

**Transformational processes  
the development of economic  
systems in conditions of  
globalization: scientific bases,  
mechanisms, prospects**

**Collective monograph edited by  
M. Bezpartochnyi**

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ISMA University  
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**Ekonomisko sistēmu attīstības  
transformācijas procesi  
globalizācijas apstākļos:  
zinātniskie pamati,  
mehānismi, perspektīvas**

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The authors of the book have come to the conclusion that it is necessary to effectively use the management approaches to regulate modern international economic relations, methodological tools for analyzing international competitiveness and innovation. Basic research focuses on assessing the structure of R&D costs, analysis of innovative development the industrial enterprises, diagnostics of direct and portfolio investments, stress-testing of the banking system, marketing support of companies' competitiveness, diagnostics of structural transformations in agriculture. The research results have been implemented in the different models of reengineering business process, reforming the pension reform, developing the human resources capacity of the region and managing human resources, managing quality in the hotel-restaurant business and tourism, forming a logistics strategy, innovative technologies in education. The results of the study can be used in decision-making at the level of international business, ministries and departments that regulate international relations, ensuring security and overcoming risks. The results can also be used by students and young scientists in modern concepts of the formation of international economic relations in the context of ensuring the competitive advantages of actors and improving innovation policy.

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## INTRODUCTION

The modern paradigm of global economic development necessitates the transformation and modernization of the national socioeconomic system, taking into account not only the national peculiarities of socio-economic relations and market mechanisms, but also the world, global market, since the influence of global processes on the national economy leads to its subordination to the laws of the global market.

Therefore, the process of integrating transitive countries into the global economy depends on the extent to which the entities of the national economic system are able to develop, respond, or can oppose the actors of the global economy without destroying the features of social relations that have historically developed and have a national specificity.

In order to carry out a systemic transformation and to formulate a country's socio-economic development strategy, which involves structural modernization, it is necessary to analyze the internal potential of the national economic system, its goals and socio-economic objectives of development, as well as the requirements of the global market, its structure and development mechanisms, especially in the conditions of the global systemic crisis.

The purpose of writing this collective monograph is to substantiate theoretical-methodological foundations and to develop organizational-economic mechanisms for the development economic systems in a globalizing environment, taking into account transformational changes in the international economic environment.

The object of the authors' research was the transformational process of changes in the world, peculiarities and trends of development economic systems, generalization of world experience in the field of ensuring stability and increasing the competitiveness of economic actors in various spheres of the national economy in order to ensure the effectiveness of their further functioning and development in a globalizing environment.

The subject of study were various processes of economic systems development; substantiation of the necessity of introducing innovations by economic entities; development of organizational-economic mechanisms for ensuring the competitiveness of economic systems; substantiation of directions of maintenance economic safety in the conditions of globalization; formation of theoretical-methodological basis for the adoption of practical solutions in the conditions of socio-economic asymmetry of the world economy in the process of European modernization of reforms, university council and the implementation of norms international law.

## Chapter 2

# THE ROLE OF INNOVATION IN THE DEVELOPMENT OF ECONOMIC SYSTEMS

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**DEVELOPMENT  
THE  
WHOLESALE  
ENTERPRISES  
REGION  
THROUGH  
BUSINESS  
PROCESS  
REENGINEERING**

### **Introduction**

The wholesale enterprises region is an intermediary link in the system of distribution consumer goods in which concentrated a significant part of material and financial resources.

The formation of system economic relations between economic entities, including industrial enterprises, wholesale and retail enterprises is ensured through the interaction of these structures. Wholesale enterprises are important elements of the regional market infrastructure of the consumer market.

Modern wholesale regional markets are characterized by a large number of wholesale and retail structures of all forms of ownership. Intermediary activities of wholesale enterprises region are accompanied by a number of problems that are caused by the specific nature of the formation resource potential, regional differentiation of economic structures relative to producers and other intermediaries, and the

relationships between consumers of different channels for the formation of commodity resources. During the years of economic reforms the role played by the wholesale enterprises region in the supply of retail trade has significantly decreased. At the same time, in many regions of the country there are no information and coordinating centers for wholesale trade, there is no concept for the development of the wholesale food market in general and regional scale. The direct fragmentation of market information prevents efficient use of resources and their management, taking into account changes in market conditions. In this connection, there is a need to search for new forms of organization of wholesale turnover, which determines the relevance of the research topic.

Self-analysis and setting tasks automation processes at wholesale enterprises region, as well as their implementation is an important factor in the work of economic structures. The purpose of the article is to develop activities aimed at analyzing and improving business processes at wholesale enterprises region.

### **Need to use business process reengineering**

Wholesale enterprises region experience a decline in the efficiency of management and development, which leads to the need for business process reengineering. A cardinal rethinking of the business processes of the wholesale enterprises region is a modern direction for achieving the set goals, which will lead to an improvement in the quality of customer service and will change the indicators only for the better.

The high dynamics of business processes, the daily changing conditions and needs of customers, as well as various technological innovations in operations contribute to the development of information technology and their inclusion in the daily rhythm of life in wholesale enterprises region.

Efficient of business processes reengineering are the main goal of any wholesale enterprise region, when it achieves elimination of problematic processes, the strategy of all departments of the enterprise is optimized, the rate of sales and the speed of turnover of the company's current assets increase. Thanks to this, the entry into the leading positions in the competition market will not be difficult, at the same time it will allow to consolidate positions and win respect among buyers and a positive reputation among suppliers.

Considering the wholesale enterprises region, it is necessary to take into account the degree of influence of globalization and the internationalization of the socioeconomic situation in the country. Strict

competition for raw materials, high dynamics of business processes led wholesale enterprises region to take effective management decisions and prompted the management system to make the only choice in which there is no possibility of making mistakes. Experienced manager of any wholesale enterprise region, in order to avoid problem situations, will maintain trade and economic relations only with trusted suppliers of commodity resources, which have proved themselves over many years, as firms that fulfill their obligations to buyers in a timely manner.

Thus, the wholesale enterprise region, which has set itself the task of gaining a leading position in the market through business reorganization, must pursue business objectives that will achieve its goals. Such tasks can be the introduction of a CRM-system for quality work with customers and suppliers [1, 2]. First of all, such qualitative changes in the organization of business processes will affect the approach to reengineering. For the fastest possible transition to a new structure of business process organization, the management of wholesale enterprises region should quickly react to changes in the level of demand for customers, and also pay special attention to other quality indicators responsible for sustainable development. Therefore, business processes reengineering is a fundamental component for the successful operation of the enterprise at any stage of its development.

### **Business process on wholesale enterprises region**

One of priority tasks the wholesale enterprises region is the formation of favorable conditions for the development and ensuring the competitiveness of business entities of different organizational-legal forms of activity.

Such a problem as the improvement of business processes the wholesale enterprises region is caused by the high dynamism of the processes in the market conditions. Constantly changing and quite important changes in information technology, sales markets and customer needs have become commonplace. Wholesale enterprises region are now striving to maintain their competitiveness, thus being forced to continuously restructure their strategy and tactics.

The business process can be viewed as a recurrent in time set of internal operations (activities) that consume certain resources and begin with one or more inputs and, at the output, ending with the distribution of products required by the client. Both the work flows and the processes have their limits – the beginning and the end. For any single process, these boundaries are set by the initial, or primary, inputs from

which it starts. These inputs are opened by the primary process providers. The process ends with an output that outputs the result to the primary process clients.

In general, the business processes of a wholesale enterprise region can be represented in the form of a scheme in Figure 1.1.

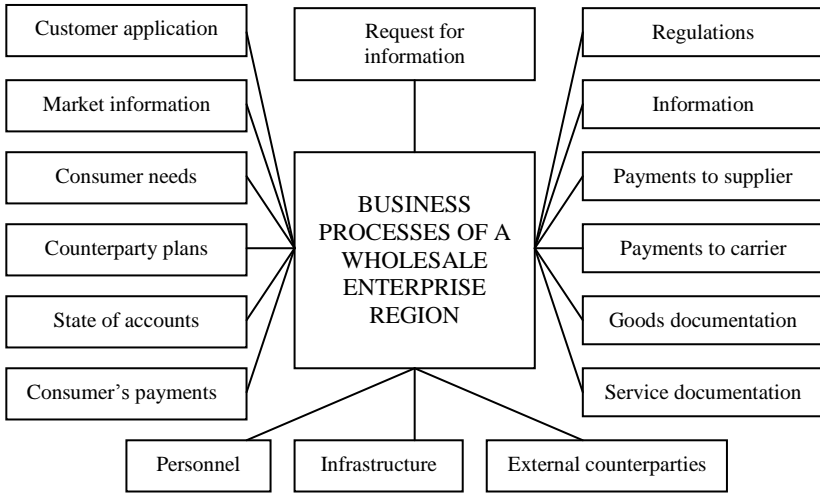


Figure 1.1 General model of business processes of a wholesale enterprise region

*Source: developed by the author*

Specificity of business processes of a wholesale enterprise region is determined by functions that, in turn, are different from retail trade enterprises.

The functions of a wholesale enterprises region include: sales and him stimulation; purchase and formation of commodity assortment; unbundling of consignments of goods; warehousing; acceptance of risk; transportation; financing; providing information about the market; management services and consulting services.

Based on the principles of reengineering, when forming the structure of business processes, it is necessary to take into account the main directions for satisfying the needs of consumers, namely:

- monitoring of cultural and behavioral tendencies, analysis of consumer advantages and offers of competitors, search for products in which society is interested;

- creation of the concept and prototype product, determination of the reaction of potential consumers and experts to the proposed product;

forming a scenario for a new business process (creating a technological scheme, solving personnel tasks, dividing responsibilities and authorities, coordinating actions, logistics, identifying relationships with suppliers, pricing);

access to the market (PR, advertising and information, forming relationships with intermediaries, carrying out activities to stimulate sales);

organization after sales service, customer support, study of consumer reaction to purchase, acceptance of claims, assistance in their elimination, maintenance of consumer databases, formation of proposals for further development of business [3].

### **Application CRM-systems in wholesale trade**

The modern generation of consumers requires greater flexibility in servicing, taking into account individual characteristics of clients, analysis of the social environment. New sales channels allow to optimize and improve the efficiency of service (implementation of cloud CRM-systems, application of communication capabilities of sensor devices, mobile catalogs), the introduction of innovative technologies and support for new service formats. But whilst wholesale trade basically solves traditional problems, namely: cutting costs, improving the quality and speed of service, increasing customer loyalty. Development and modernization of the IT infrastructure, its formation from scratch in new points of sales, forces the wholesale enterprises region to make a decision in favor of implementing CRM-systems.

