)	4.86*** (53.33)	-3.48*** (-3.82)	-4.10* (-1.69)
Early leavers:	0.22*** (24.27)	-0.02 (-0.45)	-0.02 (-0.52)
Estimation method:	Period fixed Effects(FE)	Cross-section fixed effect (FE)	Cross-section & Period FE
R2	0.70	0.95	0.95
DW statistic	0.73	2.15	2.18
Akaike statistic	2.92	1.50	1.52
F-statistic	39.03***	58.3**	52.3***

Source: Authors based on the data retrieved from Eurostat database

*Note: */**/** means significance at the 10%/ 5%/ 1% levels. %. Robust estimates of standard errors have been used in all models. Symbol Based on the results of Hausman test cross-section regression with fixed effect has been used in all models.*

used in logarithmic form. Despite using three models for robustness check we can conclude that the second model appears to be the best one according to R-squared, Akaike statistics and Durbin-Watson statistic.

Similar regression models have been applied in the next part of the analysis. However, this time we used the employment I knowledge-intensive sectors as the dependent variable. Results are shown in Table 4.7. Again we applied three different types of fixed-effect panel regressions, while the third model with both cross-sectional and period fixed effects appears to be the best one according to R-squared, Akaike statistics as well as Durbin-Watson statistic. In this case we found statistically significant and positive relationship between R&D expenditures in higher education and knowledge intensive employment in the region. Higher R&D expenditure could often mean more

Table 4.7

Results of panel regressions using employment in knowledge-intensive sectors as the dependent variable

	1.	2.	3.
C	-55.57*** (-6.48)	-24.69*** (0.79)	-46.63 (-1.20)
Tertiary Education	0.64*** (6.48)	0.08 (0.79)	-0.05 (-0.57)
Higher education R&D expenditure	4.90*** (5.94)	1.66** (2.52)	1.68** (2.08)
Log (GDP per capita)	7.05*** (7.76)	5.55** (2.32)	7.99** (2.02)
Early leavers:	0.83*** (12.71)	0.05 (0.67)	0.07 (1.05)
Estimation method:	Period FE	Cross-section FE	Cross-section & Period FE
R2	0.74	0.98	0.99
DW statistic	0.57	1.84	1.92
Akaike statistic	4.98	2.69	2.50
F-statistic	46.71***	160.1***	177.4***

Source: Authors based on the data retrieved from Eurostat database

*Note: */**/** means significance at the 10%/ 5%/ 1% levels. %. Robust estimates of standard errors have been used in all models. Symbol Based on the results of Hausman test cross-section regression with fixed effect has been used in all models.*

employees in R&D in the region, which is of course knowledge-intensive sector as well. Moreover, more R&D expenditure and activities could be related with other non-R&D but knowledge-intensive activities in the region. We believe that this could perhaps also lead in the next phase to higher innovation performance of the region.

Based on our results we can make conclusions about the tests of three main research hypotheses. As mentioned in the text we cannot reject the first research hypothesis regarding to the educational level measured by the share of active population. We found that the share of tertiary educated population is the highest in metropolitan NUTS 2 regions containing capital cities of all V4 countries. Our results also strongly suggest that regions with higher share of tertiary educated population achieve in general higher employment in high-technology sector. Hence, we cannot reject the second null hypothesis. The same is

true for the third null research hypothesis, because we found relatively strong evidence that regions with higher R&D expenditure in higher education have in general higher employment in knowledge-intensive sectors.

Conclusions

Current regional development, from the theoretical-methodological and practical point of view is based on the knowledge economy, mutual learning, and innovation. In the knowledge-based economy and society, the importance of human factor is indisputable. A unique role in the process of shaping the human potential of the regions is played by universities. The support of universities through public policies and their instruments is a prerequisite for improving regional development via innovation. However, universities in the region are not a separate entity. They can function and fulfill the above-mentioned roles only in a functional environment, with functioning partner institutions and the relationships between them. This aspect of universities in the regions has been devoted to our contribution, with emphasis on the strengths and weaknesses of the current situation, but also on potential further possibilities for improving the functioning of universities in the regions.

In our analysis we were focused especially on the share of population with higher education as well as research and development done by higher education institutions in the regions. We used secondary panel data for NUTS 2 regions in Czech Republic, Hungary, Poland and Slovakia (V4 countries). The analysis examines the correlation between both of these variables and employment in high-technology sector and knowledge-intensive sectors in general. We believe that especially employment in these sectors can into some extent determine the innovation potential of the region.

Our results suggest say that the share of the active population with tertiary education is relatively low in all NUTS2 regions in Slovakia, except for the Bratislava region. This is true in comparison with the EU28 average as well as compared to most of the regions in other V4 countries. The share of population with the higher education is the highest in all four metropolitan regions containing capital cities of all four countries. Thus we can say that human capital is concentrated into the high degree in these regions.

Based on results of correlation and panel regression analyses, we can also conclude that there is a positive correlation between the share of

population with higher education and employment in high-technology sector. Thus, higher education in the region could be seen as important factor for increasing the share of high-technology sector in the region. But there could be also potential effect in opposite direction.

Furthermore, we found that research and development activities and their financing is positively related to higher share of employment in knowledge-intensive sector. Hence, this could also mean that regions with more R&D expenditures in higher education could have higher innovation potential related to knowledge-based activities.

Acknowledgements

This work has been supported by the Scientific Grant Agency of Slovak Republic under project VEGA No. 1/1009/16 “Innovation potential of the regions of Slovakia, its measurement and innovation policy at the regional level”.

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THE NEED OF VARIETY IN LEADERSHIP

Along time, opinions expressing the theory according to which men fit leadership better than women have been developed. We believe this opinion has its origin in the past, when women were considered inferior to men.

Due to emancipation and changes of women's condition in the society, their entry into the business world and due to the success they have had, women are now able to reach the same level as men in most cultures, when it comes to business leading abilities.

Research on gender and leadership is growing. Thus, a research made by Eagly and Heilman (2016) reveals there are about 3000 articles published since 1970, out of which 38% have been published since 2010. The attention given to this subject demonstrates the increase of academic interest for women- leaders, and the desire for inclusion on a large scale of women among leaders. Organizations such as „2020 Women on Boards” (www.2020wob.com) promote women in business

leadership, and groups like „Emily's List” (<http://emilyslist.org/>) support women running for political positions.

Although media has focused on the topic of women who have achieved political positions and high-level leadership, questions about women and their position as leaders have emerged in many types of organizations (Vinnicombe, Burke, Blake-Beard, & Moore, 2013). Though women leaders have been ascending, they have not yet reached the number of leading men.

Even though the number of women is higher than that of men (women represent 51% of the total population) and they account for almost 50% (46.5%) of the active population, they represent only 11% of the board management. (Vasile, 2014). So, one of the greatest challenges for companies will be the assimilation of a workforce which to include diversity for senior positions. The existence of a “glass ceiling” seems to have prevented women from advancing to the highest level of leadership in most organizations.

In Europe, according to the 2020 Strategy, only 63% of women work, compared to 76% of men, and among elderly people (55-64), only 46% work, compared to over 62% in the US and Japan. In addition, Europeans work, on average, with 10% less hours than people in the US or Japan. (Page 9, 2020)

The number of women on the boards of directors has doubled under the leadership of a woman (29%), compared to the board of directors led by a man (16%) globally, shows the fifth edition of the Deloitte Women in the Boardroom study.

The percentage is almost the same with the one related to the relationship between a CEO woman and the number of women in the board of directors of the specific company (29%), compared to a company headed by a male CEO (15%).

Globally, 15% of all the positions in the boards are occupied by women, a modest increase of 3% unlike in the year 2015, according to the study, which analyzes the efforts of over 60 countries to promote gender diversity within the board of directors. Women are still under-represented in councils, despite the benefits of gender diversity in the workplace (effective corporate governance and greater economic growth).

The report also includes a regional analysis of the relationship between leadership and diversity, identifying a direct line between female leadership (CEO and board leaders) and the number of women in board of directors: gender diversity is higher if in the company there is a

woman CEO or a woman chairing the board of directors.

In Romania, women take 10% of the places in the board of directors of big companies, 12% of the non-executive roles of the best rated companies and 15% of the positions in the supervisory boards of all companies listed on the Bucharest Stock Exchange.

The American board of directors are not very heterogeneous. In the United States, only 14% of the positions on boards are occupied by women, an increase of only 2% compared to the 2015 edition. In Canada, the percentage of women on board has increased up to 18%, with a growth of 5% compared to 2015. In Latin America and South America, only 7% of the council seats and only 2% of leadership positions are occupied by women.

Promoting more women in leadership roles is very important, for equal opportunities, and also for making business, institutions and governments representative. There is clear evidence that promoting the full participation of women is important in a prosperous civil society.

Research suggests that women tend to adopt leadership styles that are particularly suited to the complexity of contemporary organizations, leading to a perception of improved institutional efficiency (Eagly and Carli, 2003; Eagly, Gartzia and Carli, 2014). Women can have unique perspectives and priorities that serve to promote positive social results and higher ethical responsibility.

However, the fulfilment of these potential advantages can be overshadowed by the lack of experience of female leaders, and by negative stereotypes. There have been many explanations for which women find it difficult to get leadership positions, among which is the perception that women do not have the necessary characteristics and abilities for a leader. Women are perceived as more dependant, more empathetic, less bossy and ambitious, and for many people, being a leader means being dominant, ambitious and independent.

Therefore, there is a perception of the lack of matching between the features seen as typical for women (including manager women) and the necessary features to be a successful leader (Heilman, 2001). However, the conception that women do not have these features is not easily put out by just observing that women can behave more aggressively.

When women engage in aggressive behaviors, they often face reactions because they can be perceived as breaking the ban against domination, due to their inferior status. For example, Rudman has

constantly shown that, when women engage in self-promoting at work (an aggressive behavior and a violation of feminine norms of modesty), they are considered too dominant, which, ironically, leads to a result of diminishing the chances of being elected for leadership, compared to women who fail to use self-promotion (Rudman & Glick, 1999).

Although there is substantial evidence that women are penalized when acting aggressively (meaning dominance) or failing to behave commonly (that is, by not being „nice enough”), women also face other obstacles when aiming the top of hierarchy. Terminology reveals that both genders believe a good leader should not only be aggressive, ambitious, but must also possess features that focus on the emotional control – being firm, rational, consistent, without personal involvement (Koenig, Eagly, Mitchell, & Ristikari, 2011).

The examination of research on people’s beliefs about emotion reveals that, although people think women are more emotional than men, they also think men and women feel the same type and amount of emotion (LaFrance & Banaji, 1992). In other words, men and women are not considered to be very different as they experience different emotions, but only to the extent that they express these emotions outwardly.

Women may be labeled as being more emotional than men, mainly because they are thought to be less capable of controlling external emotions. Although this perception reflects reality to some extent, it is still possible to have a variety of negative consequences for women leaders. This perception can influence the vision about female leaders, because people see imbalance between the ability to control the external manifestation of emotions and the ability to make rational and objective decisions. If one is able to conceal emotions, people around can also perceive this as an ability to prevent these emotions from influencing one’s thoughts and behavior. Thus, people confuse the control of expressing emotions with the control over the influence of emotions when making decisions.

So, in order to reach the top of hierarchy, women not only have to demonstrate their professional abilities, but they also have to show a much more powerful emotional control than men, their behavior being more carefully studied and judged.

The issue of gender diversity in corporations, at any hierarchical level, is a long and difficult way that demands the involvement of the

whole company and a serious commitment from the top management. So, what matters, besides gender diversity, is leadership.

Nowadays, we strive for a balance between masculine and feminine, a society in which the leader is no longer a man-brand, but which also defines an attribute of woman. The goal would be to get women dedicated to their wish to be effective leaders in touch with women that are already models everyday, these authentic models forming the basis for a society of progress and sustainable development. (Popescu, 2016). This is also supported by a study conducted in the Hogan Partner Network in several countries (USA, Australia, Romania and several other CEE countries) that confirms there are no significant differences between the personality profile of women leaders and that of men leaders. Moreover, women in leadership positions are disciplined, responsible, organized, just like men.

Terminology often brings out the idea that women have a competitive advantage in leadership, due to a higher coefficient of emotional intelligence. As women begin to devote more of their time to paid work instead of domestic work, they begin to assume certain characteristics in order to succeed in these new roles. In addition to the increasing of the human capital investment of women, the associated psychological and behavioral attributes have changed once they entered into roles previously dominated by men.

According to Catalyst, the top Fortune 500 companies with the largest representation of women in the board of directors outperformed those on the opposite side, in terms of capitalization. Approximately 860 million women, aged 20 – 65, 95% of them living in emerging countries – are „not ready” and/or „do not have the possibility” to take part in the world’s economy, according to Booz & Company and the number will increase to a billion in the next decade.

Given the changes in leadership and organizational practices, women-leader symbolize the new leadership that denotes more efficiency and synergy than the past leadership. Choosing a woman for a leadership position signals the remission of old practices and helps the company’s image, being thus considered innovative and progressive.

This symbolic shift, conveyed with the choice of women for executive positions, is one of the forces pushing out assertions such as „women’s advantage” (Eagly A.H., Carly L.L., 2003).

Organizations that equally deals with both genders substantially increase the segment from which they can choose the leader, and for many companies, choosing a female manager can increase the organization's chances of getting more effective leaders than the existing ones. A study by Pepperdine University shows that 25 companies from top Fortune 500 were 18% to 69% more profitable than the average companies in the same field.

According to an American specialist, Dr. Anne Cummings, men focus more on the task, while women focus more on interpersonal relationships. So, male style is based on productivity-oriented behavior and tasks, while the feminine style is more focused on harmonic relationships with others and is more democratic. In addition, men take higher intellectual risks, have a higher self-esteem, while women are better adapted and more effective when they have problems to solve. Style differences are not necessarily better than others, but top managers need to know their style and how they relate to others inside and outside of the organization.

In the business world, female leaders still represent a minority. What is surprising is that men overtake women in every sector of the world: corporations, nonprofit organizations, government, education, medicine, military, religion.

The top rated companies in the world, organized every year by the Fortune magazine bring women with only 19% in places of the board of directors, 15% of executive directors, and the number of CEO women at these companies is 4%. 4% out of 500 companies means 20 women CEOs, while men CEOs hold the remaining 480 companies. (Shawn Andrews, March 2018).

Presently, although women are making notable progress in the business world, there are, however, inequalities in all the world's markets. (Mastercard, March 2018).

Mastercard Index of Women Entrepreneurs is a study showing the progress of female entrepreneurs worldwide. There are 57 countries in 5 geographic regions, namely: Europe, Latin America, Asia-Pacific, Middle East and Africa, and North America, with a total of 78.6% of the world labor market.

The basis of the study is an index number – the number of entrepreneur-females (as a percentage of the total business owners), an indicator consisting of three components, namely: the results of women's progress, knowledge and access to financial resources, the backing of entrepreneurial activities and initiatives. According to this

study, the countries with the highest percentage of women who own and run business are: Ghana – 46.4%; Russia – 34.6%; Uganda – 33.8%; New Zealand – 33%; Australia – 32.1%; Vietnam – 31.3%; Poland – 30.3%; Spain – 29.4; Romania – 28.9%; Portugal – 28.7% (Mastercard, March 2018)

This index suggests that opportunities for entrepreneurship do not necessarily depend on the rate of economic development of the markets. The results of the Mastercard study place Romania on the 9th place in the top countries having a percentage of 28.9% women-entrepreneurs.

Thus, the final result of the Mastercard Index of Women Entrepreneurs 2018 continues to illustrate the significant share of the index number – the number of women running a business, especially in the Asia Pacific region, North America and Latin America, Russia, Europe and Scandinavia, where women make progress in leadership.

The highest support of entrepreneur-women is shown in New Zealand (74.2%), Sweden and Canada, while in Romania it registered a low decrease (61.9%). Thus, according to Mastercard, female entrepreneurship has greater potential to increase especially in developed economies.

To achieve gender equality, we need prepared and skilled women for leadership positions, but also prepared men to be able to handle some more domestic responsibilities, so that women have the opportunity to follow other areas too. We need employers to accept a more flexible program that allows both men and women to keep their jobs, striking a balance between career, family and personal goals. Briefly, people need to intentionally engage in creating the possibility of diversity and involvement.

Martina Hund-Mejean, Mastercard Financial Manager, states that although female entrepreneurs around the world have made remarkable progress, they have not yet reached their full potential. That is why they must be supported in order to lead prosperous business and a satisfactory financial life.

At the same time, this study suggests that women's entrepreneurial development opportunities do not necessarily rise to the economic development of the market. So, in the less developed economies like Uganda and Vietnam, the number of female entrepreneurs is higher than in more developed countries, precisely because of the need for survival, while New Zealand, Sweden, Canada, the United States and Singapore have four key factors that

lead to their success in business: easy access to financial services, quality governance, facility of running business, support for SMEs.(Mastercard, March 2018)

Mastercard's research shows that in countries such as Thailand, the Philippines, Poland, Botswana and Costa Rica, entrepreneurship is an „opportunity door” for women. Although the support of entrepreneurs in these markets is not as favorable as in other developed countries, they are significantly represented by female leaders, by local entrepreneurship as well as by the attention of the successful entrepreneurial state. Countries such as the United Arab Emirates, Saudi Arabia and Tunisia have a number of atypical features. Although within these countries the percentage of leading women is the smallest in the world, their businesses are among the most innovative and this implies development and international standards. (Mastercard, March 2018).

Thus, the leader's activity becomes more and more important, as he must influence and manage the most important resource of the company-people. Male behaviors are quicker assimilated within those of a leader, while „femininity is sometimes perceived as a weakness”. (<http://www.cariereonline.ro/articol/diferentele-de-gen-leadership>)

Leadership skills are seen differently by men and women.Oral communication abilities, control abilities, and working under pressure skills are also important.

„Women also have the right to inspire and fulfill their visions. We have specific ways to relate to results and life (...) Women work connected to their senses and intuition. They use emotions to access the resources they need, unlike men who get what they want by being directive and focused on the action plan.”

(<http://www.cariereonline.ro/articol/diferentele-de-gen-leadership>)

Speaking about emotional intelligence, it has been shown that women have always had a leading desire, but they have been considered inferior, politically, economically and socially. Nowadays, these barriers have been largely eliminated, but the number of women in leadership positions is significantly lower than the number of men. This is as a result of the perception according to which the ideal leader has got predominantly male-specific features such as self-confidence, independence, assertiveness, dominance and rationality. (Ronit K. et al., 2012)

Female features are considered irrelevant, sometimes antithetical in

relation to the definition of a successful leader: a disadvantage for women who have to separate those “feminine characteristics” from the professional activity.

In the context of economic, demographic, technological and cultural changes the traditional leader becomes inefficient, and thus, a new type of leader is needed – a leader who combines both "male" and “feminine” features. Characteristics such as the desire for cooperation, empathy, attention and care for others, open attitude, predisposition to obedience and understanding become fundamental determinants of a successful leader, an “androgynous”, neutral style, whose features can be acquired and developed, not necessarily innate.

A mentality change is expected in the work of women and men, the awareness of stereotypes and prejudices, so a woman would no longer be unsatisfied when she performs the same job as a man and receives a lower salary.