Thus, we must not lose sight of the need to ensure a reliable process of supplying commodity resources, for which the introduction of automation systems for warehouse and transport logistics, supply chain management. The increase in wholesale turnover leads to the need to monitor not only sales growth, but also other significant indicators that can be accounted for directly by entering data into the CRM system enterprises, thereby detailing the change in these indicators. Many wholesale enterprises region have switched to a new logistics management system, and have also integrated with the internal trading system and with the systems of customers of logistics services. In the course of such changes, a qualitative electronic document management system appears. Purchasing management of tools and equipment requires constant automation of planning logistics routes for the delivery of goods to customers in other regions. The formation of optimal supply chains is often inefficient and requires more careful analysis and control.

Any CRM-system allows you to track interaction with consumers, provides the wholesale enterprise region the opportunity to improve their business processes. In the course of this optimization, the wholesale enterprise can shorten the time for the processing of customer complaints, improve the delivery of goods at home, speed up the process of processing orders through the introduction of an automated system for placing orders and making timely payments.

The main tasks of implementing a CRM-system at wholesale enterprises region are:

- maintaining a single client base and history of interaction with customers;

- automatic generation of “plan/fact” reports on managers/departments for various indicators: sales volume in monetary or quantitative terms, number of calls made or appointments;

- formation of the optimal batch volume and analysis of warehouse stocks;

- control over the sales process: reflection of the stages of the passage of transactions, operational reporting on transactions, reporting on the implementation of the rules of work on the transaction;

- automation of internal approval procedures: coordination of the discount amount, approval of the commercial proposal, agreement of the contract;

- formation of standardized documents: commercial proposals, contracts, specifications, invoices for payment, etc .;

- control over payments and receivables of customers;

- collection of marketing statistics and information on transactions made [1].

As a result of the successful implementation of the CRM system, the wholesale enterprises region receives:

- direct time saving managers. They do not spend time preparing weekly reports for management, they are quicker to search for necessary information, spend less time preparing standardized documents;

- there is an exception of errors in processes. The formalization of sales procedures and related processes makes it possible to reduce the probability of employee errors, explicit and implicit. This can be a call that was not completed on time, resulting in a loss of the order; an error of reservation of warehouse space, which turned into a penalty; the correct size of the discount; timely not delivered order;

- efficiency and reliability of information on sales for management increases. Managers have the opportunity to receive information not as a

result of the process of reducing data from employees, but directly from the system, when it is convenient for them;

new quality of information about clients is formed. The accumulation of a database of customers, marketing statistics and sales statistics makes it possible to make qualitative changes based on it – to apply methods that were unrealizable without a CRM system [2].

The experience of implementing CRM-systems shows that after the completion of the implementation of the CRM-system, employees themselves find new effective ways of using the accumulated information.

### **Analysis of existing problems and ways to solve them**

In the conditions of an unstable economic situation, the wholesale enterprises region are increasing risks associated with possible changes in working conditions with suppliers of goods. Important anti-crisis tasks in the area of material supply are:

- reduction of costs for maintenance of warehouse stocks;
- flexible work with suppliers on favorable terms;
- organization of deliveries of commodity resources on the fact – precisely in time;
- keeping accurate records of purchased inventory and storage locations.

Often, the warehouse contains an excessive number of purchased units of commodity resources, this is due to the desire to have some insurance stock, which is usually not analytically calculated, and reasons can also be in the minimum consignments, the uncoordinated work of the logistics and sales department. At the same time, when a specific nomenclature unit is urgently required, it may not be available in the required quantity, emergency purchases take place at inflated prices, the delivery terms of the products are disrupted and a threat of loss not only of the current profit, but also the future one – in the form of refusal of further orders, loss of customers, which is unacceptable.

### **Analysis and optimization (reengineering) of the business process “Forming the optimal supply chain”**

To assess the efficiency of wholesale enterprises region, it is necessary to use only relevant data to make decisions on the business processes reengineering. The most popular in recent years is the Balanced Scorecard concept developed in the early 1990s by the American economists, Director of the Norlan Norton Institute, David Norton, and Harvard Business School, Professor Robert Kaplan [4-6].

The main idea of the concept is to present the most important information to the management in a concise, structured form, in the form of a system of indicators. This information, on the one hand, should be compact, and on the other hand it should reflect all the main aspects of the company's activities.

The difficulty of creating a Balanced Scorecard is that the implementation of the strategy largely depends on the organization's ability to translate its strategy into a scorecard. Based on these indicators, the head will have to make a decision on reengineering, so the quality of these estimates has a big impact on the company's business prospects. The four components of the Balanced Scorecard make it possible to achieve a balance between the long-term and short-term goals of the enterprise, between the results and the factors to achieve them [6].

For wholesale enterprises region, there are main lines of activity, as well as indicators for each direction with which more details can be presented in Table 1.1.

*Table 1.1*

**Balanced Scorecard for optimizing the business processes of a  
wholesale enterprises region**

Activities	Indicators
Customers	Customer satisfaction level, NPS consumer loyalty index, number of consumers, average order processing time, number of buyers and visits, frequency of purchases.
Internal processes (business processes)	Quality of orders, optimal periodicity of supply, optimal batch volume, inventory turnover, labor productivity and computer systems.
Personnel	Level of service deficiencies, employee satisfaction index, number of employees.
Finance	Revenues per employee, profitability of sales, amount of costs, return on capital.

*Source: developed by the author*

The specifics of activity of a wholesale enterprises region make it possible to consider as thoroughly and multifaceted as possible all four perspectives that make up the system of balanced indicators, namely: customers, internal processes (business processes), personnel, and finances.

*Customers.* The “Customer Satisfaction Level” score is one of the important indicators and can be direct or indirect. To directly assess the customer's satisfaction at the wholesale enterprises region, questionnaires should be conducted by filling out questionnaires, as well

as personal contact by phone using a number of questions from the questionnaire. For indirect evaluation, it is necessary to make a comparative estimate of the sales volume for the period. Do not underestimate the importance of the client aspect in creating a strategy for working with clients, namely what kind of enterprise the buyers of its products see. The level of interaction with customers directly affects the quality and volume of sales.

*Internal processes.* The activity of any wholesale enterprise region is based on the performance by each employee of certain functions, the functions of different employees form a chain of actions that have a goal – achieving results.

Balanced Scorecard identifies those key business processes that the enterprise must focus on improving; in order to best convey its unique offer to the consumer. In the future, it directs investments and focuses in this direction work with personnel, development of internal systems of the enterprise, corporate culture and climate. Thus, the cost management concepts and Balanced Scorecard are very well compatible.

Such indicator as “Quality of performance orders” can reflect a level of qualification of the personnel enterprise. This indicator can be applied to both office personnel when working with clients, and to employees who perform assembly and ordering processes. The quality of the order directly depends on the work of order manager, as well as on the experience with customers. With regard to the process of assembling the order, the level of qualification of warehouse workers affects the quality of the order, playing an essential role in the internal processes of the wholesale enterprises region, as the sales of commodity stocks in the warehouse of the enterprise are carried out daily and in large volumes.

To calculate the indicator “Optimal periodicity of supply”, must first pay attention to the number of goods sold within one month or for a period of 1 year. The task of reducing the costs of a wholesale enterprise region is acute for logistics, as large costs are spent on transporting commodity resources from the producer, and some poorly sold durable goods are in the warehouse. These moments are the consequences of not the optimal volume of the batch ordered from the manufacturer. That is why the logisticians of the wholesale enterprises region need to pay attention to how the purchases are calculated, planned and conducted, and first of all – how the volume of the purchased consignment of goods is determined. To correct the work of logisticians the head of the wholesale enterprise region faces the task of implementing an effective system of accounting and distribution, with the help of which it will be

possible to solve the problems of calculating the indicators “Optimal periodicity of supplies” and “Optimal batch volume”.

All the necessary tools have already been implemented in the CRM-system, which must be implemented at wholesale enterprises region. Even before the beginning of work on the calculation of the “Optimal periodicity of supply” and “Optimal batch volume”, the procurement system should work fine as a clock, clearly predicting demand, placing orders only when necessary, and not sooner or later, and in such quantities in which there is a current need of the enterprise. The following points can serve as an example of an optimal procurement system:

- qualitative forecasting of demand, taking into account seasonality, level of satisfaction of demand by warehouse balances;

- determination of the order point, so that the order to the supplier is not carried out until the balance of one of the supplier’s positions has reached a critical level sufficient to ensure sales at the required level of meeting the demand with warehouse balances before the new order is being entered;

- determine the needs of the enterprise in the position necessary to ensure sales at the desired level of service before capitalizing the next one for the current order. In the event that all these three conditions are met, then you can try to calculate the optimal order volume from the point of view of the total costs for transportation and storage of products.

*Personnel.* One of the methods that allow tracking changes in the mood and motivation of employees and responding to these changes is the definition of the “Personnel Satisfaction Index”, that is, the degree of coincidence of employee desires with the benefits received at the enterprise where they work. This index allows us to understand what quantitative expression the personal satisfaction with various factors of work. The methodology for assessing satisfaction also provides an opportunity to identify in a timely manner the strengths and weaknesses of the wholesale enterprise region as an employer from the point of view of its employees.

The assessment of the “Personnel Satisfaction Index” is carried out according to the following scheme:

1. Definition of the purpose of the evaluation.
2. Development of a questionnaire.
3. Notification of personnel and conducting a questionnaire.
4. Calculation of the satisfaction index.

The objectives of the assessment of personnel satisfaction can be: monitoring the “mood” of employees, their dissatisfaction with any factors or working conditions at the enterprise, preliminary determination of the relevance of the motivation system or the effectiveness of its activities. For the results of this assessment to be indicative, it is necessary to establish how they will be presented: in general for the enterprise, for departments, for posts, etc.

## **Conclusions**

To date, the key indicator of a wholesale enterprises region is the competent strategic planning of supply chains and the process of making managerial decisions related to the use of information technology. In this regard, there is a need to move to modern means of optimizing the activities of the enterprise and carrying out business process reengineering, namely the introduction of a single analytical and multifunctional CRM-system.

Based on the conducted research and development of possible ways for business processes reengineering of a wholesale enterprise region, it can be concluded that timely monitoring of the enterprise’s vulnerabilities and immediate decision-making on their elimination will allow maintaining the level of interaction with customers, organizing quality work with suppliers and customers, optimally allocate inventory.

Accordingly, the use of information technologies associated with the implementation of the cloud CRM-system, will achieve the growth of balanced indicators, make a strategic plan for working with suppliers and speed up the process of customer service without loss of quality.

Based on the proposed recommendations for improving the business processes of wholesale enterprises region, the head will not be difficult to reorganize the activities of his enterprise and use all the features of the CRM-system.

The implementation and use of the CRM-system allows controlling the process of fulfilling the sales order at every stage from the moment of receipt of the application to its execution, to reduce the time costs due to the automation of typical operations, and to receive daily reporting for each transaction. In view of the fact that the work with customers is an integral part of the wholesale enterprises region, it is necessary to provide a convenient system for processing orders, a system for scheduling working hours, as well as the opportunity to inform each client about the stages of the transaction in the most convenient way. All these possibilities are provided in a unified system of accounting for

purchases, sales and warehousing, which is an essential tool and an assistant in organizing the activities of a wholesale enterprise region.

The results of the optimization can not only reduce the labor costs of employees of the wholesale enterprise region, but also improve the quality of customer service, increase the potential enterprise among the main competitors, as well as the opportunity to develop activities not only through increased sales, but also with the expansion of retail space and warehouse premises.

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## **BACKGROUND AND PROBLEM ASPECTS OF INNOVATIVE DEVELOPMENT THE INDUSTRIAL ENTERPRISES OF UKRAINE**

For Ukraine today it is important to form a mutually agreed industrial, technological and innovation policy taking into account the needs of development the domestic and foreign markets. It is understandable that in the conditions of knowledge economy, development is possible only on the basis of innovations. At that innovative processes require the appropriate resources. Innovative development of industrial enterprises should obey the general approaches of formation a post-industrial society that is important to take into account certain factors that determine the vector of modern movement forward.

The purpose of the article is on the basis of situational analysis to identify the main factors of innovation development the enterprises of Ukraine, for example, the Odessa region.

In the industry of the Odessa region is concentrated significant industrial and scientific-technical potential (science-intensive machine building, integrated into world economy the chemical production potential, modern power production of food and light industry). The priority branches of industrial production in the Odessa region are the chemical industry (34.6% of the total volume), food industry (27.0%), electricity, gas, steam and air conditioning (25.7%), machine building (3.9%).

World experience shows that the investment climate in the region is a prerequisite for the innovative development of business entities. However, in Ukraine as a result of the long-term financial crisis, economic and political instability, the level of investment activity is very low, which does not contribute to the accumulation of sufficient investment resources for the modernization of the economy and the transition to an innovative way of development.

The main factors that give the ability to estimate the level of expansion of innovations are the creation and use of the latest technologies by industrial enterprises of the region. For those who want to make conclusions the level of innovation activity in the Odessa region it is inevitable to look at the innovation activity of enterprises region and the results of innovation implementation.

Innovation of the environment is determined by the level of innovation activity of business entities by the results of innovation implementation (Figure 1.2, Figure 1.3).

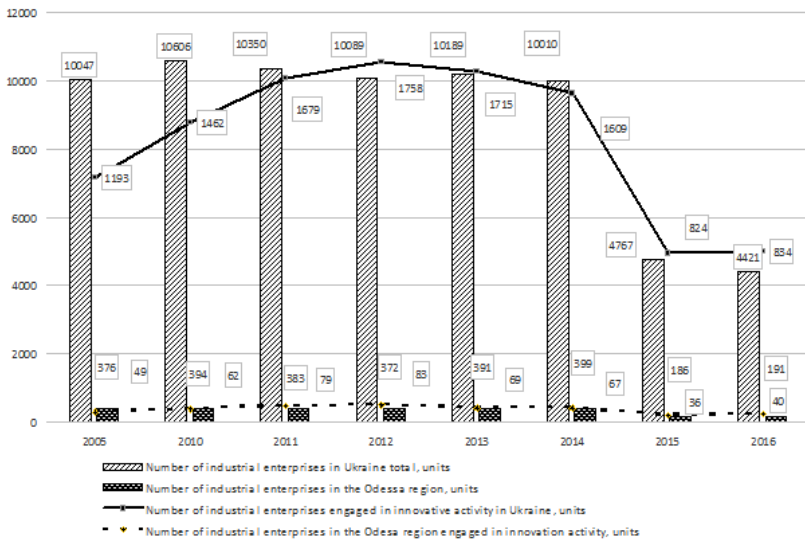


Figure 1.2 Dynamics of the number of industrial enterprises in Ukraine and Odessa region engaged in innovation activity for 2005-2016

Source: author research based on data from the State Statistics Service of Ukraine

During the period under study in Ukraine decreased the number of enterprises engaged in innovation activity in 1.4 times (from 1193 in 2005 to 834 in 2016). In Odessa region this indicator shrank by 26.5% (from 49 in 2005 to 36 in 2015 and increased to 40 in 2016). The total number of industrial enterprises in Ukraine has decreased by 2.3 times (from 10047 in 2005 to 4421 in 2016), in Odessa region – by 2 times (from 376 in 2005 to 191 in 2016). This tendency indicates an unfavorable business climate in Ukraine, which has a detrimental effect on the country's economy.

In Figure 1.3 the innovation activity is presented in %.

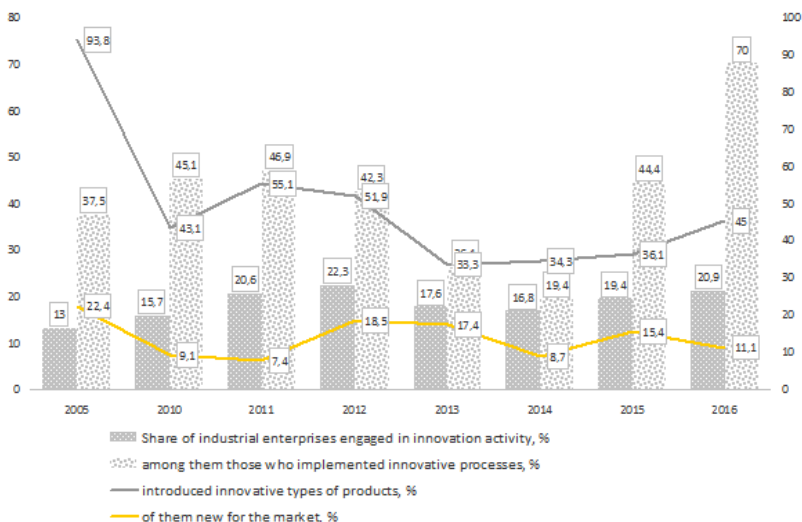


Figure 1.3 Dynamics of the innovation activity of industrial enterprises of Odessa region for the period of 2000-2016

Source: author research based on data from the State Statistics Service of Ukraine

In Odessa region the share of innovation-active from the number of industrial enterprises in 2016 is 20.9%. This indicator dropped sharply in 2014 (to 16.8%) over the past two years there has been an increase in the share of innovation-intensive enterprises, however, the reason for this trend is a decrease in the total number of industrial enterprises in the region (in 2 times). Crisis conditions of the financial-economic situation of Ukraine complicate the functioning of domestic enterprises, which determines their bankruptcy.

As the analysis shows, most innovative-active enterprises are inclined to introduce innovative processes (19.1% in 2014, 44.4% in 2015, 70% in 2016), which indicates the special attention of modern enterprises to improvement the business-processes, optimization of organizational-managerial components.

The largest percent in the implementation of innovative type's product at such enterprises region was observed in 2005 (93.8%). Next, this indicator is declining (34.3% in 2014, 36.1% in 2015, 45% in 2016). New for the market in recent years is no more than 15-18% (in 2016 –

11%) introduced of innovative types of products.

Such a trend indicates the lack of strategic management of innovation activities in industrial enterprises, the unsystematic nature of this process.

Innovative processes were implemented by only half of the industrial enterprises among those engaged in innovation activity (70% in 2016). This situation does not contribute to the innovative development of enterprises and needs special attention. Innovative activity of the branches of industry in the cut of technological context the last six years has not changed much over: has become more active the innovation activity in the sector of middle technology; has increased the innovative activity of metallurgy and metal processing in the low-tech sector. In Ukraine against the backdrop of a general decline in innovation activity in industry during 2008-2016 were more innovative-active is enterprises that belonged to the 4<sup>th</sup> technological process. The analysis of the industrial sector shows that 34.4% of innovation-active enterprises of Ukraine for statistical reporting are wholesale enterprises with non-technological innovations. In developed Western countries engaged in innovation activity 50-60% of the total number of enterprises. At present in the countries of the European Union (EU) the share of enterprises engaged in innovation activity is about 53%. The largest number of innovative enterprises, among the EU countries, is in Germany (79.3%), the lowest is in Bulgaria (27.1% of the total number of enterprises).

The same tendency to decrease in recent years has an indicator of the introduction of new low-waste, resource-saving processes, as can be seen from Figure 1.4.

We see that the dynamics of introduction the innovations in industrial enterprises of the Odessa region have a tendency to decrease. During the investigated period the volume of introduction the innovative types of products at industrial enterprises of the Odessa region significantly exceeded the volume of introduction the new technological processes. At the same time, the production of new or improved existing means of production (innovative environmental technologies), which are based on the results of scientific-research and development work and are the key to the eco-innovation development of the economy a little was implemented. The situation in 2016 changed a little. Thus, the number implemented of new technological processes increased in 2.4 times, while low-resource-saving technologies were implemented 2.3 times more than in 2015. However, the overall picture indicates that at present the industrial enterprises are not interested in the implementation of

ecological innovations. That is, in the Odessa region there are no mechanisms for stimulating enterprises to ecologise their production and implement ecological innovations.

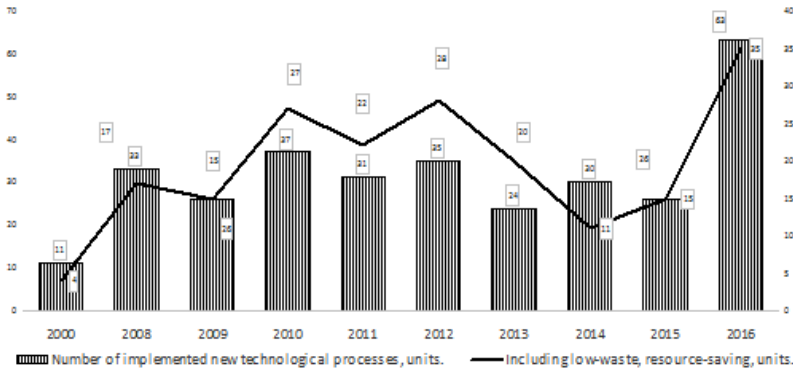


Figure 1.4 Implementation of new technological processes in industrial enterprises of the Odessa region for the period of 2000-2016

Source: author research based on data from the State Statistics Service of Ukraine

Enterprises of the Odessa region in the total amount of financing of innovation activity at the industrial enterprises of Ukraine are given a small percentage (2.0% in 2010, 1.2% in 2011, 13.0% in 2012, 1% in 2013, 4.2% in 2014, 0.4% in 2015, 1.1% in 2016). The share of costs for the innovative activity of industrial enterprises of the Odessa region in the total amount of such costs in Ukraine for 2010-2016 is presented in Figure 1.5.