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**NEW APPROACHES TO
EFFECTIVE
MANAGEMENT OF
HUMAN RESOURCES IN
THE MARKET
CONDITIONS**

In the conditions of globalization and transformation of economic processes, increasing competition in the domestic and world markets, the global financial crisis, modern human resources management system needs constant optimization and development, which requires the use of new methods for organizing the process of their management, application of innovative approaches and optimization of production processes.

Adequate restructuring of the internal environment of any enterprise should, along with the updating of the production base, provide for an increase in their overall managerial capacity. As practice shows, the very state of organizational and managerial factors is the weakest link in the economic mechanism of many domestic business entities.

The human resources management system is highly effective not only when managers of enterprises that take management decisions and set up control forms, and employees who assume responsibility for implementing decisions act in a coherent way, but also when there is a relationship between the levels of governance (institutional, managerial and operational), an understandable and clear algorithm of relationships is established. The absence of such a mechanism between levels of management reduces the managerial efficiency of the entire system [1].

At the present stage of development, business entities are increasingly faced with the problem of adapting to environmental changes and maintaining competitive advantages in the domestic and foreign markets. Increasing the effectiveness of their activities as the basis of their competitiveness depends to a large extent on the availability of highly skilled personnel who would work productively, qualitatively and responsibly and could produce products or provide services in accordance with the growing demands of the present. It is precisely the inadequate professional qualities of the staff of the majority of economic entities that are responsible for low productivity, resulting in significant shortcomings in the organization of labor and management. On the other hand, the low competitiveness of enterprise workers is a result of unsatisfactory conditions for human development and the lack of sufficient investment in human capital at macro, meso and micro levels. Therefore, the development of an effective mechanism for increasing the competitiveness of the personnel objectively requires the justification and thorough examination of a complex of socio-economic factors that influence the processes of formation and reproduction of the personnel potential of enterprises.

Most scholars who are investigating the problem of forming and improving the competitiveness of enterprise personnel do not have a single point of view on this problem and share the factors of influence on several levels. Today, for the successful operation of an enterprise in a changing environment, the problem of efficient use of human resources has not lost its significance.

Let us turn to a more detailed classification of the factors of competitiveness of the personnel of the enterprise. Yes, in particular, V.M. Daniuk and V.M. Petyuch [2, p. 94, p. 98] classify factors by internal and external features. At the same time O.Yu. Slavgorodskaya [4, p. 94-101] believes in the division into internal and external factors, D.P. Goddess, G.T. Kulikov, L.S. Forestworm [5, p. 86] – on general-objective, socio-demographic, socio-psychological and factors of

economic motivation of labor.

After analyzing various authors' approaches to this problem and sharing their basic idea, it is proposed to group the factors of formation and increase of the competitiveness of the personnel for the enterprise in two blocks: 1) factors of indirect action; 2) direct action factors.

The first group should include such factors, which can only be influenced at the state level (external factors). The second group includes such factors, which directly affect the formation of the competitiveness of staff and change their indicators, characteristics and other (internal factors) [3]. In the opinion of Smirnov O.O., increasing the competitiveness of staff is considered as the resulting sum of vectors from the effect of a set of internal factors (at the level of personality) and external factors (outside the individual) [6; pp. 10-11].

It follows that the competitiveness of the enterprise is ensured by the high level of professionalism and competence, personal qualities, innovative and motivational capacity of the personnel.

According to K. Zabavina, the most significant signs of personnel potential are the possession of the necessary professional training, the formed competencies that meet the requirements of production and ensure the implementation of the labor process at a high quality level; level of responsibility, motivation, culture of work and target installations for self-realization, professional and career growth; interest in the stable development of production, increase its efficiency, adjustment for partnership and social dialogue [7; p. 7]. As we see, ensuring the increase of the competitiveness of personnel is directly related to the processes of investing in human capital and the formation of socio-economic conditions necessary for the preservation and development of professional characteristics of employees, that is, in conditions of increased attention to new technologies, the development of qualitative characteristics of human resources is required. Along with this, one can not neglect the quantitative characteristics of human resources as they determine certain preconditions for the development of its competitiveness and are the basis for the development of qualitative characteristics. An analysis of the use of labor resources at enterprises has shown that there is a problem of another nature when business entities, even in the face of excessive supply of labor, experience a sharp shortage of skilled personnel – engineers, technologists, managers and other professionals. The reasons for this are not only unsatisfactory conditions for the reproduction of labor potential, but also the backlog of domestic training system from the leading countries of the world.

It is proved that the formation and increase of the competitiveness of personnel with different strength, orientation and intensity are influenced both by internal factors connected with the peculiarities of the labor potential of the individual, and external factors acting outside the individual on the micro, meso, and macro levels. As a result of the positive or negative effects of these or other factors, the competitive advantages of workers spontaneously or purposefully change (increase or disappear), resulting in multi-vector process of development of the competitiveness of staff in general.

Taking into account that under the influence of scientific and technological progress, rapid “aging” of professional knowledge, skills, abilities, and the demands of employers to employees, on the contrary, are significantly increasing, the socially oriented market economy in Ukraine requires special consideration of internal factors of the competitiveness of staff, new qualities: increasing initiative, creativity, responsibility and reliability. Today it is not enough to have a good staffing of employees that would be as much as possible consistent with the tasks, but it is also necessary to search for opportunities for its preservation, development and reliability increase. Reliability is an integral part of the competitiveness of the employees of the company, and the degree of its reliability may vary depending on the circumstances, so effective personnel management is impossible without studying the behavioral characteristics and their impact on the person.

In a changing environment, another important factor affecting the competitiveness of the entity’s business is its willingness to innovate. Research shows that among the main causes of failure in the implementation of innovations, the first place is usually the human factor, that is, the lack of understanding, reluctance or even resistance from the staff. This situation updates the issue of assessing staff readiness for changes in the enterprise and requires a separate study. The most common model describing and allowing an assessment of the company’s personnel in terms of readiness for change is the ADKAR model proposed by D. Hayyat [8]. The main idea of this model is that for successful implementation of any changes it is necessary to manage not only the organization but also changes in the personnel of this organization as subjects that have an important part of the intellectual capital and are direct participants and performers of future changes. D. Khayyat defined the five main stages that the enterprise employees are undergoing during their adaptation to the new situation that arose as a result of innovations. Analyzing the characteristics of each stage, they

conduct a comprehensive assessment of the readiness of the personnel of the enterprise to change. The main focus in ensuring the competitiveness of the company is aimed at preventing and preventing cases of employee loyalty, the increased reliability of staff.

In the harmonization of the relations of the personnel of the enterprise that affect its competitiveness, an important factor is the culture and ethics that connect all interpersonal processes of the enterprise. In order to achieve high efficiency and organizational discipline, it is necessary to form the enterprise's own corporate culture at the enterprise. Regardless of whether corporate culture is created at the enterprise or not, there will always be so-called inert values, principles and traditions within the enterprise. Adaptation to corporate culture is of a two-way nature – the integration and presentation of the cultural attributes of the enterprise to the external environment, and the impact on the internal environment of public opinion, traditions, and modes of behavior. To better utilize the skills, knowledge and commitment of employees, one needs to understand their desires and needs. Thus, knowledge of history and traditions are essential for the successful organization of today and affect the competitiveness of highly productive personnel.

As noted by leading management specialist Yakokka Lee: “The definition of the essence of the operation of the enterprise can be placed in three words: people, product, profit. People are in the first place. If you do not have a reliable team, then the rest of the factors will do little. When you already have a staff consisting of trained, intelligent and energetic people, the next step should be to stimulate their creative abilities” [9, p. 4].

State policy in the field of labor relations substantially affects the process of formation and development of human resources, since it determines employment of the population, its level of education and qualifications, payment conditions and labor protection. Demand and supply stimulate the emergence of a competitive struggle between the staff, because they form the need for a particular specialty, impose requirements for employees. Motivation and stimulation, as especially significant factors, encourage the development of competitive advantages among employees in order to improve their self-improvement.

Consequently, all the most important factors in increasing the competitiveness of enterprise personnel are interconnected, so the implementation of some is not possible without the implementation of

others. In turn, the company should consider each of the factors affecting the competitiveness of staff separately for its sustainable development.

Implementation of innovations and organization of personnel development requires constant monitoring research by management entities. This approach allows predicting the dynamics of changes in the personnel of the enterprise according to the needs of the economy, to adequately respond to them through modernization.

Monitoring should be a mechanism for monitoring, analysis and control for business entities, which is designed to provide operational responses through appropriate managerial decisions and strategic planning of human resources development.

The formation of an innovative society proves the need to improve the quality of human potential. It manifests itself both through its formation (due to the growth of the general educational level of the population) and in the part of realization (by expanding the ability to perceive and produce new knowledge). However, the preservation of the imbalances between educational supply and demand, formed during the last decade in Ukraine, hinders the adaptation of the labor market to innovation, complicating its functioning and hampering the processes of reforming the enterprise as a whole.

In the context of global change, the problem of efficient management of human resource transformations in the context of increased attention to a knowledgeable resource from the enterprise appears. In view of the provision of better returns of management functions, it is proposed to harmonize the mechanism of transformation management itself (as a set of ways to implement management functions that achieve the set goals and results) with the mechanisms of information technology implementation, reengineering of business processes, outsourcing and coaching. Such a statement will be based on the ideology and technology of strategic management of human resources management.

Today it is indisputable that the use of information technology in the process of human resources management is one of the conditions for their effective use. Therefore, the proper use of informational support should penetrate the entire system of management through appropriate mechanisms of planning, organization, stimulation (motivation) and control.

The essence of the concept of reengineering is the orientation of reforming not on function, but on processes where the transition from a

functional-structural to a process-role model of management is most effective. Such restructuring is intended to provide innovation and technical development of personnel, since it will provide for simultaneous accounting of factors that are part of all its components.

Now the widespread reengineering of business processes – changes in managerial, administrative and other processes. This, in our opinion, will make it possible to optimize managerial decisions in shaping the strategic planning of human resources.

Enterprises to increase their own competitiveness in the market and reduce the cost of production processes, increasingly transfer secondary tasks in the organization to the services of external contractors – specialized agencies, at the disposal of which there are highly skilled personnel. This practice is called outsourcing.

The main source of cost savings through outsourcing is to increase the efficiency of the enterprise as a whole and the emergence of the ability to release the relevant organizational, financial and human resources to develop new directions, or to concentrate efforts on existing, requiring increased attention.

According to experts, in the US outsourcing is used by 92% of companies, in Europe – 86%, which allows you to reduce the cost of non-core activities from 10 to 40% [10, p. 124]. The Fortune magazine claims that at least 90% of modern businesses use outsourcing of at least one business process. Toyota, Honda, Chrysler delegate about 70% of business processes to outside contractors. Ukrainian outsourcing market has no such development yet in developed countries (outsourcing services are used by only 25% of enterprises), yet it has growth prospects and can compete with the markets of Russia and Belarus. For the last three years, the growth of volumes of outsourcing amounted to 200-300% [11].

Human Resources Outsourcing (HRRO) is gaining popularity in the context of the formation of the information economy. At the same time, outsourcing is more often transferred to the processes associated with the search and selection of employees, much less often – the processes of personnel administration and calculation of wages [12, p.15].

Outsourcing of personnel processes is a form of economic relations in which the employer transfers part of the responsibilities of personnel management to a specialized organization (outsourcer) that can provide high-quality services, thanks to the use of modern state-of-the-art technology of personnel management, experience gained in solving similar problems, and the availability in its staff of highly qualified

specialists [13]. There are quite a few types of outsourcing personnel processes. Among them there are: outsourcing of recruitment (recruitment, headhunting), outsourcing of personnel attestation and personnel audit, outsourcing in the training system, outsourcing of HR-administration, personnel leasing, outstaffing and outplacement.

Equally important is the use of proper expert advice. Expertise is a mandatory stage in the competitiveness of staff, since its main purpose is to assess the relevance of the results of the activities to the targets and thus to improve strategies, programs and projects of different levels through their comprehensive professional assessment. It can be considered as an instrument of organizational development of human resources. At present, expertise and consulting complement each other. Expert-consulting support of innovation and investment development at the enterprise is a system that performs the function of professional support of human development management processes by timely elucidating the criteria for such development and assisting in the development of specific projects that meet the defined criteria and verify their compliance with the implementation [14, p. 149].

For successful implementation of the perspective personnel strategy of the enterprise it is important to consider the need to develop an appropriate methodological basis for the provision of an organizational mechanism for the development of human resources, which would be aimed at creating an effective system of enterprise management. Determining the dominant factors and their proper assessment will improve the system of human resources management, choose optimal solutions for the conditions of each individual enterprise, and identify the approaches and incentives for motivating employees to work effectively and professional growth of the individual. The development of human resources is impossible without the appropriate levers and tools, the proper regulatory, consulting and financial support of the enterprise.

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Chapter 5

PRACTICAL ASPECTS MANAGING INNOVATIVE DEVELOPMENT IN DIFFERENT SECTORS THE ECONOMY

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**DETERMINATION OF PRIORITY
INDUSTRIES FOR FDI AS A
FUNDAMENTAL COMPONENT OF
THE INVESTMENT MECHANISM
IN THE REPUBLIC OF MOLDOVA**

1. Introduction

Being the participant of a global production process, a country automatically participates in the competition for foreign direct investment on a global scale. It should be taken into consideration that the main investment decisions based on the principle of optimizing the reproduction process are made by TNCs (transnational corporations). The countries may use different incentives for participation in global value chains as a competition tool to attract foreign direct investment. Country's authorities should identify prospective segments in the global value chain before its decision to participate in it. These segments should clearly reflect effective country's place in the global value chain and should be encouraged within the framework of public investment policy.

According to the definition given by researchers Cohen De Backer and Sébastien Miroudot, value chain identifies “the full range of activities that firms undertake to bring a product or a service from its conception to its end use by the final consumers” (Koen De Backer and Sébastien Miroudot, 2013). This definition doesn't reflect the economic

essence of this category in the global context not taking into account the distribution of a single production process between participants around the world. To understand the essence of the economic phenomenon – global value chain – it is necessary to analyse in greater details the basis for global value chain creation (Figure 5.1).

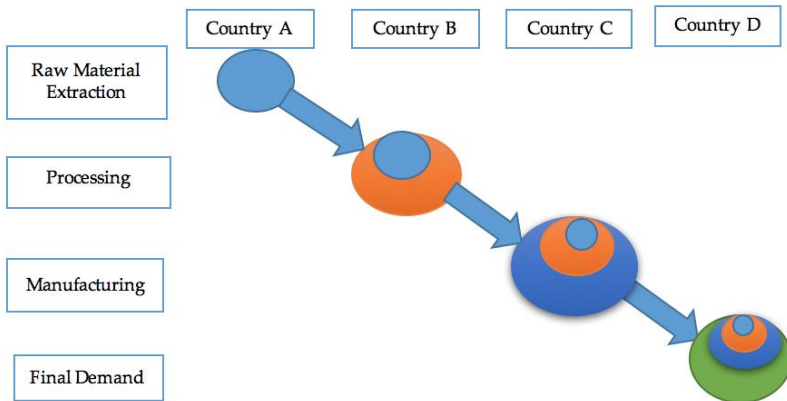


Figure 5.1 The Principles of Global Value Chain Creation
Source: UNCTAD 2013

According to the Figure 5.1 the process of global value chain creation may be described as a sequential downward chain reflecting the contribution of each subsequent enterprise located in a country different from the country of location of the enterprise which took part in the previous stage of product processing – starting from raw materials extraction to sales of finished goods. The main idea is that the enterprises located in the different countries take part in the formation of added value of the product at a particular stage of its development, production and marketing, rather than form a full cost. Global value chains include the following stages: designing, manufacturing, marketing, sale and after-sales service for the consumer.

There are two types of global chains of value added: producer-driven and buyer-driven (Koen De Backer and Sébastien Miroudot, 2013). As a rule, the producer-driven chains are concentrated in the knowledge-intensive industries which are distinguished by using of high technologies, high R & D costs and the creation of high added value. In the buyer-driven chains, the manufacturing with low added value is

under control of retailers or brand holders and may be completely outsourced. Stan Shih, who is the founder, president, and chairman of Acer Inc., offered in 1992 to use the model “Smiling Curve” (Figure 5.2) which reflected the correlation between the level of added value and the stages of global production process. So, the maximum concentration of added value is formed by enterprises that are most removed in time from the direct manufacturing, i.e. development and after-sales service. They are represented by a narrow circle of enterprises and set strategic guidelines for countries and companies that are embedded in global value chains.

Referring to abovementioned it is evident that the maximum benefits from participation in global value chains are given to those countries that occupy the best places in the chain characterized by the creation of the highest added value.

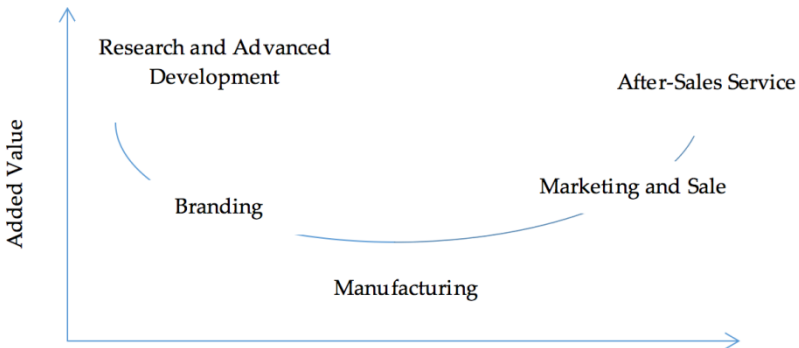


Figure 5.2 Smiling Curve Model

Source: designed by Stan Shih (OECD, 2013)

The developing countries are mostly involved in the buyer-driven chains and specialize on the manufacturing with low added value. In the context of government economic policy, it is important for developing countries to create the mechanism, which will contribute to involving the country in participation in the global value chains with higher added value. So, the main aim of this work is to identify the current place of the Republic of Moldova in the global value chains and to determine the priority industries for FDI in the Republic of Moldova in the context of global value chain theory.

2. Research Methodology and Materials: Identification of the Place of the Republic of Moldova in the Global Value Chains

There are two types of country's participation in the global system of value chains:

1. Components participation – the use of imported components for the production of exports;
2. Products participation – the export of national components for further usage in the production in the other countries.

To determine the scale of countries' participation in global value chains for each of the above types, two indicators are used, respectively: 1) the indicator of vertical specialization (VS) and 2) the indicator of vertical specialization 1 (VS1). The calculation of these indicators was proposed by Hummels D., Ishii J., Yi Kei-Mu (Hummels, Ishii, Yi, 1999) and is based on the national input-output tables (Leontief model), which includes the following components (Alexey Ponomarenko, Kirill Muradov, 2014.):

$$Z = \begin{bmatrix} z_{11} & \dots & z_{1n} \\ \vdots & \ddots & \vdots \\ z_{n1} & \dots & z_{nn} \end{bmatrix}, f = \begin{bmatrix} f_1 \\ \dots \\ f_n \end{bmatrix}, x = \begin{bmatrix} x_1 \\ \dots \\ x_n \end{bmatrix}, \quad (5.1)$$

where Z – $(n \times n)$ – the matrix of intermediate demand for goods and services of domestic production; f – $(n \times 1)$ – the vector of final demand; x – $(n \times 1)$ – output vector; n – the number of industries. According to the input-output Leontief model (Alexey Ponomarenko, Kirill Muradov, 2014):

$$Ax + f = x \text{ and } x = (I - A)^{-1}f, \quad (5.2)$$

where $A = Zx^{-1}$ (the matrix of direct cost coefficients, where each element $a_{ij} = \frac{z_{ij}}{x_j}$), $(I - A)^{-1} = L$ – the matrix of full cost coefficients or the inverse Leontief matrix.