In the structure of costs the industrial enterprises of the Odessa region for innovation activity the share of costs for the purchase of machines, equipment and software is more than 90%. In 2014 the purchase of machinery and equipment spent 99.3%, while on research and development and the purchase of new technologies – very scanty shares. The second position is taken by non-technological – marketing and organizational costs, which can be considered conditionally innovative. That is, the innovative development of industrial enterprises in the Odessa region is based not on scientific-research developments, but on the acquisition of foreign equipment and non-technological innovations.

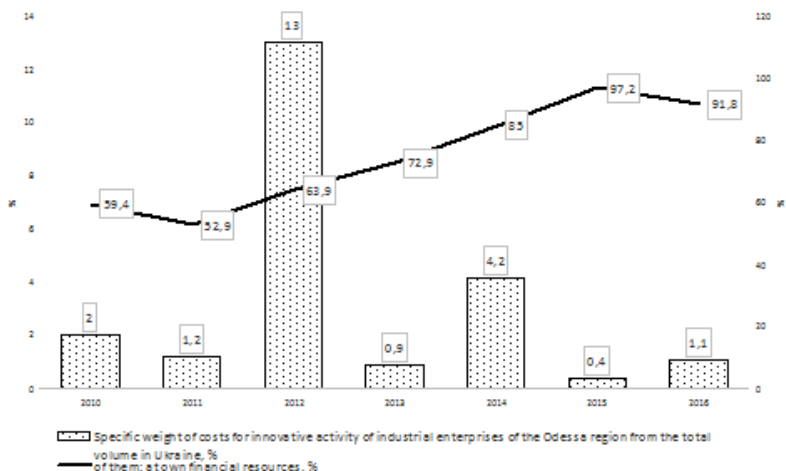


Figure 1.5 Specific weight of costs for innovative activity of industrial enterprises of Odessa region in the total volume of costs in Ukraine, %

Source: author research based on data from the State Statistics Service of Ukraine

The analysis shows that the financing of innovative activity the industrial enterprises of the Odessa region was carried out mainly for own funds.

The current situation in Ukraine differs significantly from the investment processes of developed countries, where the main drivers of development are innovations. According to experts, domestic costs in R&D in Ukraine are less than 1% of GDP, while 2.2% in the countries of Organization for Economic Cooperation and Development (OECD), 2.5% in the USA and 3% in Japan. Ukrainian indicators of financing scientific activity relative to GDP in the period up to 2014 lagged behind the average level in the EU countries almost threefold, and in 2016-2017 – four times already. Thus, in 2016-2017 in Ukraine the costs of all sectors for research and development amounted to 0.5% of GDP, while the corresponding average level for the EU countries was 2.0% (according to the Strategy “Europe 2020”, volumes funding this sphere in 2020 will be 3% of GDP). In Ukraine financing of sphere the research and development from the state budget in 2013 amounted to about 0.4% of GDP, in 2014-2015 it decreased to 0.3%, and in 2016-2017 – to 0.2%

of GDP. In 2018 is planned a slight increase in budget financing – up to 0.25% of GDP.

At the same time, the share of corporate (most effective in commercialization) costs on R & D in the USA is 2/3 of the total cost, and in Ukraine, on the contrary, more than half of the funds for research and development are the cost of the state. Budget expenditures from the total domestic costs on R & D in 2016 amounted to 33.9%; the business sector – 29.2% (in developed countries – more than 50%); funds of private non-profit organizations – 0,02; own funds of scientific institutes – 9.9%; foreign sources – 22,1% [1]. At the same time, the Ukrainian research sector is dominated by enterprises in the public sector – about 46.6% of science organizations (for comparison, in Canada – 10%, the USA – 7%), which actualizes the problem of practical implementation of innovations and meeting the needs of the real sector in innovation developments.

The world experience of financing innovative activities shows that the innovation process can successfully develop both through private and public funding. It all depends not on the nature of the source of investment, but on its effectiveness. At the same time, an important role is played by the level of development of the innovative climate in the country, the legislative base, what regulating the relations of participants in the innovation process, the development of information and material-technical support of scientific research, cooperation between the entities of innovation activity.

In the USA and European countries the share of private and public funding for innovation is roughly equal. For the system of state support of innovation in the USA in recent years characterize by the spread of program-targeted approach. At the same time, financial resources are concentrated us on the priority technological (biotechnology, energy, electronics, health), as well as in branch directions (aerospace, military-industrial, etc.). For example, in the aerospace industry on state allocations is spent over 75% of R & D. In Japan, unlike the USA and EU countries, the share of private investment exceeds 80%. The most mobile form of financing – venture capital – is based largely on private sources. Of great importance is the cooperation of private companies and the state in the form of special funds and program research on national priorities, defined by the Ministry of Foreign Trade and Industry (MFTI) of Japan. By the pace of growth in investment in the priority scientific areas Japan ranks first place in the world. In addition, in Japan has become widely used the practice of transferring to private

firms the equipment of scientific laboratories and experienced enterprises, as well as the results of studies of state institutions, universities, including scientific-technical information. In addition, when developing key innovations the private firms that produce new products based on the newest technologies are granted significant tax cuts (up to 50%) for a period from 3 to 5 years (Klimova N.V., Larina N.V., 2014).

Thus, for Ukraine financing of innovation activities can be productive both at the expense of private investment and state-owned, as well as at the expense of mixed financing (on the principles of the principle of private-public partnership). As the world practice shows, is necessary the division and clear definition of those spheres and areas that can be financed in the most effective way at the expense of each source.

Consequently, the main factors of innovation environment of the Odessa region are investigated, an assessment the nature of innovative development of industrial enterprises in the region. In the Odessa region the share of innovation-active about 4% from the number of industrial enterprises. New to the market in recent years are no more than 15-18% introduced of the innovative types of products. Innovative processes were implemented by only half of the industrial enterprises among those engaged in innovation activity. In Ukraine, against the backdrop of a general decline of innovation activity in industry during 2008-2016, more innovative activity were enterprises that belonged to the 4<sup>th</sup> technological structure. The main factors what limiting the investment activity of industrial enterprises in the Odessa region from 2012 to 2016 one can distinguish the growth of investment risks, which depend on: the complexity of mechanisms for obtaining loans for the implementation of investment projects; high interest rates on commercial loans; uncertainty about the economic situation in the country.

Generally, in general, there was a positive dynamics towards increasing the number of enterprises focused on technological innovation. At the same time there was a negative tendency towards a radical reduction of new products.

Negative dynamics are characterized by indicators of the introduction of new low-waste, resource-saving and non-waste technological processes (their share decreased for the analyzed period from 55.1% to 19.1%). Such a state of affairs negatively affects on the process of transition of enterprises to the strategy of sustainable

development, which significantly impedes the competitiveness of producers on the domestic and foreign markets. The cost structure, in terms of innovation activity, is inefficient, since it has low specific weight costs on research and development.

The inefficient structure of financing innovative activity is hindering the innovation-technological modernization of Ukrainian industrial enterprises. The main source of innovation development of Ukrainian enterprises remains its own funds, which accounted for about 90% (in 2005 – 69.5%).

The advantage of product innovations over processing (80% to 20%) means that enterprises in this activity are guided, primarily, by short-term goals, without investing in strategic projects the result of which could be breakthrough scientific developments. At present, there is a shortage of innovations that would radically change the structure of industry. Most technological innovations are mainly aimed at modernizing production.

Most enterprises remain outside the innovation process. Measures of state support for innovation-technological modernization of production and increase of production of innovative products are ineffective.

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**DOES R&D  
EXPENDITURE  
AFFECT  
INNOVATION  
PERFORMANCE OF  
A COUNTRY? CASE  
STUDY OF THE EU  
COUNTRIES**

Innovation was the focus of study of Schumpeter at the beginning of the 20th century and many economists have been studying it ever since. Theories of innovation as well as determinants of innovation and innovation potential are still developing today. However, the impact of innovation on economic growth is not only the focus of economic theory, its potential is also applied in practice. This is reflected in the policies of various countries and transnational groups.

The development of innovation theory has undergone great changes over the last 20 years since innovation is no longer understood as a process of discovery of new scientific and technological principles but rather as a non-linear learning process. This change was greatly influenced by the work of Nelson and Winter (1982), whose work *The Evolutionary Theory of Economic Change* presented the idea that innovation is defined by research programs of enterprises at times of crises. Given that existing procedures fail at the time of changes in economic and technological conditions, enterprises are looking for alternatives through an experimental learning process. The main idea behind the theory is that new knowledge is created in the context of specific institutions, with a systematic environment governed by regulations, laws, political culture and "rules of play" of economic institutions, including political institutions and activities. (Mytelka, Smith, 2002).

Enterprises introduce new products and new ways of production, organization and marketing in an effort to expand their business and increase their market share. However, other economic subjects also contribute to the development of innovation in their role as innovation actors, such as universities or the public sector that enable transfer of knowledge, research and development. This helps to increase the competitiveness of the region, which ultimately leads to the economic

growth of the country and to the higher welfare of the citizens. However, enterprises and other innovation actors encounter many problems when engaging in innovative activities. One of the most crucial barriers to the development of innovation, research and development is the funding of innovation. (Spielkamp, Rammer, 2009) Enterprises do not always have enough of their own financial resources needed to launch innovative activities, and investors avoid investing in innovative projects for a number of reasons. It is therefore necessary to not only monitor the development of innovation performance of individual geographical units, but also pay attention to the actors that create the conditions for innovation activity in the country and the sources they use to fund the innovation. Given that one of the main determinants of the innovation process is research and development, we focus on the R&D expenditure indicator when assessing funding of innovation.<sup>1</sup>

The aim of this section of the monograph is to examine the investment in R&D of key innovation actors in the EU countries (with the focus on V4 countries) following current innovation support policies. Using statistical regression, it assesses the impact of R&D expenditure on the innovation performance of the EU countries. The reason for examining this group of countries is their comparable economic level, which is also reflected in their innovation performance.

## **1 Significance of innovation actors and public support of innovation**

Economists agree that innovation is one of the key elements of economic growth of the country. (Akcali, Sismanoglu, 2015; Hall, Lotti, Mairesse, 2013) The extent and amount of R&D investment has been steadily increasing in EU countries in the recent years, as evidenced by the development of R&D expenditure in the V4 countries from the point of view of source of fund. According to the European Innovation Scoreboard 2017, all V4 countries are among the moderate innovators, meaning that their innovation performance over the period under review

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<sup>1</sup> *State and transnational authorities (e.g. EU institutions) play a key role in promoting innovation. They help maintain the right environment for innovation, invest in innovation and develop public policies to support innovation (e.g. public support programs). Despite the fact that we often regard innovation policy as an innovation policy in the narrow sense of the term - a policy supporting business R&D, risk capital financing, etc. This is only part of the set of policies that affect the innovative performance of the landscape.*

has reached values below the EU's innovation performance average.<sup>2</sup>

Investing in R&D is one of the most important determinants of the long-term economic development of the country. (Erins, Vitola, 2014) This idea is reflected in the EU policy adopted in 2010 called Europe 2020. The policy objective is to support growth and employment over the decade. Europe 2020 promotes smart, sustainable and inclusive growth as a way of overcoming the structural weaknesses of the European economy, increasing its competitiveness and productivity, and promoting a sustainable, social and market economy. One of the five strategic objectives of Europe 2020 is that by 2020 EU countries should invest 3 % of their GDP in research and development. (European Commission, 2010)

Despite the common belief, creation of innovation in not only in the hands of enterprises that directly introduce new products and production methods, but also in hands of other organizations called innovation actors. (European Commission, 2014) These organizations are involved in creation or transfer of the knowledge needed to create innovative ideas or to apply these ideas in practice. According to the studies published by the European Commission's institutions, the key innovation actors include business enterprises, the public sector, higher education institutions (universities) and private non-profit organizations. Enterprises are referred to as the main innovation actor, since they are generally involved in the innovation process the most compared to the other economic subjects. This hypothesis is confirmed within the EU, where we can see the greatest contribution of the business enterprise sector, which, in cooperation with universities and with the support of the public sector, acts as the main innovation actor. (Varga, Pisár, 2017). However, each of these innovation actors contributes to innovation at various levels of intensity, and develops various expenditure on knowledge generation and R&D.

Enterprises use human resources and knowledge from universities and the public sector and apply this knowledge in practice through the

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<sup>2</sup> *Innovation is the basis for competitiveness of enterprises, but not all enterprises are involved in innovative activities. According to the 2014 Eurostat survey, 49.1 % of enterprises in the EU and only 31.8 % of enterprises in Slovakia were involved in innovation activities (including ongoing and suspended innovation). Among the V4 countries, enterprises in the Czech Republic were the most innovative, with 42 % of enterprises involved in innovation activities. (European Commission, 2014) It is clear that more than half of the enterprises in the observed countries did not participate in the innovation activities in the period under review.*

development of technological and non-technological innovation. On average, enterprises invest approximately 1-2 % of their turnover in research and development and various innovation activities, but this share exceeds 5 % in large enterprises in some countries. (Innovation Policy Platform)<sup>3</sup>

The research activities of universities and public research institutions contribute to the development of innovation in many ways. Traditional view perceives these activities as the result of codified knowledge (i.e. publications) and knowledge captured in technological inventions and innovations innovative enterprises later take on. Direct interactions between these institutions and enterprises, notably through R&D cooperation, allow the transfer of knowledge. In addition, in recent decades, universities and public research institutions have begun to commercialize the knowledge they create, e.g. through spin-off companies or through the protection of intellectual rights, e.g. licenses. (Innovation Policy Platform). In addition, universities support two types of activities that contribute to the development of business innovations. The first is the transfer of knowledge through mobility of human capital, leading to successful corporate innovations. Universities play a significant role in educating people which enables enterprises to employ qualified and educated employees. People with higher education contribute to creation of new product and process innovation and to increase in business performance. The second type of support that universities provide to enterprises is focused on addressing the specific issues faced by enterprises, e.g. through joint research or consultancy services. (Moon, Mariadoss, Johnson, 2017) However, despite the growing importance of knowledge, European enterprises still have a limited ability to commercialize new knowledge compared to enterprises in the US or Japan. This means that even though European universities and research institutions create sufficient amount of knowledge, this knowledge is in most cases not used for social or economic purposes. (Belluci, Pennacchio, 2016)

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<sup>3</sup> *In Slovakia, 30.6 % of enterprises were involved in innovation activities between 2012 and 2014, with higher share of large corporations being involved in innovation activities (53.4 % among all large corporations in Slovakia) than share of small and medium-sized enterprises (29.3 % among all SMEs in Slovakia). In terms of the economic sector, in which the enterprises involved in innovation activities operate, fewer than a third of Slovak enterprises from the manufacturing and service sectors participated in innovation activities, but up to 41.6 % of enterprises from the information and communication services sector. (OECD, 2017).*

In addition to independent research, universities and public research institutions also engage in co-operation with enterprises in innovation and research activities. Research has shown that enterprises are forced to co-operate with external partners to expand innovation beyond their own capabilities. In this context, research identifies universities or higher education institutions as an important source of innovation. (Moon, Mariadoss, Johnson, 2017)<sup>4</sup>

The analysis of innovation actors consists of two parts - the first is the identification of key innovation actors based on their R&D expenditures in the V4 countries in 2015. The second part is the review of the development of R&D expenditure in Slovakia during the period of 2008-2015. The main examined indicator was GERD<sup>5</sup> in a form of share of GERD per GDP. The OECD breaks down the R&D expenditure of individual innovation actors from two perspectives - depending on in which sector the expenditure actually incurred (GERD by sector of performance) and depending on the source of the funds from which the expenditure originated (GERD by source of fund).<sup>6</sup> This breakdown is based on the fact that the financial resources for research and development do not always have to be spent by the same economic subject as the subject that provided these resources, i.e. enterprises can spend funds on the innovation activities that they have received from the public sector. Given that the European the commission divides R&D expenditure of innovation actors in two different ways as defined above, we examine the expenditure on both sides. The first part is the identification of key innovation actors, i.e. those economic subjects that spent the highest volume of R&D expenditure in the V4 countries over the monitored period.

As seen in Figure 1.6, in Poland, Hungary and the Czech Republic,

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<sup>4</sup> In 2012-2014, 11.1 % of SMEs and 33.7 % of large enterprises involved in product and/or process innovation activities were involved in co-operation with universities or research institutes in Slovakia. In general, in the V4 countries, co-operation with universities and research institutions was mainly done within large enterprises. The share of enterprises that co-operated with universities and research institutions, was comparable in the V4 countries with Poland being dominant in this area. (OECD, 2017)

<sup>5</sup> Gross Domestic Expenditure on Research and Development

<sup>6</sup> In the first case, the possible innovation actors are the business sector, the government, the higher education sector and the private non-profit sector. In terms of source of fund, these resources are broken down into resources from the business sector, government resources, higher education sector resources, private non-profit sector resources, and resources from abroad.

the share of R&D expenditure per GDP confirms the hypothesis that enterprises are the main innovation actor, as enterprises dominated over the other economic subjects and their investment in R&D represented more than half of total R&D expenditures spent in the country. In Slovakia, however, the situation was different in the period under review, as most of the funds invested in R&D were spent by higher education institutions, ie universities. Enterprises and the government sector in Slovakia lagged behind universities, spending roughly the same amount of financial resources on R&D. The involvement of private non-profit organizations in R&D was negligible in all countries, with their share of R&D expenditures to GDP being almost non-existent.

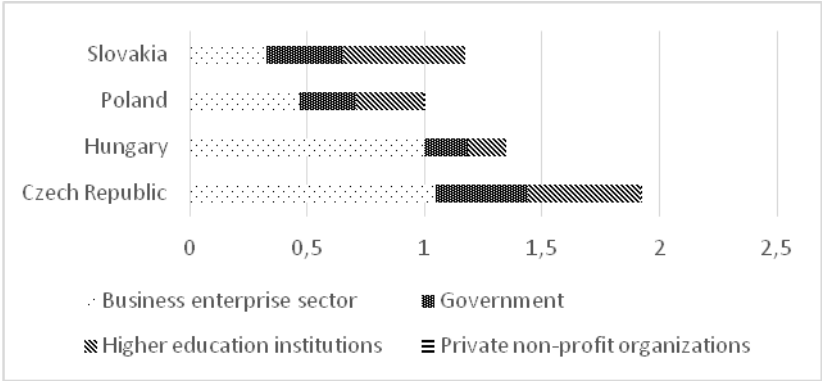


Figure 1.6 Share of R&D expenditure in the V4 countries in 2015 (by sector of performance), as % of GDP

*Source: own calculation according to the data from Eurostat*

From the point of view of the sources from which the R&D funds originated (Figure 1.7), the results are significantly different from the previous findings. The first difference is that when taking into account the sources of financing, there is also a fifth option of R&D funding which is financial sources from abroad. The second difference is the different distribution of R&D expenditures compared to the previous findings. Despite the fact that the universities dominated by spending the highest amount of R&D expenditure in Slovakia and they were also significantly represented in the other V4 countries from the point of view of the sector of performance, in terms of the origin of the funds, universities are almost negligible source of funding compared to other sectors. In the Czech Republic business sector dominated just like in the previous case, but not by as much as previously, as the share of R&D

expenditure from business sector was almost the same as the government sector and abroad. In Hungary, financial resources from the business sector prevailed. In Poland, expenditures in the government sector were dominant, followed by business expenses. Slovakia's financial resources were clearly dominated by funding from abroad. Thus, it is not possible to say that the economic subjects that spend the expenditure on R&D are the same as the subjects from which the financial sources for R&D originated.