Taking into account the above-described mathematical apparatus D. Hammels, J. Ishii and K.M. Yee proposed the following formula for calculating the indicator of vertical specialization (VS) (Hummels, Ishii, Yi, 1999):

$$VS = \frac{m_c^i (I - A)^{-1} e}{i \cdot e}, \quad (5.3)$$

where $mc' = m' x^{-1}$ – vector of cumulative interim import cost

coefficients used by the industry, where each element $mc_j = \frac{m_j}{x_j}$, i.e. the ratio of imports in sector j to output in the same sector; i – row – vector of units; $e - (n \times 1)$ – vector of total exports.

To determine the VS index for the economy of the Republic of Moldova for 2010-2014 we have used the national “input-output” tables for 2010-2014, data on the annual output and exports for the period 2010-2014, as well as data on intermediate imports for the period 2010-2014. – calculated by the author based on the OECD database. The calculations of VS made by using program code written in Python (Appendix A) – Table 5.1.

Table 5.1

Indicator of vertical specialization VS for the Republic of Moldova (2010-2014)

	2010	2011	2012	2013	2014
VS Republic of Moldova	0.19186463	0.2006525	0.20379973	0.19728294	0.19265952

Source: calculated by authors

According to the calculation represented in Table 5.1, we may state that in the period 2010-2014, one value unit of exports contained 19.19% – 20.97% of imported components.

The level of VS in the Republic of Moldova corresponds to the value of this indicator in China, Chile, Croatia and the Netherlands (OECD data, accessed 31.12.2017). It should be noted that compared to other countries of the world, the Republic of Moldova occupies one of the lowest positions in the level of VS, which indicates that the Republic of Moldova is not deeply integrated into the chains initiated by buyers (buyer-driven). However, considering the VS indicator by types of economic activity (Table 5.2), we may note that there is a rather high degree of involvement of import components in the production of export goods for many of economic industries in the Republic of Moldova.

It should be noted that for the period 2012-2014 there were practically no structural changes in the VS index by type of economic activity and the top ten sectors with the largest share of the import component in exports during this period included: mining industry, rubber and plastic products manufacturing, metallurgical industry, textiles manufacturing, wood and wood products manufacturing, paper and paperboard manufacturing, electrical machinery and equipment

Table 5.2

Indicator of vertical specialization VS for the Republic of Moldova (by types of economic activity in 2012-2014)

2012		2013		2014	
Mining industry	71.6	Mining industry	68.6	Mining industry	69.2
Rubber and plastic products manufacturing	61.9	Rubber and plastic products manufacturing	60.1	Rubber and plastic products manufacturing	59.4
Metallurgical industry	56.6	Metallurgical industry	54.9	Textiles manufacturing	58.1
Textiles manufacturing	54.0	Wood and wood products manufacturing	54.3	Metallurgical industry	53.5
Wood and wood products manufacturing	49.2	Textiles manufacturing	52.9	Wood and wood products manufacturing	52.9
Paper and paperboard manufacturing	47.8	Paper and paperboard manufacturing	42.3	Publishing, printing, reproduction of information materials	35.9
Electrical machinery and equipment manufacturing	38.4	Publishing, printing, reproduction of information materials	36.2	Other non-metallic mineral products manufacturing	35.4
Other non-metallic mineral products manufacturing	37.4	Other non-metallic mineral products manufacturing	36.1	Electricity and heat, gas and water supply	34.9
Publishing, printing, reproduction of information materials	36.6	Electrical machinery and equipment manufacturing	35.7	Fabricated metal products manufacturing	33.7
Fabricated metal products manufacturing	34.9	Electricity and heat, gas and water supply	35.0	Electrical machinery and equipment manufacturing	33.5

Source: calculated by authors

manufacturing, other non-metallic mineral products manufacturing, publishing, printing, reproduction of information materials, fabricated metal products manufacturing.

The following formula is used to calculate the VS1 indicator (Alexey Ponomarenko, Kirill Muradov, 2014):

$$VS1 = \frac{\sum m'_{c,r \rightarrow s} (I - A)^{-1} e_s}{i' e_r}, \quad (5.4)$$

where s – partner country of the country r , $m'_{c,r \rightarrow s}$ – vector of the country's s intermediate import coefficients from the country r , e_s – the country's s total export vector. The calculation of VS1 based on the above formula requires the use of national input-output tables for the main large export trading partners of the Republic of Moldova, as well as bilateral import matrices, which significantly increases the complexity of calculations. For the most part, official national statistics do not have data on intermediate imports and unified input-output tables. For calculation of the VS1 indicator for the economy of the Republic of Moldova, we used input-output tables for the main export partners of the Republic of Moldova – 22 countries – Austria, Belgium, Bulgaria, Great Britain, Hungary, Germany, Greece, Spain, Italy, China,

Lithuania, Netherlands, Poland, Portugal, Russia, Romania, Slovakia, USA, Turkey, France, Czech Republic, Switzerland. Taking into account that the structure of Moldova's exports according to the main partner countries has changed insignificantly, and the fact that structural economic changes can occur at least in 10-15 years, we believe that the calculation of the VS1 indicator for the economy of the Republic of Moldova relevant for interpretation for the current period.

To determine the VS1 indicator for the economy of the Republic of Moldova for 2011, we have used the national input-output tables for 2011 for the main partner countries, the data on the intermediate imports of the partner countries from the Republic of Moldova for 2011, the total exports of the Republic of Moldova for 2011. The calculations of VS1 made by using program code written in Python (Appendix B) have demonstrated VS1 indicators for the economy of the Republic of Moldova according to the partner countries (Table 5.3).

Table 5.3

**Indicator of vertical specialization VS1 for the Republic of Moldova
(by partner countries in 2011)**

2012		2013		2014	
Mining industry	71.6	Mining industry	68.6	Mining industry	69.2
Rubber and plastic products manufacturing	61.9	Rubber and plastic products manufacturing	60.1	Rubber and plastic products manufacturing	59.4
Metallurgical industry	56.6	Metallurgical industry	54.9	Textiles manufacturing	58.1
Textiles manufacturing	54.0	Wood and wood products manufacturing	54.3	Metallurgical industry	53.5
Wood and wood products manufacturing	49.2	Textiles manufacturing	52.9	Wood and wood products manufacturing	52.9
Paper and paperboard manufacturing	47.8	Paper and paperboard manufacturing	42.3	Publishing, printing, reproduction of information materials	35.9
Electrical machinery and equipment manufacturing	38.4	Publishing, printing, reproduction of information materials	36.2	Other non-metallic mineral products manufacturing	35.4
Other non-metallic mineral products manufacturing	37.4	Other non-metallic mineral products manufacturing	36.1	Electricity and heat, gas and water supply	34.9
Publishing, printing, reproduction of information materials	36.6	Electrical machinery and equipment manufacturing	35.7	Fabricated metal products manufacturing	33.7
Fabricated metal products manufacturing	34.9	Electricity and heat, gas and water supply	35.0	Electrical machinery and equipment manufacturing	33.5

Source: calculated by authors

The VS1 indicator characterizes the degree of the country's participation in producer-driven chains – the higher VS1 shows that the country is more involved in the chains initiated by the producers. Taking into consideration the results of VS1 on the economy of the Republic of Moldova for the main exporting countries, we may state that, in cooperation with the two main export partners, Romania and Russia, the

Republic of Moldova takes halfway acceptable position in the global value chain (producer-driven) – VS1 measures are 14.59% and 10.09% respectively. The Republic of Moldova takes less attractive positions in the global value chain cooperating with such partner countries as Germany, Italy, Bulgaria, Greece, the Netherlands and Poland. In cooperation with all other exporting partner countries (accepted for analysis), the VS1 indicator is less than 1%, which means that the Republic of Moldova is practically not involved in the chains as the product developer (high-tech industries).

3. Conclusions and Discussion

Estimating the indicators VS and VS1 for the economy of the Republic of Moldova respectively by industry and by partner countries, it is possible to summarize that:

1. The economy of the Republic of Moldova focused on exports is mainly based on sectors with low level of the national component in global add value. So, the Republic of Moldova is located at the bottom of the global value chains and the economy is mainly concentrated in the medium and low technology sectors – the mining industry; production of rubber and plastic products; manufacture of textiles; metallurgical industry; production of wood and wood products; production of paper and paperboard; production of other non-metallic mineral products; production of electrical machines and equipment; publishing, printing, reproduction of information materials; manufacture of finished metal products.

2. In general, the Republic of Moldova is practically not involved in high-tech industries and does not act in global value chains from the position of the initiator of the chain as the product developer (the stage where the largest added value of the product is created).

According to the national strategy of the Republic of Moldova on attraction of investment and exports promotion in 2016-2020, the priorities have been identified in the following industry sectors:

1. Information and communication;
2. Manufacture of machinery and equipment;
3. Administrative and support services;
4. Manufacture of devices and spare parts;
5. Manufacture of textiles, clothing and footwear;
6. Electrical equipment;
7. Food industry and agriculture.

Taking into consideration the sectorial priorities identified in the national investment strategy of the Republic of Moldova and the current positions of the Republic of Moldova in the global value chains identified above, we may note that the high VS is observed for the most sectors identified as priorities. It means that the exported products produced in these sectors contain a low share of the national value added and a high foreign component. Referring to FDI classification, we may state that encouraging investments in these industries will contribute to incising of FDI focused on the search for resources of the second type – the investor is interested in the export of labor-intensive production and FDI aimed at finding the markets. Thus, by encouraging FDI in these activities, we do not encourage industries with a high content of national value added with a technological component that positively influence economic growth, but encourage Moldova's participation in the international production chain at totally non-leading positions.

We consider that the national sectorial priorities of FDI in the Republic of Moldova have to be formed in the field of innovative industries containing a high technological component. To identify such industries, it is necessary to take into account the Kondratiev wave's theory, which allows identifying the innovative industries that will be on the rise in the near medium term. So, according to Kondratiev's interpretation, the world economy is now undergoing the 5th cycle (from 1981-83 to – 2018) and such industries as electronics, robotics, computing, laser and telecommunications equipment are at the peak of development. It is expected that these industries will fall into the phase of the downward wave for 5-6 years. From 2018, the 6th cycle will begin (until 2060), it is characterized by the development of such industries as the convergence of nano-, bio-, information and cognitive technologies. If a country aspires to take the leading positions in the global value-added chain of producer-driven, then it should focus on encouraging FDI in innovative sectors that are on the rise stage according to the 6th cycle of Kondratiev.

In view of the foregoing, we consider that the sectorial priorities of FDI for the Republic of Moldova should be defined as follows:

1. Priorities for the near future – 5-7 years – electronics, robotics, computing, laser and telecommunications equipment;
2. Priorities for the long-term perspective – 10-20 years – convergence of nano-, bio-, information and cognitive technologies.

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MANAGEMENT OF ATYPICAL SITUATIONS THROUGH THE QUALITY MANAGEMENT SYSTEM

The subject of quality under current conditions has become increasingly recognized and assigned to all fields. It is not a random action, given that any action, subject, process, or service with which we

have tangency is intended to meet our needs and not cause physical or economic damage. Under the second context, the argument of the presence of the quality subject is evident due to the complexity of the definitions and the interpretation of its notions. Under these circumstances, we find that from the complex circuit of actions, processes, activities, etc. Individual, we more or less affect the efficient and qualitative achievement of actions, processes, activities, etc. related parties directly and indirectly without much effort and intent. The need to approach the subject of quality in any aspect with a social, economic, community impact becomes a common and common sense issue. In this context, the attribution of the notion of quality to the management of atypical situations becomes an obligation to the partners and a necessity to ensure the principles, the methods for solving the problems, the approaching of the situations, the decision making, etc.

Quality management is a young science that emerged in the sec. XX and has gained momentum for the results of the effective application of theories in practice. Among the precursors of quality management in contemporary approach we can list: Edward Deming, Joseph Juran, Armand Feigenbaum, Philip Crosby, and others. The concerns of the scholars in the field of quality had the most diverse approaches, but they had one and the same purpose – quality. Various systems of international economic society have looked differently to the scientific arguments brought by researchers in the field, and only the most courageous have put them into practice. Thus, Japan gave credibility to the theories of Edward Deming and his student Joseph Juran, a Romanian scholar who lived in the US, practiced for a long time but who were not mistaken. The approach to employee performance has demonstrated the success of quality management theories in practice.

Quality management is addressed and applied both at the microeconomic level of the enterprise and at the macroeconomic level, ie at the level of governmental, regional, international policies. Regardless of the objectives of the enterprise, the organization, the community, the companies, the achievement of the quality objective is the continuous improvement of the processes, systems, actions, etc. The contemporary concept of quality determines several orientations in society, such as: compliance with reference standards; identifying possible non-conformities in the production process, ensuring technological and administrative management; the performance of the staff involved in the trials; the interests of society in relation to the protection of the environment, health and integrity; optimal costs paid

for quality; the beneficiaries of the final result, especially the satisfaction of expectations; internal and external market. These guidelines have been able to outline the main actions of quality management such as: process inspection, quality control; quality assurance and total quality management. In our opinion, all these actions would also be characteristic of the procedure of qualitative resolution of atypical situations in organizational and strategic management. The equivalent of total quality management is recognized as the concept of excellence. It is perfectly suited to address atypical situations.

Addressing atypical situations through the “Total Quality” model, in our vision, would be one of the qualitative methods of solving spontaneous problems in the strategy implementation process. Due to its applicability, this model with its good practices evolved and improved over time can create a fundamental support in ensuring the involvement of the personnel involved in the implementation of the strategic objectives. And the phrase “continuous change” being perfectly attributed to atypical situations, in our situation by spontaneous intervention, but with the objective of change, would be a new approach. Obviously, quality management aims to change as continuous improvement, but for the management of atypical situations, this coat would be great. The objective of managing atypical situations is to organize, coordinate, manage and control the settlement of non-standard situations, with a global strategy approach being implemented on multiple principles. Thus, in our view, we present the total quality for atypical situations:

All the structures involved in achieving the strategic objectives;

All the activities carried out in the communication process;

The totality of human resources involved in the processes of realization;

All collaborative relationships, partnerships involved in the realization;

The totality of internal and external factors of influence on the field

Providing support on quality aspects of the atypical solution procedure helps to solve the problem with minimal effort and maximum efficiency. If the planned financial resources are reserved, this method provides two opportunities, on the one hand solving the problem, on the other hand, reducing expenditure. The principles of atypical situation management in the “total quality” approach are:

Solving the problem – which involves attracting external support, making prompt, competent and professional decisions to ensure the

achievement of the main goal established by any possible methods without changing the direction, purpose and meaning.

Involve all departments, hierarchical levels and competent personnel in the issue in question.

Effective communication involving the provision of high-level information support.

Continuous monitoring of the atypical situation after settlement – which provides for the study of the influence of these situations in general. How the implementation of the outcome will evolve, other elements of the goal and subsequent objectives in the touch.

The particularity of the total quality application system is given by the main objective of the method – eliminating the causes of the problem. Atypical situations can be considered at one point problems until solutions are found, but are treated as atypical situations for the moment that there is no regularity or similarity. Figure 5.3 shows the compatibility of actions that are characteristic of strategic planning and interventions through the management of atypical situations.

Management (1)	Strategy	Management of atypical situations	Problem identification (2)
Achieving the objectives(6)			Search of alternatives (3)
Continuity(5)			Problem solving (4)

Figure 5.3 Ensuring the quality of atypical situations

Source: written by the author

The motivation of the work team responsible for achieving the strategic objectives in solving the atypical situations during the realization is the key to success. Ensuring solving support by addressing “total quality” is the effective method for atypical situations regardless of the field, typology and causes of occurrence.

Another approach based on the principles of quality management is ***the process-based approach*** the process is seen as a complex action in which the input elements are transformed into other outputs. Thus, the resolution of atypical situations can be regarded as a process as input elements are considered decisions, actions taken to modify the circumstances to ensure the achievement of the planned objectives. Promoting the process-based approach has yielded results expected in

the process of designing, implementing and improving the quality management system in the European area. For the Republic of Moldova, the implementation aspects became an obligation and a commitment once the Association Agreement was initiated, which is unfortunate. The widespread up-to-date and applicability of the principles of the process-based process management approach is of interest in ensuring that the problems encountered in the process of long-term strategy are realized. Based on the fact that all the output elements of a process simultaneously create an input element for the subsequent process, the process-based approach to atypical situations becomes an optimal solution for grafting corrective actions into strategic planning.

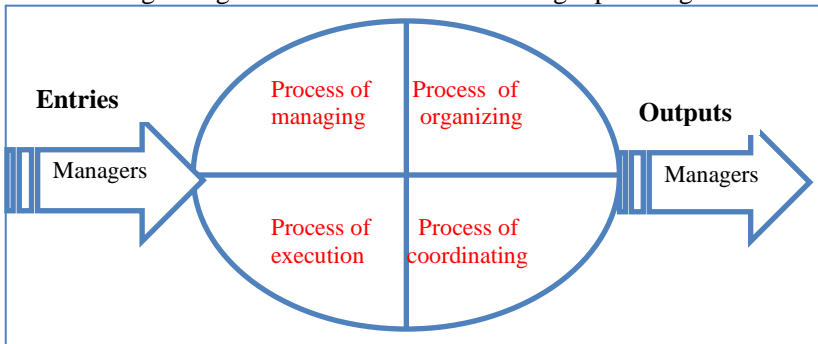


Figure 5.4 Process-based approach to atypical situations

Source: written by the author

The process-based approach to atypical situations, represented in Figure 5.4, is ensured by inputs and outputs by managers, is both initiators and beneficiaries are managers, but from different levels of management. This model facilitates the resolution of crisis situations from a non-typical point of view by identifying decisions and actions appropriate to the momentum without periodicity or repetition to further improve the achievement of the planned strategic goal. Ensuring the effective and efficient functioning of programs for achieving long-term strategies is a dynamic element of the organizational and participatory management system. Managing, organizing, coordinating and execution processes will be provided by procedures. They are often found in process-based approaches, because they describe the way in which actions are taken. The procedure for dealing with atypical situations will include: description of actions to be taken, division of responsibilities, indications of achievement, control and integration. The process-based approach to atypical situations also has advantages: ensures the

achievement of established actions, is continuously monitored, ensures the achievement of objectives.