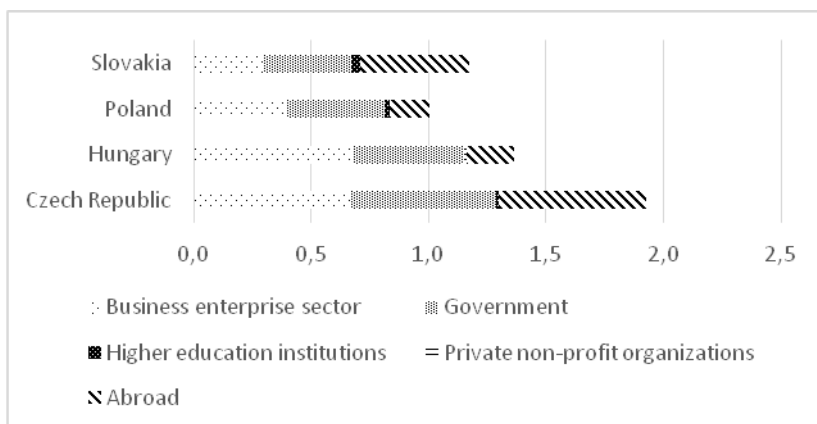


Figure 1.7 Share of R&D expenditure in the V4 countries in 2015 (by source of fund), as % of GDP

*Source: own calculation according to the data from Eurostat*

According to the development (Figure 1.8) in Slovakia from 2008 to 2015, it is possible to observe the rising trend of spending on research and development in relation to GDP of nearly all innovation actors. Until 2014, business sector spending was dominant, but has been gradually declining since 2013. The biggest change can be seen in the expenditure of higher education institutions. In 2008, universities invested in R&D the smallest amount of funds with the exception of private non-profit sector, but this volume grew steadily and exceeded spending on R&D of both enterprises and government in 2015. It is clear that universities are currently significant innovation actor in Slovakia since they spend a large amount of funding on one of the main prerequisites for innovation, i.e. research and development, which contributes to the development of innovative ideas in practice.

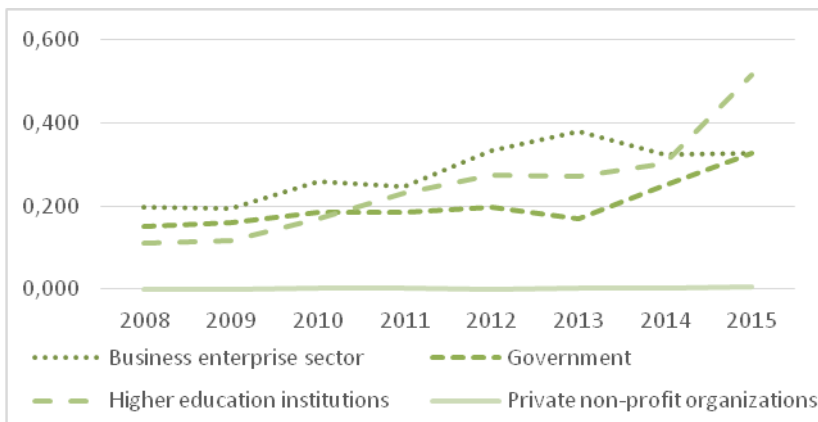


Figure 1.8 Trend in R&D expenditure in Slovakia between 2008 and 2015 (by sector of performance), as % of GDP

*Source: own calculation according to the data from Eurostat*

From the point of view of the sources (Figure 1.9) from which the funds used by the innovation actors in the R&D financing came from, the government sector was the most important source of funding until 2012. The business sector dominated in 2013 and in 2014 the government took the lead once again. In 2015, however, most of the financial resources invested in R&D came from abroad. This leads us to believe that the Slovak economy is increasingly more open in regards to research and development.

A large part of the supportive innovation policy in the observed countries is still being implemented through public support programs not only from the state but also from the transnational authorities (EU Structural Funds), as Slovakia and other V4 countries take the main initiative in innovation policy from the European Union. Innovations in these countries are not only a significant contribution to economic growth, but they generate positive externalities. (Šipikal, Pisár, 2017) However, these positive externalities also lead to the fact that enterprises are less interested in innovative activities, since their returns are lower than their social benefits. This means that in some cases, the market is unable to provide sufficient funding to develop innovation and to ensure an appropriate innovation environment.

It is therefore important to publicly support innovative activities and create effective public policies and involve the state in increasing the innovation performance of the country. However, there are also the

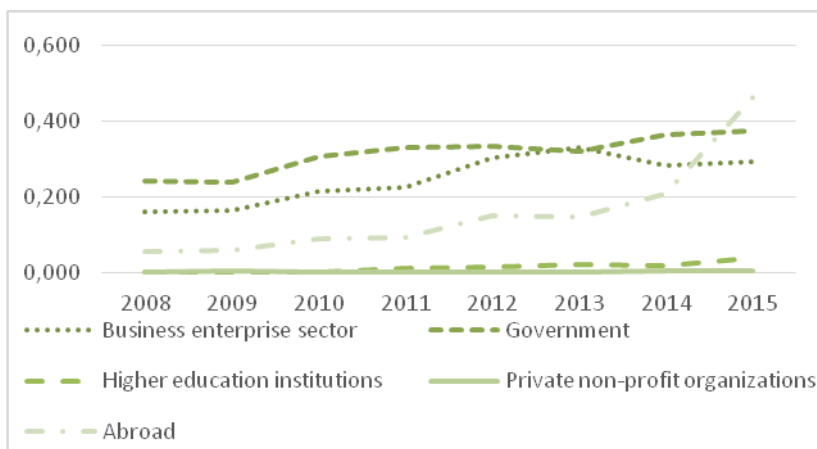


Figure 1.9 Trend in R&D expenditure in Slovakia between 2008 and 2015 (by source of fund), as % of GDP

*Source: own calculation according to the data from Eurostat*

opposite cases when public funding for innovation (e.g. from EU sources) directly replaces private funding. According to Šipikal, Pisár and Labudova (2013), this is known as the so-called substitution effect, which occurs when enterprises choose to replace the financing of investment from their own resources through public support programs. In this case, the government also supports innovative projects that would be implemented even in the absence of public support, which could result in inefficient use of these resources.

## 2 Examination of the impact of R&D expenditure on innovation performance of EU countries (regression analysis)

This part of the monograph is focused on the application of statistical regression in order to examine the impact of R&D expenditure of individual innovation actors (enterprises, government, universities and private non-profit organizations) on the innovation performance of a country. The innovation performance is represented by two different variables based on two models. These models were provided in order to compare the achieved results and see if different ways to represent innovation performance impact the results.<sup>7</sup>

<sup>7</sup> The independent variables are the data on R&D expenditure of individual innovation actors. Given the availability of data, we decided to examine R&D

Innovation performance can be quantified in a variety of ways. In practice, the innovation performance of the country is mostly quantified through complex indices. However, the use of these indices as our dependent variable in our analysis would be inappropriate, as their construction also includes research and development funding which represents our independent variable. This leads us to use simpler indicators to represent innovation performance. The results achieved using two different approaches will be compared, namely the impact of R&D expenditure on two differently dependent variables, which can be used to assess the innovation performance of the country.

The first dependent variable is the share of innovative enterprises, meaning the share of enterprises that participated in innovation activities in the given period compared the number of all enterprises in the country. Data on the share of innovative enterprises in EU countries were taken from the Eurostat database for 2014, as a survey of innovative activities in EU was conducted in 2014. These data are not available for another year which made it impossible to use panel data in our analysis. The alternative dependent variable we will use to compare achieved results is the number of patents registered with the European Patent Office (EPO) during the reference period of 2014. To balance out the size differences between countries, this indicator is used in the form of number of registered patents per capita.

Since data on the share of innovative enterprises is only available in 2014, panel data cannot be used. Even though some data (e.g. R&D expenditure) is also available for newer periods, data on the share of innovative enterprises is not available for further periods, which makes it impossible to apply statistical models over the coming years. Due to the inclusion of time lags, several models were evaluated in order to get the most accurate results. Time lags could lead to the fact that the R&D expenditure effect may not be reflected in the same period as the one when expenditure was spent (eg, R&D expenditures that incurred in 2012 may show up in innovation performance in 2013 or 2014). As the innovation performance of a country in 2014 may be affected by R&D expenditure in 2012, 2013 or 2014 individually, it is possible to assess

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*expenditure by the sector of performance for 2012-2014. All data on R&D expenditure is in the form of millions of Purchasing Power Standard (PPS) to balance the differences between price levels of countries. All the indicators are in the form of the share of R&D expenditure per GDP at constant prices in order to eliminate the differences in the size of countries.*

the effects of time lags in R&D investment.<sup>8</sup>

Several publications of various authors confirm one of the basic assumptions that the business sector spends the largest amount of R&D expenditure. Enterprises are generally considered to be the most important innovation actor and should invest in their own innovation activities, which implies that their share of R&D expenditure should dominate the funding over the expenditure of other innovation actors.

Based on Figure 1.10, we can confirm this assumption, as in almost all countries (with the exception of Greece, Cyprus, Latvia, Lithuania and Romania), R&D expenditure of enterprises is indeed dominant. Interestingly, the second most important innovation actor in terms of R&D funding is not the public sector, but universities that spent the second largest amount of funding on innovation in most countries in the monitored period. It can be observed that R&D expenditure of private non-profit organizations is negligible compared to other innovation actors. It has to also be mentioned that Eurostat does not even provide data on the R&D funding of private non-profit organizations in multiple countries. For this reason, private non-profit organizations are not included in the further analysis, since they are of little significance from a statistical or economic point of view.

In order to implement different approaches to defining innovation performance, two alternatives of the dependent variable in the form of innovation performance are used as stated above. The first alternative is the innovation performance represented by the share of innovative enterprises to the total number of enterprises in the country. The second alternative is the innovation performance represented by the number of patents registered in EPO per capita. Figure 1.10 shows a comparison of the innovation performance of the EU countries in 2014 with respect to the two selected indicators. Based on the chart, it can be observed that when comparing both indicators in terms of innovation performance, a country achieves a comparable, but not identic placement within EU countries.

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<sup>8</sup> All data is used for 28 EU countries, which means that applied models include 28 observations. In order to provide basic comparison of the state of innovation performance and R&D investment, a descriptive analysis is used. In order to investigate the relationship between R&D expenditure and innovation performance, the basic elements of the linear regression analysis are used, but we also used correlation analysis in order to eliminate the possibility of multi-collinearity.

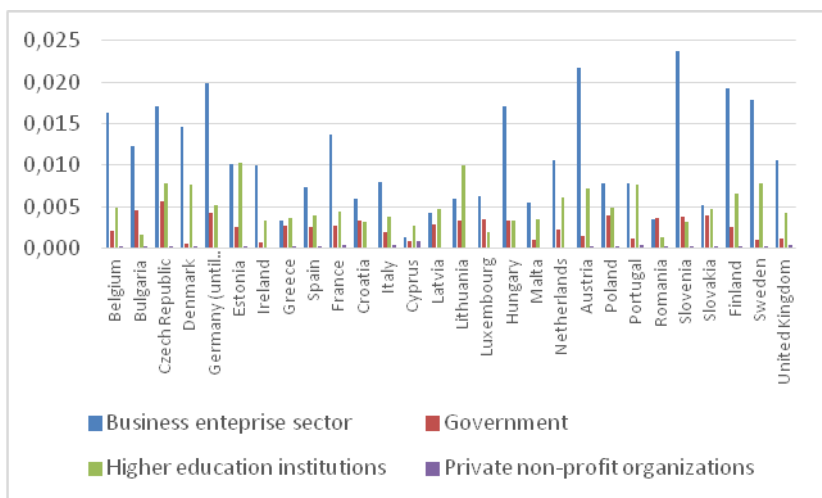


Figure 1.10 Comparison of R&D expenditure (as % of GDP) of innovation actors in EU countries in 2014

Source: own calculation according to the data from Eurostat

E.g. in terms of number of registered patents, Sweden achieves the best results, while in terms of the share of innovative enterprises, it ranked 10th among 28 countries. It is therefore appropriate to compare the results achieved by examining the impact of R&D expenditures on the two monitored variables.

When analyzing the impact of R&D expenditure by individual innovation actors on innovation performance, we used six regression models. The first three models are aimed at examining the impact of these expenditures on the first dependent variable (share of innovative enterprises) and the goal of the remaining three models is to examine the relationship between R&D expenditure and the second dependent variable (number of registered patents). The models examine the impact of R&D expenditure innovation actors spent in 2012, 2013 and 2014 individually on the innovation performance in 2014. We constructed these models due to the potential time lags that may occur in R&D funding. It is possible that R&D expenditure invested in year X will not be reflected in innovation performance in year X but in year X + 1 or X + 2, when the expenditure is actually used for innovative activities. A comparison of the basic indicators of the regression models is shown in Table 1.2.

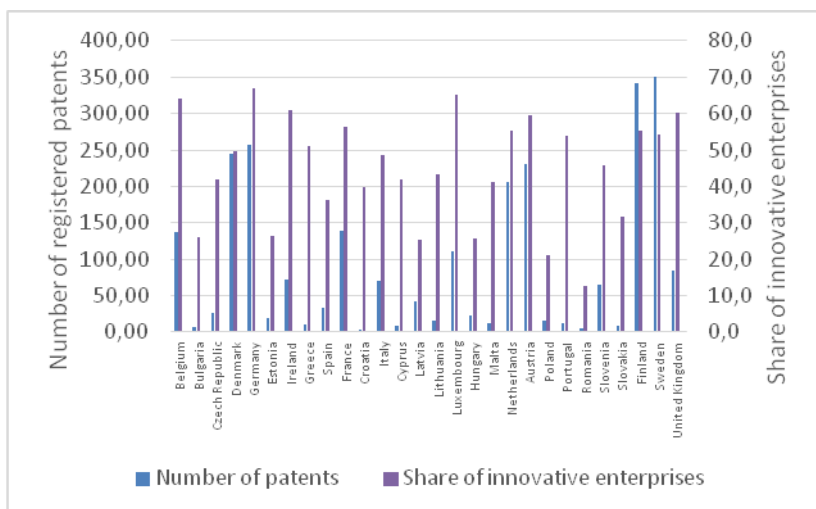


Figure 1.11 Number of patents registered in EPO per capita and share of innovative enterprises in EU countries in 2014

Source: own calculation according to the data from Eurostat

Table 1.2 shows that based on the F-statistics and the significance of p-values of all the models used, we reject the zero hypothesis about the statistical insignificance of the models. All models therefore appear to be statistically significant at all common levels of significance (5 %, 10 %). Thus, we decided to work more closely with models that reached the highest values of the adjusted determinant coefficient ( $R^2$  adjusted), which expresses how much percentage of changes in the country's innovation performance can be explained by changes in R&D expenditure of innovation actors. It can be observed that, in general, models focusing on the analysis of the impact of R&D expenditure on the number of registered patents achieved higher coefficient determinants than models that examined the relationship between R&D expenditure and the share of innovative enterprises. It follows that changes in R&D expenditure explain a larger volume of changes in patent activity than volume of changes in the innovation activity of enterprises themselves. This conclusion can be considered logical since patent activities are largely the result of enterprises' efforts to protect the results of their R&D activity, while the overall innovation activity of enterprises is influenced by a wide number of factors.

Table 1.2

**Comparison of regression models examining impact of R&D expenditure of innovation actors between 2012 and 2014 on innovation performance of EU countries in 2014**

Impact of R&D expenditure on share of innovative enterprises			
Regression model	Impact of expenditure in 2012	Impact of expenditure in 2013	Impact of expenditure in 2014
R <sup>2</sup>	0,4244	0,3625	0,3390
R <sup>2</sup> adjusted	0,3525	0,2828	0,2564
Observations	28	28	28
F	5,8997	4,5486	4,1025
Significance F	0,0036	0,0116	0,0175
Impact of R&D expenditure on number of registered patents			
Regression model	Impact of expenditure in 2012	Impact of expenditure in 2013	Impact of expenditure in 2014
R <sup>2</sup>	0,4974	0,5222	0,5416
R <sup>2</sup> adjusted	0,4351	0,4625	0,4844
Observations	28	28	28
F	7,9157	8,7442	9,4539
Significance F	0,0008	0,0004	0,0002

*Source: own calculation according to the data from Eurostat*

***Impact of the R&D expenditure on the share of innovative enterprises in the country***

Based on the results of the different regression models, we decided to further examine the first model, which reflects the impact of the R&D expenditure spent on innovation in 2012 on innovative enterprises in 2014, since the determination coefficient was the highest in this model. In this model, 35.25 % of the changes in innovation performance can be explained by the changes in R&D expenditure. We assume that the adjusted determination coefficient is higher in this model due to the time lags explained above.

As can be observed from Table 1.3, changes in the share of innovative enterprises in 2014 can be explained by more than 35 % changes in R&D expenditure of innovation actors in 2012. As can be seen from the regression model, we reject the hypothesis about the statistical significance of the impact of expenditure of universities based on the p-value of t-statistics (0.2344), but p-values of R&D expenditures

Table 1.3

**Regression model describing relationship between R&D  
expenditure of innovation actors in 2012 and share of innovative  
enterprises in 2014**

<i>Regression Statistics</i>					
Multiple R		0,651497			
R Square		0,424448			
Adjusted R Square		0,352504			
Standard Error		11,90926			
Observations		28			
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3	2510,273	836,7576	5,899703	0,003642
Residual	24	3403,931	141,8305		
Total	27	5914,204			
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	
Intercept	55,89117	7,629962	7,325222	1,45E-07	
Business sect.	11,26193	3,990411	2,822249	0,009428	
Public sector	-62,0869	18,10493	-3,42928	0,002194	
Universities	-14,5115	11,89737	-1,21972	0,234422	

*Source: own calculation according to the data from Eurostat*

of other innovation actors are satisfactorily low, which means that the regression coefficients of these indicators are statistically significant in the model. The estimation of the regression line of the model is as follows:

$$\hat{y} = 55,89117 + 11,26ps - 62,09vs - 14,51uni$$

The model shows that R&D expenditure of the business sector has a positive impact on the share of innovative enterprises. This confirms our hypothesis that enterprises are a significant innovation actor, which greatly contributes to the development of innovation performance of a country. However, it can be observed that expenditure of public sector has a negative impact on the growth of innovation performance. This means that an increase in public support for innovation in the form of public spending will lead to a lower share of innovative enterprises. This can be explained by the substitution effect that Šipikal, Pisár and

Labudová (2013) describe as a situation when enterprises decide to replace the financing of innovation with their own resources through public support programs (eg EU Structural Funds). This means that even though government expenditure on R&D is increasing, these expenditures are not being used efficiently, which leads to the fact that increase in public R&D expenditure leads to a decline in innovation performance. This can also be explained by the fact that public sector sometimes supports some enterprises at the expense of others, which may make some enterprises feel disadvantaged and thus lower their incentive to innovate.

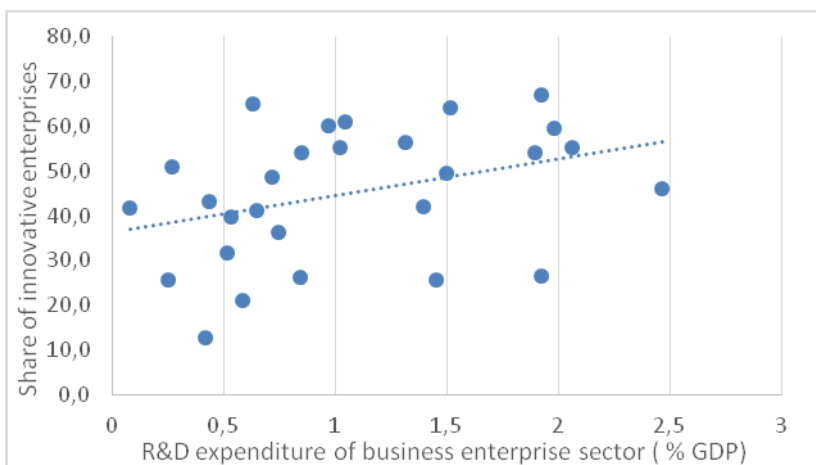


Figure 1.12 Relationship between R&D expenditure of business sector in 2012 and share of innovative enterprises in 2014

*Source: own calculation according to the data from Eurostat*

The individual analysis of the relationship between the R&D expenditure of the business sector in 2012 and the share of innovative enterprises in 2014 (shown in Figure 1.12) shows that an estimate of the regression line is:

$$\hat{y} = 36,238 + 8,22x$$

Regression line shows that if the share of R&D expenditure per GDP of the business sector increases by 1 percentage point, the share of innovative enterprises will grow by 8.22 %. Although the increase in the share of innovative enterprises appears to be high at first glance, it is important to note that the share of R&D expenditure in EU countries in

2014 reached the maximum value of roughly 2.5 % of GDP, which means that the increase in the share of these expenditures to GDP by 1 % would be more than double the increase in the cases of many countries. The correlation coefficient of the regression model of the relationship between R&D spending and the share of innovative enterprises is 0.3590, meaning that there is a moderate direct dependence between these variables.

### ***Impact of the R&D expenditure on the number of registered patents in the country***

The regression model aimed to examine the relationship between R&D expenditure of innovation actors and the number of registered patents in the country monitors the impact of R&D expenditures incurred in 2014 on patent activity level in 2014. We decided to examine this model further since it has the highest coefficient of determination (0,4844) among the examined models. This means that the changes in R&D expenditure in 2014 have explained up to almost half of the changes in the patent activity of the EU countries in the same year. Even though the problem of time lags was present in the previous examination of the impact of R&D expenditure on the share of innovative enterprises, we conclude that time lags are not present in the impact of R&D expenditure on the patent activity. This can be explained by the fact that some of the innovative activities may take some time to finish, but enterprises are trying to register patents to protect the outputs of their R&D activities as soon as possible.