The system approach is one of the novelty elements of quality management, which has proven to be useful by providing the safety of a process in which several departments use the same information, methods, and qualities simultaneously. Respectively, quality is ensured by concurrent and constant action on the whole of the joint activities without being specified or individualized. Similarly, atypical situations can be created by various factors of influence, which are managed by various departments of the organization's management system. The need for systemic approach to atypical situations is summed up from the position of their correct, qualitative, effective and timely solution at the time of their appearance. The overall action on atypical situations will ensure their qualitative resolution in order to achieve the established objectives. For the quality system of atypical situations we propose the following processes for achieving the objectives:

Creating specific Force-major manager functions that will take over when atypical situations occur;

Ensuring with an information system that will inform the other subdivisions involved about the changes in force majeure and the subsequent unfolding of the plan

Creating short-term action plans

Controlling the resolution of the situation of force majeure and the impact on subsequent objectives

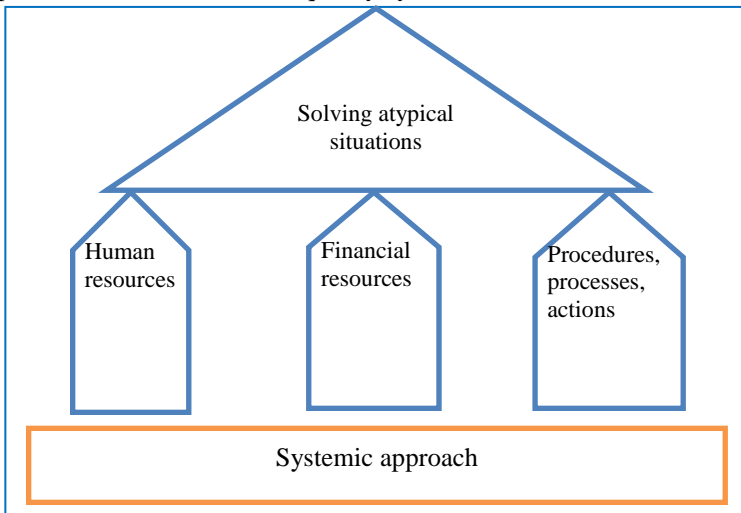
Storing a database of emerging situations and solutions for further experience

Research into prevention and identification of possible atypical situations of the future.

Of course, ensuring the achievement of the objectives to solve the problematic situations that have arisen in the process of achieving the long-term strategies is in the competence of the top management, which contributed to their establishment and dissemination. The emergence of the force-major manager in these circumstances leads to the clarity of the problem in question, the finding of just and competent solutions to the situation with the involvement of experts and the discharging of the higher tensions. This role must belong to the most documented manager in the field, who has assisted and participated in the formulation of the strategy and the objectives and which in any circumstances will ensure the course and achievement of the desired goal. The system approach includes the practical involvement of an integral set of organizational

structures, procedures, processes, resources, etc. which will help to solve the atypical situations that have arisen. The role of the force-major manager lies in the link between the top management underlying the implementation of the strategy and the executive management in whose responsibility the achievement of the established objectives is achieved.

The system approach to atypical situations through the quality system has its advantages. Firstly, there will be certainty in achieving the process and reaching the established objectives, it will be possible to solve situations of this kind at different levels of strategic planning in the field. And most importantly, credibility will be gained from partners due to their stability in terms of the qualitative achievement of the established strategic objectives. All of the contemporary economic realities demonstrate that the involvement of segmented quality management is inefficient, namely the systemic approach brings effects and results. We believe that in this context, the entire strategic planning must be ensured by the objective of achieving quality, and ensuring its implementation will ensure a quality system as a whole.



The main objective in the case of atypical situations is solving – the most urgent solution to offer continuity. The pillars on which the prompt resolution of these situations is based are human resources, financial resources and actions. Achieving strategic goals involves a lot of human resources in the process, which carry out certain planned activities. The skills, abilities and responsibility of people involved in the established activities are not discussed as they were key points at the initial planning

stage. The problem is whether these people will be competent, capable and responsible for solving some non-standard problems for planned situations. To this end, creative managers, innovators with intuitive development and initiative spirit will be involved in finding more solutions to the situations created. Probability of occurrence of these situations can sometimes be predicted by experienced people, or can be intentionally created to save the course of the established action plan. The important factor in the solution search is communication, and the system approach provides information support throughout the system. Financial resources are also an important pillar in solving the emerging situations, but because they are limited, the changes are inopportune and impossible. The role of the procedures, processes and actions is to ensure the coherence of the established path, the efficient management according to the norms and requirements, the observance of the planned stages and the elimination of the risk situations.

All quality management systems are based on certain standards and references to which they relate. The ISO 9001 standard sets out the requirements for the Quality Management System. Quality management systems have made a particularly influential spread and applicability at international level. The advantage of this normative document lies in its applicability regardless of the field of activity, type, level at which the action takes place, etc. The utility and applicability of this standard also covers the monitoring, management and resolution of atypical situations.

Following the chapters of the ISO 9001 standard, we find it relevant to apply some of them to the management of atypical situations. In Table 5.4 the author tries to find alternatives to the implementation of chapters 4-8 of the standard.

One of the advantages of applying the quality management system is control and nonconformities. Controlling and monitoring atypical situations that occur during long-term strategy implementation is a good practice for future experiences in the planning process. Recording of emerging situations may be a means of eliminating actions in favor of other actions.

In this context, the role and necessity of addressing atypical situations in the aspects of quality management are considered as well-grounded. Ensuring the realization of the confirmations from this research can be a good start of the quality assurance practices in terms of strategic planning. The role of assuring the quality of different actions in contemporary economic activity is also dictated by the speed of changing the conjuncture.

Table 5.4

Applicability of the ISO 9001 standard in the management of atypical situations

chapter	Chapter title and subchapters	application
4.	<i>Quality management system</i> General requirements Documentation requirements	Rules for action in case of force – major occurrence; action procedures, staff records, records, etc.
5.	<i>Management responsibility</i> Management Commitment Customer Guidance Quality Policy Planning Responsibility, Authority and Communication Management Review	Making decisions in situations of certainty and uncertainty, planning actions to replace previously planned actions, delegating responsibilities, ensuring effective communication.
6.	<i>Resources management</i> Resource Assurance Human Resources Infrastructure Working Environment	Involve competent persons on issues that arise, ensure the conditions for carrying out the tasks
7.	<i>Making the product</i> Product Planning Processes Customer Relationship Designing and Development Supply Production and Service Delivery Control of Measurement and Monitoring Devices	Successful completion of the substitution process without changing the goal of the established strategic goal, post-achievement monitoring, studying the influence of changes for the entire strategic process.
8.	<i>Measurement, analysis and improvement</i> General Monitoring and measurement Product nonconformity control Data analysis Improvement	Measurement of change costs, identification and prevention of atypical situations, statistics of successful solutions.

Source: written by the author

Quality long-term strategic planning is a way to promote macroeconomic policies in the current period in the Republic of Moldova. Thus, the quality of strategic planning is a matter of scale and importance for the market economy. In forecasting the margin of error for extended periods it is greatly flawed, and the probability of identifying the correct solutions and possible distances rime is impossible. Even in the implementation of the implementation plans it

can not be foreseen to change the important elements, for this beneficial and prospective purpose is the implementation of elements of the management of atypical situations. The principles and methods of which are aimed at solving and improving the processes of implementation and implementation of long-term strategies.

The author presented in the paper aspects of conceptual approaches of quality management with elements of application in the process of solving atypical situations. In our view, all three approaches: “total quality”, process approach, and system approach can be used as methods to help resolve atypical situations arising in the process of achieving long-term strategies. The prism of the quality system will help identify the correct and problem-solving solutions and will ensure resolution by making substantiated and reasoned decisions. We recommend the efficient use of quality methods to select the optimal application direction. A possible concomitant use of two or even three methods is not forbidden, it can only defer the period of solving the created situations and the loss of time in an operational process is not desirable. Applying these methods will ensure achievement of strategic plans and goals established during hundred percent, and the management will significantly increase execution speed to resolve the situation unclear. In the role of tangential benefits we can see the mobilization of the managerial team, the discipline of work, the creation of innovative skills, the responsibility. Importantly, the true reason why the methods for solving atypical situations will be applied is the reward for the implementation of the strategic results – that are the benefits obtained by the society.

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**INNOVATIVE
APPROACHES TO THE
DEVELOPMENT OF THE
FINANCIAL SYSTEM IN
THE REGION**

From time to time the state's financial systems, including a totality of financial relationships that arise within the state between different subjects being aimed at solving the burning issues of the state, like any economic entity, experience pre-crisis and crisis periods. Criterion for such financial phenomena is the funds insufficient to achieve its goals and objectives [7].

In this situation, there arises a need to develop anti-crisis measures that would lead the economy and its mechanism into a stable phase of functioning. Such measures may also be considered as innovative, as they are related to the development of new measures of integrated nature, covering various spheres of the state economy. In this scientific research, innovations will be considered precisely as new approaches aimed at stabilizing the functioning of the state's financial system [9].

Innovative approaches will have the expected or planned effect from their implementation. The tasks and objectives of the state are, first of all, growth of economy, development of branches of the national economy, increase in the level of income, development of innovative and investment activities of the state, high level of development of education and science, health care and others. To develop and implement them, it is necessary to conduct an in-depth and comprehensive analysis of the state's financial system on the basis of official data.

Let's assess the quality of financial processes in the economy of the Transnistrian region. In this context, we will notice that Transnistria is, on the one hand, the autonomous region of the Republic of Moldova, located at the east of the Dniester (except of the villages in the west of the Dniester belonging to Dubasari district) [Law no. 764 of 27.12.2001 on the administrative-territorial organization of the Republic of Moldova]. On the other hand, the Transnistrian Moldovan Republic is

considered as self-proclaimed separatist region in the east of the Dniester (left bank), including at the same time six villages as well as the municipality of Tighina situated in the west of the Dniester. The territory of the TMR may be confused with that of the geographic region of Transnistria. The Transnistrian Moldavian Republic is not a subject of international law, being considered as a component part of the Republic of Moldova. The Republic of Moldova lost control of this area following the interference of the Russian Army in the conflict in Transnistria. In our research, we will refrain from any political analysis and will only make an assessment of the economic and financial situation in the TMR, which covers an area of about 4,163 km².

So, the main directions of the financial system are: budgetary and tax policy, finance of business entities, banking system. Budgetary policy is one of the priority ones since it reflects the state of the treasury of the region and local budgets. Table 5.5 shows the macroeconomic indicators for the last six years.

On the basis of represented data, it should be emphasized that until 2015, that is, from 2012 to 2014 inclusive, consolidated budget income increased by 12.69%, while expenditures with a fall in 2013 increased by 11.18%, in 2014 as compared to 2012 there was increase by 1.28%.

Thus, the income grew by a larger amount than expenditures, state authorities and management sought to reduce the budget deficit, which in three years decreased from 1,204.3 million rubles to 898 million rubles or by 25.43%.

In 2015, the consolidated budget incomes are sharply reduced by 26.77%, in 2016 there was increase in comparison with the previous year by 0.54%, and in 2017, as compared to 2015, by 24.72%. There's being observed a tendency of a sharp drop after a slight increase and then there's a growth again. Such undulating values indicate the inflexibility and instability of the financial system incapable of adapting to emerging threats and risks.

In turn, the expenditures of the state's consolidated budget decreased by 23.79% in 2015 compared to 2014, while revenues decreased more. From 2015 to 2017 there is a trend of growth in expenses by 67.85%, while incomes grew at a slower pace. It is obvious that the budget deficit has been steadily increasing since 2015: in 2016, compared to 2015 – by 112.46%, and in 2017 compared to 2016 – by 14.44%.

It is worth paying attention to the change in the value of the state's gross domestic product. It is clear that revenues and expenditures of the consolidated budget grew until and including 2014.

Table 5.5

Major macroeconomic indicators of the Transnistrian region for the period 2012-2017

Indicators \ Years	2012	2013	2014	2015	2016	2017
Consolidated budget income, million rubles	2817,5	2855,9	3175,1	2325,1	2337,7	2899,8
Consolidated budget expenditures, million rubles	4021,8	3599,9	4073,1	3104,2	3993,0	5210,5
Deficit, mill. rubles	1204,3	744,0	898,0	779,1	1655,3	1894,3
Budget deficit, % GDP	11,1	6,4	7,2	8,1	14,4	13,9
GDP of TMR, in actual prices, mill. \$	976,3	1048,8	1116,8	869,7	1018,3	768,8
Current external balance of TMR, mill. \$	-933,2	-827,1	-901,1	-490,2	-298,9	-291,2
Inflation, %	10,43	103,63	100,98	98,23	104,44	111,8
Rate of growth of industrial output by the preceding year	104,9	82,3	119,0	92,3	94,3	114,9
Index of investments in capital stock in comparable prices; in % by the preceding year)	71,4	116,0	96,5	85,3	80,2	69,4

Source: compiled by the authors based on the sources: [1], [2], [10], [11], [12]

The Transnistrian ruble is the monetary unit of the Transnistrian Moldavian Republic. It was put into circulation in August 1994 with the proclamation of the independence of the Transnistrian Republic. Transnistrian rubles are being issued by the Transnistrian Republican Bank founded on December 22, 1992. Whereas Transnistria is not an internationally recognized state, its currency does not have an ISO 4217 code but can be appreciated at the US dollar rate.....

Then there was a sharp drop in indicators, then again there were observed an increase in revenues and expenditures and budget deficit, then the gross domestic product increased until and including 2014, and

since 2015 it decreased by 22.13%, in 2016 there was increase by 17.09% and in 2017 one could observe a significant decrease by 24.5%. At the same time, the incomes and expenditures of the republican budget increased, the country's GDP decreased by a quarter, this underlines the decline in industrial and agricultural production, reduction of entrepreneurial activity and increase in the tax burden with regard to the remaining taxpayers both economic entities and individuals. Thus, there is a decrease in the state budget revenues and, accordingly, the state authorities and governing bodies make a decision to reduce the expenditure budget. In this situation, the problem of reducing the state's revenues is evident. It should be noted that in recent years there has been a constant trend that needs to be changed radically.

Such a situation will not lead to an increase in the economy, branches of the state's national economy, increase in the household income, development of state's innovative and investment activities, high level of development of education and science, public health and others. However, the rate of growth of industrial output in 2017 increased compared with 2016 by 14.9% against the background of a decline in the value of gross domestic product, which underlines the slowdown in activity not in the production sphere of the state, but in other sectors of the national economy. So there's observed unidirectional flow in development within the state, preference is given to the development and stimulation of nothing else but industry.

Such a policy is very risky, since there should participate all directions in the formation of state revenues in order to reduce risks, if any direction does not bring income, there exists a possibility to compensate for it with incomes of another direction. Especially, it may be problematic in future to promote the development of nothing but industry with an open economy, given the existing difficulties in conducting international business.

On the basis of data represented in Table 5.5, the state's current external balance up to 2015 showed taking turns to growth and decrease, and starting from 2015, there is a steady decline in this indicator. On the one hand, we can say that this is good, the deficit between exports and imports is reduced, but on the other hand, against the background of the decline in the state's GDP this situation shows a slowdown in foreign economic activity. Thus, the state supports the development of nothing but industrial production, and, the latter in turn, reduces its supply to foreign markets, but at the same time there arises a need to thoroughly develop other sectors of the national economy in order to change the

situation that has been emerged. If the GDP contracted in 2017 compared to 2016 by a quarter, the current external balance of the TMR decreased by only 2.6%, in other words, it emphasizes the increase in the amount of imports compared with exports.

Let's consider such a macroeconomic indicator as inflation, which declined during the period from 2012 to 2014, in 2015 it was negative, that is, there was deflation in the economy, and since 2016 there has been a gradual increase in inflation, in 2016 it was - 4, 44%, in 2017 - 11.8%. Again we see the decline followed by the growth.

In 2017, inflation was high at 11.8% due to the devaluation of the national currency (the Transnistrian ruble). As you know, any devaluation of the national currency presupposes a rise in inflation and with an open economy and with high import volumes it is clear that inflation has immediately reacted to devaluation. Until 2017, the rate of devaluation of the national currency over the previous four years was zero. The monetary policy of the Central Bank of the TMR was aimed at stabilizing the national currency regarding to more stable currencies. On the one hand, it resulted in regular incomes of the population, but on the other hand, there were more minuses ("food tourism", erosion of working capital of enterprises, buying up hard currency). It should also be emphasized that in neighboring countries there was a quite active devaluation of national currencies amid the economic crisis, for example, in Ukraine, the hryvnia as a national currency devalued by more than 200%, in the Russian Federation the Russian ruble devalued by more than 120% as the national currency. In our economy, the national currency did not devalue and it caused serious disparities against the background of the devaluation surrounding us. Therefore, it was necessary to conduct devaluation in order to level the situation, since our state trades most with neighboring states, in particular the Republic of Moldova, Ukraine and the Russian Federation. The crisis in these economies, respectively, causes the crisis in the TMR.

Transnistria seeks to lower the inflation rate, to rein in price growth. To date, there has already been a revaluation at the rate of commercial banks, that is, the strengthening of the national currency. The rate of the Central Bank of the national currency to the US dollar is stable and has not changed being currently 16.00 Transnistrian rubles. Against the background of the ongoing processes, inflation was not compensated for the population.

One of the most important macroeconomic indicators reflecting the level of economic development of the state is the index of investment in

fixed capital. As you know, the economy of the state cannot develop without investments, both internal and external. The market mechanism requires the maintenance of the competitiveness of goods, enterprises, industries, state with economy. If an economic entity or the state does not seek to attract investors, does not create favorable and convenient conditions for them, it is fraught with negative consequences, lack of the state's potential for development, and therefore it will necessarily lead to risks that always characterize a crisis situation. One of the priority tasks of the state is to prevent the implementation of threats and risks and, accordingly, to develop a set of measures, innovative approaches to management and direct decision making of a qualitative nature. Lack of investments in the economy demonstrates the need and urgency of their attraction and infusion into it.

The data from Table 5.5 indicate an increase in investment up to 2013 inclusive, and starting from 2014, we see a gradual decline. Over the past five years, this index of investment in fixed capital decreased by 40.17%, i.e. almost by half. The state of one of the significant macroeconomic indicators also shows deterioration.

Having considered several key macroeconomic indicators of the state over the past six years, the following problems were identified: increase in the budget deficit; GDP contraction; increase in the inflation rate after deflation; unstable growth in the volume of the state's industrial production; stable decrease of the index of investment in fixed capital.

This situation directly indicates the actualization of financial risks expressed in the deficit of the state treasury and the inability to attract sufficient and necessary volumes of investment flows. There's obvious crisis of the TMR economy which directly characterizes its economic security considered in this situation as low. High budget deficit reflects a reduction in the budgetary security of the state.

Furthermore, let's give some data related to the state treasury for the year 2018. In this part, it can be emphasized that the revenues of the republican budget amount to 1.640.920.392 rubles in 2018, expenses make 3.151.643.298 rubles, so the budget deficit is 1.472.143.499 rubles, or 46.7 percent to the expenditure part of the republican budget. Consolidated budget revenues amount to 2.476.057.952 rubles, the maximum amount of expenses makes 4.455.669.347 rubles, the maximum amount of the deficit is not more than 1.597.414.135 rubles, or 35.9 percent to the limit of the consolidated budget expenditures. Per totality of local budgets of cities and districts of Transnistria, the total budget deficit makes 64% of the amount of the expenditure part, but the

maximum deficit is 9.6% [2]. This is facilitated by subsidies and transfers from the national budget to local ones, the fact which confirms the implementation of such a principle of building a budgetary system as federalism.

If we compare these data, as described in the Law on the republican budget for 2018, with those of 2017, we can note that expenditures, revenues and deficit of the consolidated budget of the state have been reduced [1, 2]. Revenues were reduced by 14.61%, expenses – by 14.5%, deficit - by 15.67%. It is evident that revenues are being reduced more than expenses.

For economic stabilization it is necessary to develop measures aimed at increasing the state's revenues. This is possible within the framework of the formation and implementation of a stabilization financial policy in several areas [4].

Firstly, it is necessary to carry out activities related to increasing the revenue side of the main taxpayers of the state, that is, large enterprises. [5] This may be due to the expansion of their activities by providing, for example, enterprises conducting vigorous investment activities with the increased number of employees and certain tax benefits. Consideration should be given to the introduction of such an indicator as budget effectiveness which is the ratio of funds allocated for the implementation of expansionary measures to income, which will be received the state treasury [6].

Secondly, to activate and increase the number of taxpayers-legal entities, there also arises a need of concessional loans that would really contribute to the development of the branches of the national economy, but they must necessarily be reimbursable. These can be both loans granted from the state treasury and banks with state participation in the authorized capital. In this situation the allowance is made for a loan guarantee from the state. Transnistria as a guarantee giver will promote the development of such an enterprise, reimbursement of credit and targeted achievement of the effect of credit.

Thirdly, the implementation of measures aimed at transparency of the activities of taxpayers, not only legal entities, but also individuals. Accuracy and timeliness of payment of taxes is an insurance of adequate filling of the state treasury. One of the tools may be the conduct of high-quality tax control, excluding the criminalization of economic activities of legal entities.

Fourthly, the entrepreneur must be assured of the stability of the tax system and the invariability of tax payments for at least the fiscal year.

Otherwise, the unofficial economy will increase negatively affecting the revenue side of the budget and extra-budgetary funds. [3] In this context, it is necessary to establish a process of timely elaboration and publication of the concept of budgetary and tax policy within the framework of the stabilization financial policy, national socio-economic development strategy, certain economic model of the state. These documents compiled and brought to the notice of all economic entities and investors are the state guarantees for them, i. e. creation of a certain economic model of the state that is understandable for all participants of the economic process.

Fifthly, consideration of options for optimizing state funds usage in terms of expenditures. It is necessary to revise financing of budgetary items, that is, to improve the structure of the TMR expenditures [3].

Sixthly, it's necessary to create stability of the banking system by changing the indicators contributing to macroeconomic stabilization in general, such as refinancing rate (the possibility of lowering), rate of devaluation of the national currency (the possibility of retaining), cash in circulation (the possibility of reduction), i.e. application of monetary policy instruments as part of the formation of the stabilization financial policy of the TMR.

Seventhly, the creation of attractive investment conditions for both internal and external investors, especially for the latter ones. There exists the internal turnover of investments, but it is not enough, therefore a serious inflow of foreign investments is needed. In the world economy, the level of state development is judged not only by gross domestic product, but also by the amount of foreign investment.

Eighthly, changing the necessary legal norms contributing to the stabilization of the state's financial system [8]. Particularly in these areas the TMR makes every effort. In other words, this is a set of innovative approaches that should be used and implemented for remediation of the crisis situation, improvement of economic processes, and overall upgrade of economic security.

To create macroeconomic stability, including financial one, it is necessary to reduce the rate of inflation, this trend is being already observed: in 2017, the inflation rate was 11.8%, in 2018 the planned level is 5-7%. The world standard of the inflation rate indicating normal economic development makes 4%. For example, the rate of inflation planned for 2018, 2019 and 2020 in the Russian Federation is 4%. The gradual decrease in the rate of inflation, retention of the national currency against harder currencies, reduction of cash in circulation,

lowering of the refinancing rate, creation of attractive conditions for business and entrepreneurship development and other measures will contribute to the stability of the financial system of the state. In the system of proposed and applied measures, the state also needs to seriously approach the assessment of risks, threats and “external shocks” that can be realized and there is needed a mechanism to prevent their impact. In this regard, it is necessary to develop a set of assessment indicators that would reflect the present state of the financial system of the state and the economy as a whole.

It is also worth remembering that measures that can be used in other countries to stabilize economic and financial processes, for example, in developed ones, cannot always be implemented in the TMR due to the geopolitical risks that affect the region. Therefore, it is necessary to develop new innovative approaches to optimize the situation that has arisen.

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Chapter 6

EXPERIENCE THE COUNTRIES OF THE EUROPEAN UNION IN MANAGING INNOVATIVE DEVELOPMENT THE ECONOMIC ENTITIES

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**MECHANISMS OF
GOVERNMENT
MANAGEMENT OF
ENSURING INNOVATION
SECURITY OF THE
STATE: WORLD
EXPERIENCE**

The current stage of Ukraine's socioeconomic development is characterized by a number of threats to stability and stability in the field of economic security of the state, including a decrease in the competitiveness of domestic goods and services in the domestic and foreign markets, which leads to a slowdown in the growth of the gross national product and a reduction in activity, basic branches of the economy, insufficient provision of reproductive processes. One of the main reasons for this is insufficient innovative activity on the part of the state, in particular in the domestic economy sector.

However, the situation is complicated not only by the decline in innovation activity, but also by the weakening of Ukraine's innovative security, which manifests itself in the reduction of the share of high technologies used, the destruction of innovation infrastructure and loss of ties between business entities and research structures, the low level of innovation in technical and technological processes of species economic activities and industries on which the national economy specializes.

The problems of the formation of the system of economic security of the state, including various structural and functional parameters, have been studied in the scientific works of such scientists as V. Begma, I. Binko, L. Braun, S. Varnalia, T. Vasiltsiv, A. Vlasyuk, C. Kirichenko,

A. Koval, A. Lyashenko, H. Malgröm, H. Maul, L. Mieri, I. Migus, A. Mokiy, G. Pasternak-Taranushenko, I. Revak, E. De Soto, M. Fleischuk, M. Cilinsky, A. Sharov, V. Shlemko. Strategic priorities and practical aspects of activization of innovative activities in the provision of innovative state security are actualized in the works of A. Amosh, A. Galchinsky, V. Geitz, V. Novitsky, A. Sukhorukov, M. Hvesik, N. Yurka, and foreign scientists V. Baumol, E. Denis, R. Lucas, R. Solow, J. Schumpeter, and others.

However, the main obstacle to restoring innovative activity in realizing the potential of innovative development of the Ukrainian economy is the lack of a systematic approach, which should be based on a complex combination of institutional mechanisms that simultaneously form a clear and transparent legal framework, lay down elements of the innovation infrastructure, create appropriate incentives and motivations for all subjects of the system of innovation security, build an organizational structure for managing these processes, determine the current and strategic prospects for the development of innovative activities and the use of its results for the purpose of inclusive growth of Ukraine.

In modern conditions of the active formation of the information society and a comprehensive knowledge economy, the pledge to increase the competitiveness of the national economy and economic security of the state is inextricably linked with the development of innovative activity characterized by the ability of the national economy and society to generate, implement and implement new technological solutions in various spheres of social and economic activity. It becomes obvious that the economic security of the state increasingly depends on the effective use of innovation potential on the basis of novelty and innovations, when innovations penetrating into various sectors of the national economy condition their constant modernization and transition to new forms and more effective models of economic development.

The specificity of the current stage of the globalization of the world economy calls for the activation of innovative activity as the most effective tool for enhancing the competitiveness of the economy, increasing the economic efficiency of the national economy on an intensive basis, improving the participation and location of the state in the system of international scientific and technological cooperation. Reforming the institutional system for ensuring the state's innovative security, developing the institutional infrastructure for integrating research and innovation activities should take place through the use of

positive international experience in implementing institutional mechanisms to ensure innovation security adequate to modern challenges and threats to innovation security for countries with a transformational economy.

It should be noted that in the economically developed countries of the world, more attention is paid to the development of theoretical and applied foundations for the development of the innovation sphere, the formation of a favorable economic and legal environment for the implementation of innovative activities, and the construction of effective innovation systems. On the other hand, the issues related to the direct formation and implementation of institutional mechanisms for ensuring innovative security are topical in countries that have faced problems of carrying out structural and technological modernization of the production complex, their transition from planned to market methods of managing the economy, to finding their own niches in the international division of labor not found.

It should be noted that in the countries with transformational economies, market mechanisms for stimulating the development of innovation activity are mostly insufficient for the implementation of the innovative model of economic development with a low level of effectiveness of certain important institutions of the system of innovation security. So, the problem of implementing institutional mechanisms for ensuring the state's innovative security acquires particular relevance for transformational economies in the context of the implementation of the innovative model of economic development. Therefore, the world experience of institutional support of innovation security at all levels of the systemic hierarchy of economic management is of considerable interest both for the development of the security system of subjects of innovation activity and for the innovative component of the state's economic security.

At the same time, we note that the leaders of innovative development are countries such as the United States, Japan, Germany, Britain, Israel, etc. In order to consider the possibility of adapting and applying their positive experience in the direction of the formation and development of the institutional system for ensuring the state's innovative security, The peculiarities of the institutional basis of these states in this sphere.

First, the governments of many developed countries in their policy documents officially declared the transition to an innovative way of economic development, which primarily involves the formation of an institutional and legal basis for state innovation security through the

development of effective regulatory and legal mechanisms and tools to ensure the development of innovation, creation of an effective system of public administration bodies, which would clearly define and regulate the scope of activity and functioning of the subjects of the system of innovative security of the state within which their economic interests are satisfied and risks and threats to the safety of innovation activity are limited.

Secondly, in countries that occupy the leading position in the world market of high-tech products, state and non-state institutions have been established and are effectively supporting and stimulating the development of innovative activities, the formation of intellectual, human resources, venture and financial investment and innovation activities at the national, sectoral and regional levels (Ministry of Innovation, Science and Research, industry innovation councils, innovation fund, industrial parks, techno, venture capital funds, technology transfer centers, etc.). These institutions carry out strategic and tactical actions for the development, implementation of long- and medium-term priority areas of innovation, the formation of a favorable environment for attracting investment resources in innovative processes, the implementation of activities to enhance the innovation activities of economic entities.

Thirdly, the experience of many developed countries (the USA, Ireland, Finland, Israel) testifies to the possibility of implementing structural changes in the innovation sphere only if the model of a market economy is used with a high share of direct and indirect state stimulation of activation of innovation activity and development of effective state innovation policy on the development and implementation of institutional mechanisms and tools for ensuring the state's innovative security.

For example, the stimulating role of the state in ensuring the innovative development of the US economy has gradually been transformed from the application of administrative methods for regulating innovation to program-targeted ones, as well as indirect incentives for the development of innovation (tax incentives, the accelerated depreciation of fixed capital, patent policy, antitrust policy, etc.). In the area of creation of a favorable climate in the innovation sphere, the US government policy is aimed at increasing the share of financing of innovation activities by the private sector.

World experience shows that in the economically developed countries of the world, in addition to the development and

implementation of proposals to improve the state regulation of the development of innovative activities, the list of the main tasks of government bodies includes the development of documents for strategic planning of the institutional and legal basis for the state's innovative security, the improvement of sectoral and regional programs for the development of innovative activities, as well as the implementation of practical measures for the UK the reduction of innovation security at all levels of the systemic hierarchy of economic management.

The experience of the EU countries allows us to distinguish three main stages in the formation of institutional support for the development of the innovation sector, namely: preparatory – the creation of the institutional and legal foundations of the EU's joint innovation policy, basic organizational institutions and sectoral international structures; normative and constructive – the development of institutional and economic and institutional-organizational mechanisms for ensuring the innovative security of the state, as well as the creation of a regulatory and legal basis for regulating innovation processes and relations between subjects of innovation activity (in 1990, the “Industrial policy in an open and competitive economic environment” envisaged activation of innovation policy and maintenance of cooperation between enterprises [1], in the Green Book on Competitiveness and (1990) reasonably refrained from using traditional (interventionist and protectionist) tools); (3) practical – the implementation of activities to support and stimulate the development of innovation (in the Fifth Framework Program (1998-2002), measures were introduced to disseminate best practices for stimulating the innovative activity of small and medium-sized businesses); A European research space has been created whose task is to consolidate the scientific, technological and innovation potential of the EU member states; In the framework of the implementation of the Lisbon Strategy, practical measures were implemented to introduce financial and economic incentives for investment support of innovation activities, to develop the institutional infrastructure for the integration of research and innovation activities, and to improve the institutional support for the management of the research and technological cooperation in the innovation sphere.

In 2010, based on the assessment of the results of the implementation of the Lisbon Strategy, a new strategy was adopted, “Europe 2020 European Strategy for sensible, sustainable and Inclusive Growth” [2], which focused on the relations of participants in innovation processes, especially between the private and public sectors, large and small

business, science and production, as well as the elimination of obstacles to innovation that exist in the creation, protection, protection and commercialization of intellectual property, technical standardization coy et al.

We should highlight the experience of creating effective institutions for supporting and stimulating the development of innovation in spatially-structural or sectoral sectoral dimensions of state innovation security. Thus, under the Government of Australia (the Ministry of Innovation, Industry, Science and Research), industry innovation councils have been created that contribute to strengthening the innovative culture of industrial groups, encouraging the promotion of innovative ideas and technologies in the national industry, establishing effective mechanisms for interaction between industrial enterprises, research and educational institutions and public authorities [3, pp. 337-340].

Equally useful for the development of innovation in countries with transformational economies may be the experience of individual countries on the development of the institutional and economic basis of the state's innovative security through the formation of venture financial and investment support for innovation. The global trend of the last decades is the gradual increase in the amount of state and private sector spending in innovative processes (moreover, the share of private investment is growing at a faster pace), and the growth of the science intensity of GDP. The highest share of expenditure on Research & Development (R & D) in GDP is typical for Finland, Denmark, Sweden, Israel (at 3-3.5%). On average, in economically developed countries this share is 2.5-3%. The highest growth rates of expenditure on research and development are characteristic of the newly industrialized countries. For example, in Brazil, the share of such expenditures in GDP increased from 0.98% in 2003 up to 1.7% in 2010. The share of government funding for Research & Development spending (R&D) in the world differs significantly (from 17% in Sweden to 60% in the Czech Republic), but in most developed countries it is at the level of 25% 35%.

It should be noted that the bulk of fundamental research is financed from the budget, most of which are carried out by universities. For example, in the US, more than 60% of the fundamental work is financed by the federal government, incl. in military and space spheres, and private companies – only 16% [4]. At the same time, in most developed countries, private companies play a decisive role in financing applied research. In particular, the participation of private capital in the

financing of Research & Development» (R&D) in the EU countries is 55%, and in the USA – 67%. In order to attract investment resources of the business sector to innovative processes, a special financial institution has been set up to distribute risk and attract private capital to the sphere of Research & Development» (R&D) (experience of the EU countries).

The most significant institutional and financial instrument for strengthening the EU's innovative security is the Framework Program for Research and Technological Development, which aims to stimulate Research & Development» (R&D) at the European, national and regional levels through financial investments in the scientific and manufacturing sectors. As part of the new framework for research and innovation, Horizon 2020 plans to increase spending to 80.2 billion euros, which is 46% more than in 2007-2013. [5].

The experience of developed countries shows the importance and necessity of using tax mechanisms for activating innovative activity, through which the state stimulates the attraction of investment resources in innovative processes, incl. business and banking sectors. The most developed tax mechanisms for activating investment innovation processes are in the US and the UK. The system of tax credits and tax credits in the United States provides for: 1) preferential taxation of venture companies and enterprises engaged in “Research & Development” (R&D); 2) an investment tax credit; 3) reduction of the profit tax for organizations with securities of venture structures; 4) a reduction in the profit tax for small scientific business (20% of the increase in expenditure on research and experimental development is removed); 5) a tax credit for funds invested in innovative activities (in some states up to 25% of investment). Under the tax credit in various states, investments are made in the association of start-up companies that provide financing for small businesses to develop experimental samples of products or processes, carry out marketing and feasibility studies for new products or processes, develop business plans for the creation and production of new products and services [3, p. 465].

The state policy of the majority of the developed countries of the world is focused on the development of a system of priorities and incentives that would channel bank credit resources to support the innovative development of the real sector of the economy through the following activities: a) stimulation by the state to create specialized innovative banks, as well as long- establishment of tax privileges for funds invested in innovative processes; b) reduction of the profit tax rate of commercial banks in the case of allocating resources for long-term

lending to innovative projects; c) creation of a system of preferential refinancing for providing commercial banks that provide soft loans for the implementation of investment projects for the development and implementation of innovations; d) introduction of the mechanism of state insurance of credits granted to subjects of innovation activity; e. encouraging commercial banks to purchase shares of enterprises that produce innovative products; e) Reduction of the reserve ratio for banks lending to innovative projects [6, p. 232].

The experience of many countries shows that the development of elements of the innovation infrastructure (technoparks, technopolis, industrial parks, science parks, regional innovation clusters, business incubators, venture capital funds, technology transfer centers, etc.) Carries out systematic positive impact on the socio-economic development of the country, its export potential, by: a) intensifying investment activities in the real sector of the economy, facilitating technological modernization of industrial production, realizing importation strategies; b) improvement of export structure and strengthening of export potential; c) increase of investment attractiveness, level of guarantees and protection of rights of institutional investors, facilitates attraction of foreign investments in innovative processes; d) increase in the volume of revenues to budgets and state trust funds; e) strengthening the social security of the state by creating new high-tech jobs; e) development of modern production and market infrastructure; e) reduction of energy and resource costs of production.

One of the key elements of the innovation infrastructure is technological parks, the activity of which is aimed at the implementation of innovative projects for the introduction of high-tech developments in the innovation sector and the launch of new competitive products. More than 160 technoparks function in the USA (which makes up about 30% of the total number of such structures in the world), in Germany – more than 60, in China – about 50, in the UK – more than 40 analysis of the functioning of US technology parks as a basic model for the formation and development of technology parks structures allows us to conclude that it is necessary to intensify the state's actions to increase the efficiency of technological parks, which is expressed in direct (funding from the state budget) and indirect (certain tax incentives Do other preferences) types of state aid [7, p. 46].

Special economic zones (SEZ) are special institutions for supporting and stimulating the development of innovation activity, in particular in

the direction of attracting investments in innovative processes, developing export-oriented high-tech industries, attracting and introducing new technologies, and optimizing the use of natural and manpower resources. In this context, the experience of Turkey, which has been using the zones of technological development for more than 10 years, acting as focal points for high-tech industries and scientific research, can be useful for countries with a transformational economy.

Since the entry into force of the Law on the Organization of Industrial Zones, more than 30 zones of technological development are functioning effectively in Turkey. The success of the Turkish experience is based on the systemic nature of the ongoing reforms, the development and implementation of the necessary incentives for the development of technological development zones, in particular: (1) enterprises located in such zones before the end of 2024 are exempt from income tax or corporate tax; (2) for the specified period, the sale of products created in these zones is not subject to VAT; (3) the wages of employees of enterprises engaged in Research & Development (R&D) are exempt from taxation; (4) 50% of payments for special insurance are covered by the state in favor of employees for 5 years [8, p. 77].

The functioning of industrial parks is one of the important conditions for the effective development of the economies of many countries. According to various estimates, the number of industrial parks varies between 12-20 thousand units. In particular, 400 industrial parks have been created in the USA, more than 100 industrial parks in the Czech Republic, more than 100 in the Czech Republic, more than 60 in Poland, and 71 in Slovakia. In Vietnam, 200 industrial parks account for 25% of GDP and 40% of attracted investments [9]. A special feature of the development of industrial parks of the countries of Central and Eastern Europe (Poland, Romania, Slovakia, Hungary) is the important role of local government in their creation and support. For example, in the high-tech industrial park “Shtarad Szczecinski”, the city authorities decided to provide assistance to investors in the form of exemption from property tax (land, buildings, structures or parts thereof intended for conducting economic activities) (experience of the Republic of Poland) [10].

An important role in financial and investment provision of state innovation security is played by venture institutes, which are considered to be one of the most effective instruments for activating innovative activity of economic entities and attracting investments in the innovation sphere. An indicative example of the development of venture financing

industry is the experience of Japan, which provides for the creation of a fund for accumulating capital for venture funds and innovative enterprises in the form of direct investment or low-interest loans, the creation of a system of coaching centers for venture entrepreneurship, improving the conditions for the development of informal venture financing (business angels), development of venture and innovation infrastructure (technology parks, business incubators, venture laboratories, veins urnye fairs of national and regional level) [11, pp. 426-427].

The sector of innovatively active small and medium business occupies a central place in the system of innovative state security, which is the determining factor of economic growth in the economically developed countries of the world. That is why it is expedient to study and adapt the experience of those countries where the development of innovative entrepreneurship occurs in conditions of limited financial resources and with a significant potential for scientific, technological and innovative development. In particular, Poland created a network of institutions to support and stimulate the development of innovative activities of small and medium-sized businesses (the Polish Agency for Enterprise Development implements a program to support the protection of intellectual property, provides loans for financing innovative projects for up to 10 years, organizes information and consulting support for small and medium-sized businesses in the innovation sphere, the Lubelsk Regional Development Fund, the initiator which was created by the municipality, banking institutions and the Chamber of Commerce and Industry, which provides support to the small and medium-sized business sector by financing investment and innovation projects).

To strengthen cooperation between the scientific sector and the small and medium-sized business sector in Poland, the project "The All-Polish Network for Technology Transfer and Innovation Support for Small and Medium-Sized Enterprises" is being implemented, providing for the creation of an information base for business entities and institutions that form both demand and supply for innovative products. Also in Poland, academic entrepreneurship is actively developing on the basis of the established network of academic business incubators, which unite 31 universities and more than 1,400 business entities and ensure the transfer of technology from the scientific sphere to the real sector of the economy [12, pp. 68-70]. So, the experience of Poland can serve as a successful example of institutional support for the integration of research and innovation activities for countries in which the institutional

conditions for the development of innovative business support infrastructure are not fully developed.

The transfer of advanced technologies is an important condition for the formation of an innovation environment, contributes to the technological modernization of the real sector of the economy and, accordingly, to the strengthening of the competitiveness of the national economy and the state's innovative security. Great interest in the formation of institutional mechanisms and tools to stimulate the transfer of technology to countries with a transformational economy is represented by the experience of Japan, which has made significant progress towards the integration of research activities and the production sector. The process of reforming the institutional and legal basis for the transfer of technology in Japan began in 1998. After the adoption of the legislative act, which provided for the establishment of universities at institutions for the transfer of technology. The government of Japan played a decisive role in financing such technology transfer centers (ninte TLO), in particular, covering two-thirds of the operating costs (without reimbursement of costs associated with servicing patent attorneys and payment of patent fees) in the amount equivalent to 300 thousand dollars. A year for a period of five years.

The next stage in order to increase the effectiveness of the functioning of institutions for the transfer of technology by the government was the transformation of universities into independent administrative units that received autonomy, the right to hire academic and non-academic personnel and, moreover, the ability to preserve property rights to own inventions and independently manage intellectual property [13, p. 60]. Thus, universities and research institutes have become active subjects for commercializing the results of scientific, technological and innovation activities, thereby providing a close link between science and high-tech production.

An innovative mediation (innovation centers, technology consulting, patent and licensing institutions, technological foresight, technological brokerage, etc.) is an institutional tool for reducing the transaction costs of the commercialization of scientific and technological developments in individual countries. Only in Germany more than 190 intermediary technology transfer agencies and several hundreds of technology information agencies function effectively. Functions of technology intermediaries in the innovation sphere are performed by scientific societies and joint research associations in industry (Fraunhofer Society, which unites 45 research universities and is funded by federal

government grants and proceeds from contract research.) To facilitate access to its services, small innovative enterprises the government grants subsidies of up to 40% of the full cost of ordered R&D) [14, p. 122].

As the world practice shows, intermediary institutions in the innovation sphere play a key role in the commercialization and transfer of technologies, ensuring the formation and use of the scientific and technological and commercial potential of new developments, analyzing the “patentability” of research and development, assisting business entities in legalizing rights on objects of intellectual property, analysis of the market of innovative products and assistance with business planning for the implementation of new high-tech the search for potential consumers of objects and legal support of transactions for the purchase and sale of intellectual property, management consulting for small and medium-sized businesses in the innovation field, the search for and attraction of venture capital to innovative enterprises, the organization and management of innovative projects (the experience of the United States, Britain, Germany, France, Japan, Israel, Taiwan) [15, p. 322].

We emphasize that the international transfer of technology has long been one of the most profitable export items of countries such as the United States, Japan, Israel and the United Kingdom. One of the most powerful technology transfer systems is the US, with total revenue exceeding \$ 100 billion annually. The essence of the economic results of this process lies in the formation of financial and investment potential, obtaining and implementing the results of scientific research and development that contribute to accelerating scientific and technological progress, increasing technological rent from patent-licensing contracts and enhancing international cooperation in the scientific and technological sphere.

It should be noted that the level of innovation security of the state essentially depends on the creation of an effective system for the commercialization of intellectual property objects, which ensures the integration of science and production. The experience of state regulation of Singapore in the field of intellectual property, as a country that is one of the world’s leaders in the protection of intellectual property rights, is interesting. In Singapore, much attention is paid to mechanisms to stimulate the activity of the intellectual property market through the implementation of state programs in the field of equity financing of patent costs, consistent information and advisory support to intellectual property owners during the creation and commercialization of

intellectual property. In addition, the approach of “granting a positive grant” in Singapore, which provides for the compliance of the invention with three criteria is interesting: the subject of the patent must be new, contain an inventive component and industrial application [16].

Useful in terms of ensuring innovation security in countries with transformational economies may be the experience of countries that pursue a selective protectionist policy regarding the import of technology. For example, in South Korea, the Center for the Involvement of Foreign Technologies conducts technology expertise and provides permits for their acquisition with a view to limiting access to the country of obsolete technologies [17].

Studying the experience of the UK on institutional support for intellectual components of innovation security in the face of limited financial, industrial and material resources, it is necessary to pay attention to the state policy of supporting creative industries, which includes regulatory legal, financial and tax mechanisms and tools to stimulate the development of creative institutions both at the state, and the municipal level. An effective state regional policy of supporting and stimulating the development of creative industries makes it possible to obtain a significant synergistic effect of socio-economic and innovative development, in particular, to create new sources of income generation, to ensure an increase in the level of employment; to intensify entrepreneurial activity, incl. in the innovation sphere, develop scientific and technological, intellectual and innovative potentials; promote the revitalization of territories.

In the UK, the creative industry has created almost 1.5 million new jobs, and the total turnover of goods and services is estimated at 36 billion pounds per year. The share of creative industries each year accounts for more than 3.4% of world GDP or about 1.6 trillion. [18, p. 50]. The creative industry is one of the sectors that demonstrate the outstripping growth rates of production and marketing of products and services in comparison with traditional economic activities.

One of the most important areas of the state innovation policy of the economically developed countries of the world is the stimulation of researchers' mobility, which helps to attract intellectual capital mainly from developing countries. For this, international research partnerships are being established, migration, educational and scientific activities are being implemented (academic programs for interuniversity education, cultural exchange and scholarships for study and research, etc.).

For example, Germany conducts an intensive selective immigration

policy in the field of attracting specialists in information technology. The Government of Australia supports the “General Skilled Migration” program through which highly qualified people are selected for formal employment in areas where there are not enough specialists of their own. But the implementation of the relevant state policy in highly developed countries constitutes a significant threat to the innovative security of states that are developing, reinforcing disparities in regional innovative development and complicating their transition to an innovative model of economic development.

In order to counter the “brain drain” the state authorities can use the experience of post-socialist countries that have faced this problem after the collapse of the USSR, in particular Poland, Hungary and Belarus, to introduce institutional mechanisms for recording and capitalizing intellectual potential by: 1) legal support of intellectual security of the country; 2) coordination of the work of institutions whose task is the formation and implementation of the state’s intellectual and personnel policy; 3) system accounting and monitoring of the state’s intellectual potential (formation of appropriate databases and maps of its spatial distribution); 4) developing mechanisms to counter negative migration trends of intellectual capital by introducing targeted programs for the employment of highly skilled workers, creating appropriate conditions for their self-realization; 5) the formation of an appropriate institutional environment for the development and capitalization of the intellectual potential of the state and regions; 6) introduction of organizational and economic mechanisms for attracting intellectual potential in the implementation of socio-economic development programs, individual projects.

That is why, recognizing the need to preserve and accumulate powerful intellectual potential and strengthen the competitiveness of the national economy, the Turkish government promotes the implementation of a number of programs aimed at encouraging Turkish specialists working abroad to return to Turkey through scholarships for a period of one to two years. At the same time, the size of the scholarship depends on the salary that the specialist received abroad, on the level of qualifications and public significance of the activity that the specialist plans to implement upon return to the state. It is also worth noting that the level of innovation security of the state essentially depends on the creation of an effective institutional basis for the protection and commercialization of intellectual property (OIC). Therefore, in many countries of the world, effective management of intellectual property is

important in the sphere of ensuring the state's innovative security. Therefore, the EU countries have created favorable economic and legal conditions for the commercialization of OIC, in particular, multilevel agreements on the rights of protection and protection of intellectual property between state institutions, research institutions, academic and industrial structures are concluded.

So, the experience of the highly developed countries of the world shows that the provision of a structural and innovative model of economic development, without alternativity of which at the post-transformation stage is recognized, is possible provided that the institutional and legal basis for innovative development and state security, institution-organizational and financial support for innovation, also the formation of institutional infrastructure for the integration of research and production (development of innovative clusters in the high technology sectors of the economy, technology parks, business incubators and other elements of the innovation infrastructure, the creation of regional innovation development centers, the development of the institute of mediation in the innovation sphere (intermediary firms, technological brokers, etc.), the establishment of a legal protection system intellectual property, the development of interstate scientific research and technological cooperation in the innovation field through the use of various forms of integration into the global market of innovative products, incl. international technology transfer; development of electronic management, development and implementation of innovative services, mechanisms of interactive communication between public authorities, enterprises, state and non-state institutions; creation of a system of informational support of subjects of innovative activity by conducting market research and marketing studies of current trends in the development of the internal and external market, requirements and needs of consumers; the introduction of specific measures in the migration policy (counteraction to negative migration trends of intellectual capital, the system of attracting intellectual resources of other states) the formation of a system for training and improving the skills of management specialists in innovation activities; wide involvement of scientists of high qualification for carrying out research and development directly in the sphere of production; increase of the social status of innovation activity, formation of an innovative culture of the society) in order to stimulate the innovative activity of the subjects of the real sector of the economy.

Thus, the role of the state in the management of institutional

mechanisms and instruments for ensuring innovation security is strengthened, and through it, the economic security of the state, as the use of the above approaches to conduct state policy in the management of innovative economic development, the formation of an institutional basis for the state's innovative security, allows significantly strengthen traditional mechanisms of state incentive and the activation of the work of government in this direction will contribute to strengthening the competitiveness of the subjects of the real sector and the national economy as a whole.

Conclusions. In the development of state mechanisms for management of innovation security, the methods of direct (administrative and program-targeted methods, the implementation of which is based on the implementation of direct state financing of innovation activities, involves the development and adoption of various strategies and targeted programs aimed at the development and activation of innovative processes), and indirect influence of public authorities on stimulating the development of innovative activities (legal, organizational, economic, social psychological, which are oriented towards creating a favorable economic and legal climate for implementation and ensuring active and effective interaction of participants in the innovation process).

It should also be noted that effective practical solutions for reforming the institutional system for ensuring the state's innovative security, developing the institutional environment, and the infrastructure for integrating research and innovation activities have also been developed by world experience in implementing institutional mechanisms for ensuring innovation security. In particular, important conclusions for countries with a transformational economy are the need to establish an institutional and legal basis for innovative development and security of the state, the formation of institutional and organizational and financial support, as well as the development of institutional infrastructure for innovation.

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ACCOUNTING POLICY OF A BANK IN INSOLVENCY – A STEP FOR CREATIVE MANAGEMENT

Introduction

Bankruptcy Matter is covered by the Bank Bankruptcy Act, the Credit Institutions Act, and the Commerce Act. In Bulgaria, the Law on Credit Institutions regulates the conditions under which a bank declares insolvency and the actions of its managers – conservators and trustees.

As there are no special provisions in the Bank Bankruptcy Act and the Credit Institutions Act, the provisions of Part Four of the Commercial Law apply accordingly.

In economic terms, insolvency is the termination of insolvent trader's business and the transition to collective proportional satisfaction of creditors' claims. The trader who is declared bankrupt ceases commercially to engage in commercial transactions and earn income

therefrom. The trader goes into an economic phase that is different from his normal life.

In legal terms, insolvency is a lawsuit for universal enforcement. It has two characteristics: insolvency is a court procedure and it is a court procedure for enforcement.

The purpose of the insolvency proceedings of a bank is to ensure as soon as possible a fair satisfaction of depositors and other creditors of the bank. The proceedings take into account the interests of depositors and other creditors, as well as the public interest in stability and confidence in the banking system [1]. A particular feature of bank insolvency is that in the insolvency proceedings a creditors' meeting is not foreseen and a rescue plan can not be offered. Bankruptcy is a liquidation process that lacks a healing phase.

In contrast to the total insolvency proceedings where any creditor could request insolvency proceedings against his debtor in bankruptcy, the Central Bank is the only institution that can ask the court to open a bankruptcy procedure after first withdrawing the license of the bank. With the revocation of the license, the bank cannot carry out banking transactions. The bankruptcy court decides the bank to be both insolvent and insolvent, terminates it as a going concern and orders the liquidation of the property included in the bankruptcy estate and the distribution of the redemption property among the creditors. The bank declared bankrupt is only becoming a bankruptcy bank, which still has the status of a legal entity. **Dimitrov [2]** argue that it is only a personalized property that serves for the purposes of enforcement for the benefit of a group of creditors whose claims are arranged in a certain order.

According to the current legislation in the Republic of Bulgaria bankruptcy bodies are: the trustee, the Deposit Insurance Fund (BDIF), the Bankruptcy Court and the Central Bank.

The bank's bankruptcy financial statements are drawn up on the basis of certain rules. These rules are part of the accounting policy adopted by the bank's assignee (trustee). In Bulgaria, a separate standard has been adopted regulating the rules of insolvency reporting. But this standard outlines common rules without taking into account the specificities of bank bankruptcy.

Nature and factors

With the opening of insolvency proceedings, the Bank ceases to carry out the usual for each bank activities on publicly attracting deposits and granting loans. The insolvent bank does not perform

specific banking transactions but continues to own unique assets and liabilities.

The actions of bankruptcy trustees (insolvency trustees) are related to taking steps to identify and preserve the assets of the bank forming the bankruptcy estate and to liquidate that mass, satisfying its creditors and shareholders.

In accordance with the powers they have, six guidelines can be defined in the trustee's business:

- managing and storing the bankruptcy table;
- redemption of bankruptcy;
- distribution of the redemption; termination of insolvency proceedings;
- Establishment of an organization to sell the bank bankrupt in whole or in part;
- building a new organizational structure of the bank.

The **accounting policy** of a bank for which insolvency proceedings are sought includes the rules it has adopted in relation to the implementation of the accounting method, the preparation and presentation of the annual financial statements [3]. It is developed in compliance with International Financial Reporting Standards (IFRS) and accounting principles. The accounting policy is close to the policy of the current bank. The objectives of the accounting system and the objective nature of the accounting method define the commonality between the two. The basis for the implementation of the accounting method and the achievement of the objectives of the accounting system remains the general principles of accounting. For this reason, banks under special supervision and withdrawn license comply with the methodology of developing and disclosing the accounting policy of a going concern. Thus, the changes in the reporting facilities are accounted for in due time in applying the chronology and classification established in the normative acts, the procedures and approaches provided in the accounting standards are observed.

The accounting policy of banks for which insolvency proceedings have been requested has three **factors**:

- the specificity of the bank's activity during the special supervision period;
- changes in national accounting legislation applicable to banks in Bulgaria;
- the written instructions given by the Central Bank and the Deposit Insurance Fund, such as bank insolvency authorities

One of the factors influencing the accounting policies of these banks is the specificity of the special supervision period. The period of the decision of the BNB Managing Board to open insolvency proceedings and the decision of the bank to declare bankruptcy bank can be defined as an intermediate and inherent stage in the bank's existence.

The insolvency proceedings of a bank are necessarily preceded by a stage in which the central bank has withdrawn its right to conduct banking business but the court has not yet declared the bank bankrupt and has not ordered the liquidation of its assets. The Bank continues to have the specific assets and liabilities for each bank. This stage is characterized by another feature. Its governors (conservators) do not carry out typical bank transactions. The operations which are authorized by the Quaestors and for which an accounting statement is given are mainly limited to transactions involving repayment of debts to the Bank by a debtor or by third parties.

Repayment can be made by cash payment, offsetting, transfer to another bank account. Repayment by cash payment or transfer shall be made only if the currency is the same as the currency in which the debt is held. Quaestors can also take actions and measures aimed at resolving the bank, including negotiating with the bank's creditors reducing, rescheduling and debiting their claims.

The transactions carried out by the quaestors influence the absolute amount of the Bank's assets and liabilities, but do not substantially alter their structure.

Another important factor influencing accounting policy is national accounting legislation (Accounting Act and Accounting Standards). National accounting legislation regulates accounting and defines the principles that form the basis of accounting policy. Bulgaria has a separate accounting standard for companies in liquidation and insolvency- AS 13 Accounting for Liquidation and Insolvency. According to **Bachev and Markova [4]** the standard AS 13 Accounting for Liquidation and Insolvency currently applicable in the Republic of Bulgaria can not ensure the necessary information to creditors. This standard does not contain guidance on provision of early disclosures when the company is unable to fulfill its liabilities and they have become payable. One of the reasons for this, according to **Kamburova [5]** is that our national accounting legislation was not developed by an independent professional organization and is subordinated to the executive power represented by the Ministry of Finance.

Banks for which insolvency proceedings have been requested must,

when determining their accounting policy, comply with the accounting principles laid down in the Accountancy Act, a going concern, presentation sequence and comparative information, accrual, prudence, independence of the individual reporting periods, materiality, advantage of content before form, offset and evaluation [6].

With the bankruptcy, there are new categories related to this stage of development, which also require appropriate reporting rules. Such categories are – mass of insolvency; insolvency creditors; insolvency costs; account of the trustee.

The mass of insolvency covers the debtor's property rights to and after the date of the decision to initiate insolvency proceedings [7]. For a bankrupt bank, the insolvency bank includes all of its real assets. The insolvency creditors of the company are, by their very nature, its creditors on both commercial and non-commercial receivables.

Taking into consideration the peculiarities of the banking company, as insolvency creditors of a bank (n) are differentiated:

- Receivables from third parties secured by pledge or mortgage;
- receivables from third parties on loans granted under which a right of detention is exercised;
- insolvency costs;
- deposit table of citizens and companies where the deposit insurance fund has been subrogated;
- deposit table of citizens and companies that are not protected under the Law on Bank Deposit Insurance;
- Receivables from banks and other financial institutions on loans granted;
- current contributions payable to state social insurance incurred up to one year before the date of the decision to open insolvency proceedings;
- other current State receivables (taxes, duties, fees) incurred up to one year before the date of the decision to open insolvency proceedings.

Bank bankruptcy costs (n) include:

- the trustee's remuneration;
- wages, social security contributions and other amounts payable under the employment relationship with the insolvent bank employees;
- the cost of filling, preserving, managing, assessing and distributing the bankruptcy estate;
- the remuneration of experts and consultants employed by the trustee in connection with the exercise of his powers.

A bankruptcy bank account is another category inherent in

insolvency proceedings. By its very nature, the bankruptcy bank account of a bankrupt bank is a special account opened in a commercial bank that serves the state budget.

Since the categories listed above are not inherent in a going concern, many of the general accounting principles should not be found. This is most relevant to the principles and rules of profit, capital, revenue and expenditure. Under bankruptcy, there are changes in accounting policies, principles, and approaches. These changes are in the following main directions:

First. The rules on deferred expenditure are not applicable.

By their nature, they concern the expense group and the revenue for future periods. For example. This expense group refers to the value of the depreciable fixed assets (tangible and intangible assets). The cost of depreciable fixed assets represents one deferred expense (future expense) that is matched with the benefit of the asset's useful life over its useful life. Depreciation, which is part of the cost of the depreciable asset, such as any other expense, is matched to the income for the period and participates in the formation of the result.

For the useful life of the asset, this value will be transferred to the value of the finished banking product or service.

Other expenses that refer to this group are prepaid insurance, rents.

Second. The rules relating to asset uncertainty and revaluation are not applied.

This is achieved by converting assets and liabilities denominated in foreign currencies and reflecting the latter at current value. The above also implies that the bank (n) will have only a leva resource or a special account in levs. As at the date of declaring the bank bankrupt, the currency resources of the bank should be transformed into BGN. Here are a number of issues that are more of a legal nature. For example, when assessing receivables from non-financial institutions, whether in leva or currency, the valuers form their current value in levs. Thus, a currency loan receives leva and the terms of the credit agreement should change. In addition, the current value does not imply accruing interest.

If we take this into account, the bank's mass (n) will include in levs – leva cash; receivables from non-financial institutions (reflected at current value); receivables from banks in BGN (reflected at current value); securities (reflected on current value) and fixed assets (reflected at current value). At this insolvency bank, the bank's liabilities to the insolvency creditors will be resisted. The latter can be expressed through equality:

Mass of insolvency = insolvency creditors - bankruptcy shortage

It is theoretically possible that the mass of insolvency, reflected in the realizable value, exceeds the amount of creditors' claims, ie. there is a surplus of insolvency. This surplus will show how much of the shareholders' claims will be satisfied.

The insolvency mass serves to satisfy all the creditors of the bank on commercial and non-commercial receivables that arose up to the date of the bankruptcy winding-up decision and the creditors of claims relating to expenses incurred under the terms and conditions of this law insolvency.

Third. Limited application of the accrual rule

This is due to the fact that interest accrued on interest-bearing assets and liabilities is eliminated.

The interest payable to the bank by the borrowers, as long as the amount of the receivables is reflected in their current value, should be off-balance. In this way, the bank will create accounting information on the amount of interest due under the terms of the contract.

Fourth: The claims of the creditors of a bank in foreign currency are converted into leva at the exchange rate of the Bulgarian National Bank as at the date of the decision to initiate the insolvency proceedings.

From the date of the decision to initiate insolvency proceedings, all prescriptive and prescriptive terms of bank's rights cease to run for six months.

Fifth: All cash and non-monetary liabilities of the bank become due from the date of the court's decision.

Non-monetary liabilities are converted to cash at their market value also at that date.

The Bank's bankruptcy accounting policy includes the following rules:

1. The accrual of provisions is suspended. Those that are accrued at the moment are written off against the assets for which they are accrued. This is how the accounts accounting for the provisions;

2. Depreciation is suspended. Depreciated depreciation is derecognised at the expense of the assets to which it relates and the accounts for amortization are derecognized;

3. Assets and liabilities are presented at their carrying amount;

4. All types of reserves and financial results are aggregated in the balance sheet "Other reserves";

5. Fixed assets are stated in the balance sheet item "non-current

assets held for sale”;

6. Unrealized Assets and Liabilities, such as formation and expansion costs, goodwill, interim tax expense, income and expense for future periods not recognized as income financing, not derecognised;

7. The accrual of interest is terminated and the accounts are recorded which take into account the financial revenues and the financial expenses.

8. All accounts for income and expenses, incl. income and expense for future periods.

9. An account 1241 “Insolvency result” is entered. The account is debited by the difference between the sale and the book value of the assets (where the selling price is lower) and the insolvency costs. The credit of the account will reflect the difference between sale and book value (assuming the sale is higher).

10. Interest on loans payable by borrowers shall be charged off-balance-sheet, subject to the original terms of the contract.

The opening balance of a bank in bankruptcy will be as follows:

B A L A N C E
ASSETS VALUE

I. Mass of insolvency

1. Cash in BGN
2. Receivables from banks and others financial institutions
3. Receivables from non-financial institutions
4. Other receivables
5. Non-current assets held for sale

TOTAL: Mass of insolvency

LIABILITY VALUE

I. Insolvency creditors (on the list of claims of creditors of the insolvent institution accepted by the trustee and approved by the court)

II. Shortage of insolvency mass

TOTAL: Insolvency creditors and insolvency tables

In the opening balance, the bankruptcy table can be internally structured by asset liquidity, and bankruptcy creditors - in order. For example, the assets of the bankruptcy bank with the highest degree of liquidity can be identified first, and creditors with secured receivables [8].

The current and periodical accounting of a bankrupt bank will include all the means by which the accounting method is implemented: documentation and inventory; evaluation; a system of accounting and double enrollment; balance sheet and balance sheet; periodic generalization.

Since the insolvency proceedings of a bank are a lengthy process, at least once a year the trustee should make an inventory. The surpluses found will be reflected through accounting items that account for the assets accounting for the insolvency assets against crediting the synthetic account 1241 "Bankruptcy result".

Lack will be reflected by compiling articles for debiting the synthetic bank account 1241 "Bankruptcy result" against crediting the asset account of the bankruptcy estate.

Conclusion

Bankruptcy is a special stage in the life of a bank, characterized by certain features. The trustee faces problems of a different nature, such as: problems relating to the determination of the amount of claims by borrowers; problems associated with the creation of bank commitments; problems related to the creation of bankruptcy mass, etc. When developing accounting policies, it is imperative to take into account the particularities of bank bankruptcy as well as the specificities of the applicable accounting framework in the country.

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**COMPARATIVE ANALYSIS
BETWEEN BULGARIAN AND
INTERNATIONAL
ACCOUNTING REGULATION
FOR BUSINESS
COMBINATIONS**

Introduction

The ongoing processes of integration and globalization have also been reflected in accounting regulation. The process of convergence between IFRS and US GAAP has accelerated. The issue was whether IFRS would be fully adopted and would replace national accounting standards. Concerns have arisen that the IASB may replace existing national institutions. These concerns have proved to be unfounded because “the success of the IASB, while undoubtedly changing the role of national regulators to varying degrees, does not in any way call into question their existence or their usefulness.” (Gilbert, 2013)

National legislation did not lag behind the convergence with IAS. Moreover, over the years when new national standards have been adopted, many have borrowed quite literally and uncritically from the IAS. Such an example is NAS 22 Accounting for Business Combinations. In its original version in 2005, it was developed on the basis of the repealed IAS 22 Business Combinations. In the long time span between 2005 and now, the IAS has repeatedly amended the standard in order to adequately reflect the changing financial world, while the national legislation lagged behind this process and also did not

use the opportunity to introduce new changes that were otherwise imposed by the requirement to transpose Directive 2013/34 / EC, which was implemented through a new Accounting Act and minor changes in the NAS.

The reasons outlined above have led to significant differences in both standards. When comparing the two standards, there are differences in the following areas:

- Types of business combinations and direct acquisition costs
- Valuation of non-controlling interest
- Goodwill and subsequent revaluation

Notwithstanding the differences presented in the standards related to the valuation of non-controlling interest, goodwill and their subsequent revaluation, it is a common requirement that “the financial statements must be prepared on the assumption that the entity is active and is capable of continuing its activities within a foreseeable future, and the management of the enterprise or other external factor has neither the intention nor the need to liquidate or substantially curtail the scale of operation of the business activities” (Bachev, 2015)

The current paper presents a brief comparative analysis between IFRS 3 and NAS 22 that tries to determine whether the differences between NAS and IAS/IFRS affect positively or negatively the Bulgarian accounting practice.

Forms of business combinations and direct acquisition costs

There can exist numerous causes for making business combinations, but for the purpose of presenting the information in the annual financial statements, NAS 22 accepts two method of accounting of business combinations – business combination through acquisition and business combination through pooling of interests. In the first type, the acquirer gains control over the net assets of the acquiree. In the second form one, acquirers and acquirees cannot be identified, so they pool their interests without creating control. But the “pooling of interests, which is not treated as a purchase, could happen in very rare cases in which both parties in the deal should be absolutely equivalent” (Svrakov, 2016). It is assumed that applying the pooling method could lead to unreliable performance. Therefore, IFRS 3 requires that all business combinations be accounted for by applying the acquisition method. The main reasons for rejecting the application of the pooling method under IFRS 3 are as follows: 1) it is considered that the elimination of this method will increase the comparability of the financial statements of companies that

grow through acquisitions; 2) the information provided by the pooling method is less relevant because it has less predictive and feedback value than information provided by other methods. By accounting for assets and liabilities at their carrying amounts reported by previous entities, post-combination income may be overstated (and costs underestimated) as a result of internally generated profits that were generated by previous entities but were not recognized by them.

There are also differences in the accounting for the transaction costs of the acquisition. The NAS requires that all direct costs be capitalized at the initial cost of the investment and that their recovery be carried forward through future amortization of the goodwill through which they are incurred. We believe that this cost treatment as part of the cost of acquisition is unjustified because it is not an asset to be depreciated. In IFRS 3, these costs are reported under current expenses in the period in which they are incurred.

Valuation of non-controlling interest

The non-controlling interest definition set out in IFRS 3 is the equity of a subsidiary that is not directly or indirectly attributable to the parent. The National Accounting Standard has retained the terminology since its creation and therefore the non-controlling interest is still called “minority interest”. In its most recent update as of 01.01.2008, the definition of minority interest was moved from NAS 22 to NAS 27 Consolidated Financial Statements and Accounting for Investments in Subsidiaries. Minority interest is defined as the proportion of the profit or loss and net assets of the subsidiary that relates to that part of the subsidiary's equity owned by entities or entities outside the group

There is another significant difference is the assessment of non-controlling interest. IFRS 3 allows the choice of fair value measurement and a proportional share in the fair value of net assets.

The measurement of a non-controlling interest is a component of equity in the acquirer's consolidated financial statements and the measurement of non-controlling interest at its fair value at the acquisition date is consistent with the manner in which other components of equity are valued. The introduction of a selection basis for non-controlling interests is not preferable because alternative accounting methods reduce the comparability of financial statements, which is one of the qualitative characteristics of accounting information. This choice must be justified because it also reflects the initial assessment of goodwill (as discussed below).

In the national standards, it is allowed to estimate the net assets by using only a proportionate share of their fair value. In Bulgaria, it is considered that not allowing minority interest to be measured at fair value is more pragmatic because companies applying national standards are predominantly micro- and small enterprises without the necessary experience and practice to assess the fair value.

Goodwill and subsequent revaluation

NAS 22 “Accounting for Business Combinations” defines goodwill as any excess of the acquisition cost over the acquirer’s interest in the fair value of the acquired net assets (the identifiable assets less the identifiable liabilities) at the acquisition date. In this definition, it is emphasized that goodwill is a measurable value. Thus, it is determined not in terms of its quality, but in terms of its quantity, which establishes its presumed value. The primary requirement for accounting for goodwill is that it is reflected in the assets of the acquirer’s balance sheet as a positive goodwill. Reflection of the goodwill in the asset’s balance sheet also determines its status, namely a resource from which economic benefits are expected. From the definition, it is clear that positive goodwill is an asset that did not exist in the balance sheet until the time of the business combination, but the nature of the positive goodwill as determined in the standard remains unclear.

Negative goodwill is defined as any excess of the acquirer’s interest in the fair value of the net assets acquired (the identifiable assets less the identifiable liabilities) over the initial cost of the acquisition at the acquisition date. As in the case of goodwill, a primary requirement for negative goodwill is to be accounted for as a profitable purchase by the acquirer, but with a negative sign and reduced by the accrued amortization.

Some authors accept the provisions of accounting for negative goodwill (Accountancy Act, 2001) as a long-term liability – part of the unearned revenue. “It is logical to assume that once the investor has paid less than the fair values of the net assets acquired, it assumes the risk in future periods of incurring additional losses or costs. Therefore, negative goodwill is accounted for as a deferred income arising from this investment (from acquisition).” (Vladimirov, 2001). We support this view as negative goodwill is not an asset – no future economic benefits are expected and should not be presented in the assets section of the balance sheet.

The revised IFRS 3 Business Combinations has significant differences in defining goodwill. It is defined in respect of its substance rather than its measurement. It is designated as an asset representing the future economic benefits accruing from other assets acquired in a business combination that are not individually identified and recognized separately. This definition is preferable to the definition contained in the national standard described above because it shows that goodwill has identity and existence regardless of the determination of its book value.

According to IFRS 3 Business Combinations, there are two types of goodwill – positive goodwill and profitable purchase (negative goodwill).

Goodwill is defined as the difference between (IFRS 3, 2017):

- the total of: (a) the fair value of the consideration transferred at the acquisition date; (b) the amount of the non-controlling interest; and (c) in the case of a staged business combination, the fair value of the acquisition date of the interest held by the acquirer; and
- the net amount at the acquisition date of the identifiable assets acquired and the liabilities assumed (measured in accordance with IFRS 3).

If the above difference is negative, there is a negative goodwill, referred to in the revised IFRS 3 as “bargain purchase.” It is recognized immediately in the profit or loss for the period (IFRS 3, 2017).

The Standard clearly states that the concept of residual goodwill is also the concept of its measurement.

Depending on the way in which non-controlling interest is measured, goodwill is defined as either full or partial. In cases where the non-controlling interest is measured at fair value, there is a full goodwill. In the other case, there is a partial goodwill, that is, only the goodwill associated with the proportion of non-controlling interest, measured in proportion to the participation in the identifiable net assets. The effect of recognizing full goodwill is that the reported net assets in the balance sheet will increase. The potential disadvantage is that any future amortization of the goodwill will be greater. Reducing goodwill should not be done at a higher frequency as the impairment test is adjusted for less than the wholly-owned subsidiary. Measuring non-controlling interest at fair value may be difficult in practice. However, tests for impairment of goodwill may be easier on a full goodwill, as there is no need to estimate gross goodwill of partially owned subsidiaries. A

company planning to buy in cash the non-controlling interest in a subsidiary at a future date may wish to register a non-controlling interest at fair value and recognize the full goodwill in a business combination. If the non-controlling interest is acquired later, there will be a lower difference between the remuneration paid for the non-controlling interest and the recorded value, and thus a lower percentage of reduction in equity.

Decapitalization of goodwill – amortization or impairment?

After the initial evaluation of the goodwill, another important question is its subsequent measurement. Over the years, accounting standards have evolved by changing the regulations from amortization for a specified period ranging from 5 to 20 years to zero amortization and impairment testing.

It is important to distinguish between amortization and impairment. Amortization is a real (objective) economic process, based on the natural properties of matter that exist in particular material and other forms of property embodying future benefits for the enterprise. Above all, the natural properties of material property form the physical and time-consuming physical processes (wear and tear) to which all material properties are exposed, even when these assets are not used (Dushanov, 2009). While the useful life of both goodwill and tangible fixed assets is directly attributable to the period when it is expected to generate net cash flows for the enterprise, the expected useful life of fixed assets has an upper limit, while in the case of goodwill such a cap does not exist.

Unlike amortization, the impairment of an asset is “one-off, non-systematic and inconsistent, and in some cases unexpected loss of value embodied in the asset. In most cases, the impairment loss within the meaning of IAS 36 “Impairment of Assets” is due to the influence of external factors, although internal ones are not ignored” (Dushanov, 2009).

When goodwill is depreciated, there is a need to address two important issues: 1) Determining the amortization period and 2) Choosing an amortization method. Difficulties in determining the goodwill’s life result mainly from the fact that goodwill represents the future economic benefits of synergy of assets that interact with one another. Only if the goodwill is related to a clearly identifiable asset may there be sufficient assurance that it will bring income to the buyer over the period of the asset’s period of use. But, as a rule, the goodwill is not related to a particular asset, but to a whole group of closely related

assets, among which there are also many indistinguishable assets.

Thus, regardless of the chosen useful life of goodwill, it will always be conditional, somewhat arbitrary, as it depends on the life of the synergistically identifiable and indistinguishable assets that predict more subjectively than objectively its duration.

After determining the useful life, the next important point is the choice of an amortization method. Among all possible amortization options, the best method is the linear one. The possibility of using other methods is only acceptable if the time structure of consumption of the economic benefits of goodwill can be precisely determined.

Unlike other assets that are relatively stable and do not change over time, goodwill is very different and also very similar to financial assets which value varies considerably over time.

At this stage, the requirements of IFRS 3 Business Combinations and US GAAP 141 Business Combinations, for the subsequent measurement of goodwill are not to be depreciated, but only tested for impairment. The ex post evaluation of the goodwill is formed as the difference between the initial value and the eventual impairment loss. Some difficulties are encountered in determining the impairment of goodwill. On one hand, the recoverable amount of goodwill as a separate asset cannot be ascertained and, on the other hand, the reversal of an impairment loss is not allowed. It is not allowed to recover the impairment loss and this is explained by the inability to recognize internally generated goodwill. If the reversal of impairment losses is allowed, the entity will have to determine the extent to which the subsequent increase in the recoverable amount of goodwill may be attributable to the restoration of the acquired goodwill within a cash-generating unit rather than an increase in the goodwill generated internally in the unit. But in practice it is almost impossible to distinguish between the two. Since both the externally acquired and the internally generated goodwill contribute together to the generation of the same cash flows, any subsequent increase in the recoverable amount of the acquired goodwill cannot be distinguished from an increase in the internally generated goodwill. Even if the particular external event that led to the recognition of the impairment loss is recovered, it is rarely possible to determine that the effect of that reversal represents a corresponding increase in the recoverable amount of the goodwill. These are the key reasons for the accounting regulator not to allow the reversal of impairment losses.

This paper supports the view of not allowing the recovery of

impairment losses as being rational because it is based on the nature of the interaction between the internally generated goodwill and the goodwill generated as a result of a business combination. Otherwise, there are imbalances with respect to enterprises that have at least one business combination and have recognized goodwill and others that have not. On the way to recovering impairment losses, the former will be able to “recognize” internally generated goodwill, unlike the latter that do not have a cover for recognizing theirs.

A different view of the ex-post evaluation is presented in NAS 22 Accounting for Business Combinations. The Standard provides for amortization of goodwill. We accept as a ration choice the amortization of goodwill for several reasons. Firstly, the NAS is intended to be used by a large number of micro, small or medium-sized enterprises and amortization is a more lenient form of ex-post evaluation. This avoids the complexity faced by companies applying IAS in testing for impairment of goodwill. Second, at this stage of economic development in Bulgaria, there is no active capital market to serve as a reliable value source when testing the goodwill for impairment.

According to NAS 22, the useful life of the goodwill as a prediction for of its future utility can be estimated for a limited period and should not exceed 5 years, except in rare cases when there is convincing evidence that this period should be longer. The standard also provides guidance on determining the useful life of goodwill.

It can be concluded that the systematic allocation of the depreciable amount of goodwill is strictly defined and time-limited, regardless of circumstances that may not be recognized by the standard, because there is no definition of what evidence is convincing. Differences in accounting treatment for one and the same item always question the requirement of comparability as a qualitative feature that increases utility.

Conclusion

The analysis shows that the accounting regulation in Bulgaria is lagging behind in its synchronization with the international regulations. In this case, this “defect” can be transformed into effect, because more conservative reporting and lack of evaluation alternatives will lead to a more credible presentation of accounting information. In Bulgaria, still, the fair value as a basis for valuation is applied more restrictively due to a lack of established practices and an active market.

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THE ORGANIZATION OF ACCOUNTING FOR SERVICE CONCESSION ARRANGEMENTS – ACCOUNTING ASPECTS RELATED TO THE GRANTOR

Introduction

The granting of concessions in Bulgaria is an activity with long-term traditions, but a new Concessions Act has been in force since 2018, whose main objective is to lay a good foundation for the development of significant infrastructure projects in the region (Concessions Act, 2018). Examples of concession assets are roads, bridges, tunnels, prisons, hospitals, airports, water pipelines, energy supply and telecommunication networks, permanent installations for military and other operations and other fixed tangible or intangible assets used for administrative purposes in the provision of public services. Unfortunately, significant infrastructure projects have not been successfully implemented in Bulgaria, so legislative reforms should create a favorable environment for their development.

The organization of accounting for concession arrangements in the context of international accounting standards is not applied at the

required level when taking into account the concession relations in Bulgaria. There is also no specific accounting standards for reporting concession relations developed at national level.

A very responsible and difficult task is to present a unified model for accounting for concession relations. In my opinion, this problem is not only a national one and is caused by the diverse forms of PPPs and the various methodologies for achieving a lasting interest in the realization of a long-term infrastructure project between the state and the business. In addition, this project must be supported and developed for the benefit of society as a whole.

The first part of the report presents existing guidelines in international accounting standards for public sector enterprises, and in the second specific guidance on solving the problem of organizational accounting for concession relations at the grantor at a national level.

Key points in the approach to report service concession contracts covered by IPSAS 32 “Service Concession Arrangements: Grantor”

The primary purpose of IPSAS 32 “Service Concession Arrangements – Grantor” (IPSAS 32, 2012) is to prescribe the accounting for service concession arrangements by the grantor, a public sector entity⁷. The idea of this Standard is to provide "mirror" instructions to the granting entities arising from the same relationship with operators⁸ for which IFRIC Interpretation 12 “Service Concession Arrangements” (IFRIC 12, 2006) is adopted and is in place. A leading approach to which side of the PPP relationship should recognize an asset is the control over the asset. Accounting theory determines who controls the asset in the context of “service concession arrangements” by looking at two key questions:

- Who controls what public services will be provided through the asset and at what price?
- Who will control the residual value of the asset after the end of the PPP agreement?

If the answer is the grantor, then it should create accounting information for the constructed or improved infrastructure as ***a service concession asset (SCA)***.

⁷ For the purposes of the report, a public partner, a grantor and a contracting authority are identical concepts.

⁸ For the purpose of the report, operator and operator are identical concepts.

Simultaneously with the SCA at the grantor, the operator enters into a binding agreement, which should be accounted for as a *service concession liability (SCL)* of equal value. SCL may be a financial liability or liability arising along with the rights granted to the operator.

For the purposes of the standard, a service concession asset (SCA) is an asset used to provide public services in a concession agreement that:

- Is provided by the operator and is:
 - Built, improved or acquired from a third party; or
 - An existing asset of the operator; or
- Is provided by the grantor and is:
 - An existing asset of the grantor; or
 - An improvement over an existing asset of the grantor.

For the purposes of the standard, a service concession liability (SCL) is determined by the nature of the commitments made to the operator. When creating an SCA, two types of liabilities may arise for the grantor:

- Financial liabilities (obligations) – provision of periodic payments to the operator;
- Liabilities as a result of deferred revenue. These rights may provide the following benefits to the operator:
 - to realize revenue as a result of the use of the SCA; or
 - to gain access to other revenue-generating assets for his benefit (such as a private hospital wing, provided that the rest of the hospital is used to provide free healthcare services or, for example, a private car park to a public facility);

As a result of signing a service concession arrangement between the partners, there may also arise a combination of liabilities to grant rights and financial obligations to the grantor.

Recognition and Measurement of SCA

Initially, the SCAs are measured at fair value. In particular, fair value is used to determine the value of a built asset or the cost of any improvements to existing assets upon initial recognition. The requirement does not apply to existing grantor assets that are reclassified as concession assets. After initial recognition, SCAs are measured using the cost model or the revaluation model.

Recognition and Measurement of SCL

Initially, SCLs are recognized for the same amount as the SCAs, and the amount is adjusted by the amount of other payments and commitments made to the operator. Depending on the nature of the binding agreement with the operator, the amount of recognized revenue differs substantially if the parties agree to a financial payment (financial liability modeling) and assignment of rights (reporting under the rights model). If the nature of the contract requires payment by the grantor during the binding agreement, then the amount of all payments serves as a starting point for the fair value of the SCAs or SCLs respectively. However, if the parties agree to grant rights (application of the rights model), then the logic is quite different. In this case, the relationship is treated as a replacement of non-qualifying assets – granted rights, an intangible asset of the grantor for the provided infrastructure, a tangible asset of the operator.

For contracts that include both models, separate reporting of financial liabilities that comply with this model and other deferred income liabilities that meet the rights model is required.

Accounting methodology of the grantor in Bulgaria?

The general normative regulation of concession activity in Bulgaria is achieved through the Concessions Act, which underlies the creation of concession relations, the transfer of construction (only for construction concessions) and operational risk.⁹ According to the law, construction risk is the probability of occurrence of events, facts or circumstances that may affect the value or the time of execution of the assigned construction. Under operational risk, the legislator understands the risk that the demand and / or supply of the concession and / or services will be exposed to market fluctuations.

⁹ *In Bulgaria, we divide the concessions for construction from service concessions. We call a “construction concession”, an agreement that includes the construction or renovation of a public infrastructure providing a public service, and a “service concession”, an agreement that only involves the provision of a public service by the economic operator without a commitment to initial investment. Internationally, the term “Service Concession Arrangement” is used.*

Table 6.1

Accounting regulation of concession relations

International normative regulators	National normative regulators – analogues
IFRIC 12 Service concession arrangements	None
SIC 29 Service concession arrangements: Disclosures	None
IPSAS 32 Service Concession Arrangements: Grantor	None

Source: Prepared by the author

As seen from Table 6.1 in Bulgaria there are no special accounting standards regulating the concession activity. For operators, however, the National Accounting Standards (NAS, 2016) have stated that for outstanding issues, the Accounting Act (Accounting Act, 2016) – International Accounting Standards (IFRS, 2016) should be applied. However, grantors lack official guidance on accounting for concession contracts and International Public Sector Accounting Standards are not accepted and are not mandatory in Bulgaria. This lack of regulatory environment predetermines the occurrence of a number of difficulties in reporting concession activity by the grantors. However, the announcement of a concession procedure requires the definition of specific preliminary parameters as prescribed in the law. According to the financial and economic elements of the concession, for each concession for construction and services concession is defined a concession value, which includes the operator's total turnover during the concession received as revenue from the operation of the construction or the services. As with the opening of the concession designation procedure, the value of the concession (Articles 27-28 of the Accounting Act, 2016) should be determined by the grantor as the estimated value. The inclusion of these requirements in the law indicates that the lawmakers have provided for the existence of a concession's estimated value before the announcement of a procedure, but in practice, this is related to the calculation of many contingencies which may lead to serious deviations from the estimated value caused by many objective circumstances.

The adoption of a new Concessions Act (2018) requires the development of new guidelines for public sector companies that provide clear guidance on how and what accounting entities should be recognized as a result of concession contracts signed under the new

legislation. The form in which these rules will be presented will be best provided by a set of national accounting standards for public sector enterprises that are developed on the basis of the presentations of the IPSAS but also reflect the national characteristics. However, this is a long, thorough and quite complicated process.

As a starting point, specific guidelines for reporting of accounting entities at the grantor should be developed as a result of contracts signed under the Concessions Act. They must reflect the main financial and economic elements of the concession: value and estimated value of the concession, economic balance and risk distribution, concessionaire's revenue, concession payments, concession fees, concession duration (Ordinance on the requirements for determining the financial and economic elements of the concession, 2018). Key points in this guidance should be the recognition of assets, liabilities, income and expenses as a result of concession, initial and ex-post evaluation, as well as the approval of specific accounts and organization for their reporting. The basis for the recognition of an asset should be "control" – it should be imposed as a sustainable asset recognition criterion in line with current accounting trends. In this respect, experience from the adopted IPSAS 32 "Service Concession Arrangements: Grantor" can be drawn. Consideration should be given to the group of assets created as a result of PPP in the public partner. In international standards, these assets are classified in a separate group "Service concession assets". In Bulgaria, it is appropriate to use the existing group 22 "Long-term assets capitalized in the reporting group (economic group) "Other accounts and activities"" when there are physical payments and subgroup 980 "Cost commitments – flows" when SCAs are reported as contingent assets at the time of the initial commitment to make a concession payment¹⁰. However, the range of activities covered by the Concessions Act includes, besides construction activities, many social and other activities. In view of the new assets that can be created and non-exhaustively covered in the listed accounts, a new account 2205 "Service concession assets" capitalized in the "Other accounts and activities" account group (economic group) should be created. This account should provide a place for assets created as a result of concession activities for which control by the public partner can be

¹⁰ The law uses the concept of "concession payment" for the cash flow from the grantor to the operator, and "concession remuneration" – for the cash flow from the operator to the grantor.

demonstrated. When the concession contract expires, for example, if these are infrastructure assets, they should be reclassified to account 2202 “Infrastructure objects” of the same group of accounts in the accounts of public sector enterprises. Along with this reclassification, it will also be necessary to show other assets that are not exhaustively presented in the reporting group 22 “Other accounts and activities”. Account 2209 “Other assets” capitalized in the reporting group (economic group) “Other accounts and activities” may be created initially to serve this purpose.

Another important issue is the possibility provided by the legislator to include the grantor in the public-private partnership by paying a predetermined fee (**concession payment**) to the operator. According to IPSAS, in this case, the operator along with the concession asset should also create a financial liability of an equal value. The organization of national accounts provides for this payment to be organized in a different way. In this respect, the accounts in sub-group 607 “Rentals and costs of infrastructure, land and other assets and assets of artistic and historical value” should be edited, and wherever there are “rental expenses” it should be added “concession fees / concessions”. In principle, I think it would be more appropriate to create a separate concession expense account, but due to the lack of a free number in the 607 subgroup I suggest the abovementioned option. Consequently, an adjustment should also be made to sub-group 608 “Costs and assigned costs for services, rents, etc.”, with account 6087 entitled “Attributions for rents and concessions”. Changes in the chart of accounts may be adopted on the basis of Art. 109-110 of the Public Finance Act (Public Finance Act, 2013). A methodology to account for service concession assets (SCA) should be developed, similar to the presented model in IPSAS 32 Concession Service Contracts: Grantor. It is also necessary to create guidelines for bidirectional representation, in which a service concession liability (SCL) arising out from a service concession asset (SCA) to be presented in both forms – as a financial liability (where a concession payment is provided) and as granting of rights (where granting of rights is provided) as well as guidelines for reporting a hybrid model (where both rights and financial payment are agreed at the same time). Recognition of SCL requires the application of a charging methodology rather than the cash flow principle but would create a much more credible picture of the contractual concession arrangements. The reporting of rights in international guidelines is considered as a deferred income. By analogy, a reporting methodology should be sought

in future earnings accounts. These accounts were dropped from the national budget chart of accounts (2015), with the use of the sub-group 499 “Other creditors” instead.

In certain cases, described by the law, the operator pays the grantor a **concession remuneration**. Concession remuneration is due in all cases, except for the case where the operator will build a completely new site. Only in this case is the operator free of concession remuneration. The amount of concession remuneration obligation to be paid is determined by the grantor in each case depending on:

- ✓ the fair distribution of the economic and financial benefits of the concession between the operator and the grantor;
- ✓ the achievement of a socially acceptable price for the services provided by the object of the concession arrangement.

Since the concession remuneration parameters are defined in advance, an estimated cash flow from the proceeds of concession activity can also be calculated. This contingent deferred income may be recognized as deferred income, which is subsequently recognized as income from concessions. However, at this stage in the organization of accounting for public sector enterprises in Bulgaria, this approach is not in line with the basic logic used in organizing the accounting of public sector enterprises. For the recognition of revenues from concession payments (payment by the operator to the grantor) specific accounts are provided from sub-group 433 “Receivables from concessions” and account 7124 “Concession revenues”, respectively 7181 “Attributed rental income and concessions”. A good practice should also be retained in the 9915 account “Contingency receipts of concessions and rentals”, which allows for overdue payments to be presented on time and a proper record of these payments to be kept.

Another important point in improving the accountability of the public partner is to achieve an appropriate model for disclosure of information related to the concession activity. A legal form must be provided for the public presentation of the annual financial statements of the operators, or at least the presentation of the part of their accounts that involves their concession business. At this stage, a draft Ordinance (Ordinance on the requirements for determining the financial and economic elements of the concession, 2018) assures the reporting of the concession activity of individual budgets and departments both on a monthly and on an annual basis to the Ministry of Finance. This disclosure could also be regulated by the National Concession Register.

Conclusion

The reforms in the national concession legislation target a more intensive development of PPP relations in Bulgaria. It is very difficult to create a unified model for financial reporting of concession relations. This difficulty results from the complex mechanisms for determining the financial and economic benefits of the parties under each individual concession contract. Therefore, an individual, reasoned approach to organizing the reporting based on the financial and economic elements of each particular concession should be applied to each individual contract.

There also exist some problems in the private sector (the operators), but in Bulgaria there is an urgent need to elaborate a methodology for accounting for PPP relations with the public partner – the grantor. This methodology should use the already developed IPSAS 32 “Service Concession Arrangements: Grantor” as its fundamental basis, but also to take into account the specific peculiarities of the national legislation.

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CONCLUSION

In a market economy one of the most important factors in the effective functioning and development of economic entities is the successful implementation of their innovation activities. In turn, the spread of processes for the introduction of innovation by economic entities becomes a key condition for accelerating the socio-economic development of the country.

The results of the author's research in the collective monograph are devoted to solving problems of formation and development of an effective system management of innovative development and theoretical-methodical principles of organizational-economic management by choosing directions of innovative development the economic entities.

Innovative activities are usually carried out by economic entities from time to time, rather than on a regular basis, due to lack of financial and other resources, uncertainty and increased risk of innovation, lack of appropriate experience in innovation management and effective science-based tools formation of the mechanism management of innovative development.

The main advantage of the innovative way of development is ensuring economic growth without proportional increase in consumption of raw materials, formation of conditions under which investment into the creative and scientific potential of society becomes extremely advantageous. After all, innovative development the economic entities, based on the general principles of cyclical development of scientific-technological progress, determines the objective need for changes in generations of technology and technologies, provides of possible alternatives for the implementation of scientific-technological innovations, etc.

The presented results of the research in the collective monograph reflect the theoretical and practical aspects of the introduction of mechanisms for the management of innovative development the economic entities.

It is established that the increase of the efficiency activity the economic entities in the current harsh environment of the competitive environment is based on the improvement of the process management of innovative development the enterprise.

It is determined that the need for implementation of innovative development the economic entities are stipulated: the intensification of

intensive factors the production development, which promote the application of scientific-technological progress in all spheres of economic activity; the determining role of science in improving the effectiveness of the develop and introduction of new technology; the need for a significant reduction in the timing of creation and implementation of new technology; increase of technical level of production; the need to develop the creative skills of inventors and innovators; increase in costs and deterioration of economic indicators of economic entities when developing new products; rapid moral aging of technology; the objective need for accelerated implementation of new technology, etc.

The system management of innovation development is an open system that constantly interacts with the external environment of activity, providing flexibility and adaptability the economic entity to market conditions. Taking into account these functions makes it possible to conclude that the process of transition the economic entity to the innovative way of development requires the creation of a new system of its organizational management taking into account corrective actions.

Innovative development in the volatile market conditions of the transition economy is characterized by specific features that cause the formation of numerous models of management systems in each particular situation. The choice of a model depends on the conditions of activity the economic entity, the level of economic development, the formation of its innovative potential.

The current stage of expansion of globalization, informatization and market relations provides great opportunities for development at the expense of connecting to innovation processes more advanced economic entities, integrating participants of innovations within the framework of cooperation, attracting Internet technologies, using world achievements and opportunities of international institutions. According to practice the business entities in the formation of organizational potential insufficiently used the possibilities of world consolidation. The main reason for such a situation is the low level of readiness for changes the economic entities. The period of organizational change requires serious investment, which in turn limits the possibilities of the current economic growth the economic entity, regardless of the sources of funding for innovative development programs. At this stage, the formation and flexibility of the management system of innovative activity the economic entity enables to transform into a new way of development without unnecessary expenses. Innovative development is a systemic orientation of activity the economic entity to achieve high performance results at the expense of innovation factors,

which are based on a continuous uninterrupted search of new means and spheres of realization of the potential the enterprise in an unstable market environment. Innovative development at the level of an individual economic entity involves the implementation of the process of introducing promising innovations, the implementation of which should contribute to increasing the competitiveness of the enterprise.

The transition of the economic entity to the way of innovation development requires him to organize a management system capable of responding quickly to changes in both the external and internal environment of operation. Management of innovative activity the economic entity is a complex system of interrelated functions, the sequence of which ensures the formation of competitive advantages through innovative development factors.

The economic situation in recent years is characterized by an increase in the degree of globalization and business informatization, increased competition on the markets of goods and services, capital and labor. Such market development leads to the need to create a sustainable innovation policy, which is based on the integration of economic entities, concentration of capital. As the world experience shows, alternatives to innovative development today do not exist yet, since it is practically impossible to compete in foreign markets in the traditional field of activity. Only fundamentally new technologies, supported by managerial innovations, will create a new competitive environment and provide the prerequisites for achieving leadership positions on the market. In turn, increase of business activity and innovation will allow providing high rates of economic growth, increase of capitalization the economic entities and scale of production.

The generalized researches in the collective monograph indicate that the management of innovative development the economic entities should be considered as a systematic management of innovation activities aimed at creating and ensuring the achievement of economic growth through the rational use, increase and distribution of innovation and economic-technological potential, including material, labor, financial, information resources, in order to transform it into innovative capital, is capable of providing innovative development the enterprise. That is, while managing of innovative development the economic entities there is a systematic decision-making process and the transformation of innovation potential into innovative capital, the very realization of innovation potential leads to the innovative development of economic entities, and the systemic ensures the sustainability of development.

Management of innovative development the economic entities

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Zarządzanie innowacyjnym rozwojem podmiotów gospodarczych

Monografia zbiorowa pod redakcją naukową
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Przyjęto do druku: 07.06.2018
Nakład: 300 egzemplarzy
Objętość: 15,76 arkuszy druku