The results of the regression model (Table 1.4) exploring the impact of R&D expenditure on the number of registered patents are similar to those of the previous model examining the impact on the share of innovative enterprises. P-values of t-statistics show statistical significance of expenditure of the business and public sector, while expenditure of universities appears to be statistically insignificant. The estimate of the regression line of the model is as follows:

$$\hat{y} = 18,41 + 110,63ps - 274,27vs + 45,95uni$$

As in the previous case, it can be noted that while R&D spending of enterprises has a positive impact on the number of patents registered in the country, public sector spending has negative effect on the dependent variable. To further examine the impact of R&D expenditure of the business sector on the number of registered patents, we present the

Table 1.4

**Regression model describing relationship between R&D  
expenditure of innovation actors in 2014 and number of patents  
registered in 2014**

<i>Regression Statistics</i>					
Multiple R			0,735968		
R Square			0,541649		
Adjusted R Square			0,484356		
Standard Error			76,45805		
Observations			28		
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3	165797,6	55265,88	9,453891	0,000263
Residual	24	140300	5845,834		
Total	27	306097,7			
	<i>Coefficients</i>		<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	18,40502		49,5312	0,371584	0,713463
Business sect.	110,6301		25,02561	4,420677	0,000181
Public sector	-274,274		113,8086	-2,40996	0,023981
Universities	45,94917		66,02779	0,695906	0,493172

*Source: own calculation according to the data from Eurostat*

estimate of the regression line:

$$\hat{y} = -28,37 + 109,35x$$

which means that if the share of R&D expenditure of enterprises per GDP increases by 1 percentage point, the number of registered patents per capita will increase by 109.35. The correlation coefficient of the relationship between R&D expenditure and the number of registered patents (0.6368) shows a moderate direct dependence between the observed variables.

We also performed the analysis of the inverse correlation matrix in all regression models including multiple independent variables in order to examine the presence of multicollinearity. The results lead us to the conclusion that multicollinearity did not occur in the models, since the values of the diagonal values of the inverse matrix in both cases reached values below 5.

## Conclusions

Conducted analysis leads us to believe that business enterprises are the most significant innovation actor that spends significant amount of expenditure on R&D in the V4 countries, with universities lagging closely behind in this regard. However, the funds used to finance these innovation activities mostly come from government or abroad.

The impact of investment in R&D on innovation performance of EU countries is examined by analyzing the volume of R&D expenditure of innovation actors, whether they come from business, public or higher education sector. It was proved that R&D expenditure of enterprises has a positive impact on innovation performance in the EU countries; the impact of public spending on R&D on innovation performance was negative.

One of the key aspects of the negative effect of public expenditure is the effectiveness of support programs for innovation of the state and transnational groups (e.g. support programs from EU sources in the form of grants), as they can be considered as less effective tools in the period under review. In the area of innovation support, there is a frequent occurrence of a substitution effect, mainly because the supported projects usually occur in a particular sector of specialization. This results in higher growth of public spending in R&D than private innovation funding. However, public support methods are constantly evolving, with one of the latest concepts, the concept of smart specialization, being actively pursued in shaping more effective support for innovation from the European Union's resources under its structural funds. This replaces traditionally space-neutral support from these sources.

In this respect, it is important to consider a more significant application of the Europe 2020 initiatives and indirect support schemes (in particular through the European Commission's EIF initiatives in the area of microloans and guarantees), which would effectively complement the group of public support instruments over grant funding, especially in the V4 countries. These instruments would positively influence the competitiveness of enterprises and, ultimately, the increase in R&D investments of enterprises and the innovation performance of the country itself.

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## **LESSONS IN ECONOMIC DEVELOPMENT FROM SOUTH KOREA**

### **Introduction**

Since the mid of the 1960s a group of East Asian countries (Hong Kong, Singapore, South Korea, Taiwan), the so-called “Four Dragons”, “Four Tigers” or the “Gang of Four” (Easterly 1995), experienced a period of significant economic growth for more than three decades. Such a “miracle” (Lucas 1993; Fogel 2009) achieved by this group of newly industrialized economies in the 1990s was followed by other countries, such as Malaysia, Thailand, and Indonesia.

Consequently, academics and practitioners worldwide have tried to understand the East Asian model of economic development and to identify its main characteristics. On the one hand, some researchers asserted that the miraculous economic performance of the East Asian countries was mainly based on unique and specific institutional structures (Hayami and Aoki 1998). On the other hand, others claimed that late-industrializing countries borrowed technology from developed economies and underwent higher rates of economic growth than those of early starters (Gerschenkron 1962).

However, few people could deny the exceptional economic development of East Asian newly industrialized economies in the above mentioned period. For example, South Korea and Taiwan succeeded in quadrupling their shares of world’s gross domestic product (GDP) (Chowdhuri and Islam 1993) and in making the shift from underdeveloped economies to complex industrial economies (Castel-Branco 1996). Their success generated a plethora of studies which attempted to explain the causes of that impressive economic development and attributed their economic performance to various factors such as rapid capital accumulation, high rates of savings and

investment or export-oriented policies (Asien 2015; Lee 2016; Lajčiak 2017; Kozlova and Noguera-Santaella 2017; Santacreu and Zhu 2018). In this respect, the research intends to present the economic experience of South Korea, one of the famous “Asian tigers”, but also one of the world’s poorest countries in the 1960s, and to extract some lessons to be learned from its outstanding economic development.

### **Achieving rapid economic development: The case of South Korea**

At the end of Korean War in 1953, South Korea was a poor country and its infrastructure was almost totally destroyed. The building of modern South Korea started from ruin and severe poverty as “the Korean war had made a third of the population homeless; orphaned children roamed the streets looking for food; GDP per capita was far below \$100; and, the government was utterly dependent upon foreign aid, principally from the United States” (Tudor 2012, p. 66). Korea’s phenomenal transformation from an underdeveloped economy to a highly competitive economy necessitated huge efforts from all stakeholders (e.g., government, companies, public institutions, people, etc.). With a population of more than 50 million people and a surface less than 100,000 square kilometers (Table 1.5), today’s Korea occupies the 18<sup>th</sup> place in the world according to the Human Development Index (United Nations Development Programme 2016) and the 26<sup>th</sup> place in the world according to the Global Competitiveness Index (Schwab 2017).

During the 50-year period that followed the Korean War there were several stages in the Korea’s economic development (Young-Iob 2007):

- The period 1953-1961, characterized by slow economic recovery and modest rates of economic growth. In 1960, the industrial production reached the prewar level and Korea obtained a GDP around \$4 billion (Table 1.6).
- The 1962-1971 period, considered as a decade of transition from a subsistence economy to semi-industrialized one. The beginning (1962-1964) represented the “takeoff” period and inaugurated the first ambitious five-year economic plan directed toward economic growth. The average GDP growth rate surpassed 7 percent and the GDP per capita almost doubled in that period (Table 1.7 and Table 1.8). The second five-year plan (1967-1971) brought even higher economic growth and witnessed the true entrance of South Korea in the international trade.

Table 1.5

**Socio-economic indicators of South Korea**

<b>Indicator</b>	<b>Value</b>
Area	99,720 sq. km.
Population	51,181,299 (July 2017 estimation)
Urban population	82.7 % of total population (2017)
Languages	Korean, English
Religions	Protestant 19.7 %, buddhist 15.5 %, catholic 7.9 %, none 56.9 %
Age structure	0-14 years 13.21 %; 15-24 years 12.66 %; 25-54 years 45.52 %; 55-64 years 14.49 %; 65 years and over 14.12 %
Life expectancy at birth	82.5 years
Unemployment rate	3.8 % (2017 estimation)
GDP at purchasing power parity (PPC)	\$ 2.027 trillion (2017 estimation)
GDP per capita at PPC	\$ 39,400 (2017 estimation)
GDP composition by sector of origin	Agriculture 2.2 %, industry 38.8 %, services 59.1 % (2017 estimation)
Labor force	27.47 million (2017 estimation)
Labor force by occupation	Agriculture 4.9 %, industry 24.1 %, services 71 % (2016 estimation)
Inflation rate	1.9 % (2017 estimation)
Exports-commodities	semiconductors, petrochemicals, automobile/auto parts, ships, wireless communication equipment, flat displays, steel, electronics, plastics, computers
Imports-commodities	crude oil/petroleum products, semiconductors, natural gas, coal, steel, computers, wireless communication equipment, automobiles, fine chemicals, textiles
Exports-imports	\$ 552.3 billion- \$ 448.4 billion (2017 estimation)

*Source: Central Intelligence Agency, 2018*

Table 1.6

**The evolution of South Korea's GDP in the period 1960-2016**

<b>Year</b>	<b>GDP (billion, current US\$)</b>
1960	3.958
1965	3.12
1970	8.999
1975	21.705
1980	64.981
1985	100.273
1990	279.349
1995	556.131
2000	561.633
2005	898.137
2010	1,094
2011	1,202
2012	1,223
2013	1,306
2014	1,411
2015	1,383
2016	1,411

*Source: World Bank, 2018a*

- The 1972-1980 period or the so-called “industrial catch-up” period, characterized by an exponential increase of GDP (Table 1.6) and GDP per capita (Table 1.7). However, the economic growth rate decreased sharply at the end of the period due to the oil crises (Table 1.8). The Fourth Republic, instituted by the President Park Chung Hee, inaugurated “the work of laying the foundations of a nation-state that could survive on its own” (Cho and Kim 1991, p. 28).
- The 1981-1996 period, regarded as a period of ups and downs. On the one hand, Korea's GDP climbed very rapidly (Table 1.6) and exports soared in the period 1983-1988. On the other hand, the trade balance registered negative values in the period 1989-1996.

*Table 1.7*

**The evolution of South Korea's GDP per capita in the period 1960-2016**

<b>Year</b>	<b>GDP per capita (current US\$)</b>
1960	158.237
1965	108.704
1970	279.125
1975	615.201
1980	1,704.47
1985	2,457.328
1990	6,516.306
1995	12,332.979
2000	11,947.579
2005	18,639.522
2010	22,086.953
2011	24,079.789
2012	24,358.782
2013	25,890.019
2014	27,811.366
2015	27,105.076
2016	27,538.806

*Source: World Bank, 2018b*

- The 1997-2003 period, characterized by major economic complications. The Korean economy was severely hit by the financial crisis of 1997. Corporate financial difficulties and bankruptcies combined with foreign capital flights forced South Korea to request external aid from the International Monetary Fund. Korea's GDP decreased abruptly in the period 1996-1998 and its GDP growth rate reached a negative value (-5.47%) in 1998 (World Bank 2018c). However, industrial progress and growing exports allowed a rapid economic recovery.

In half a century (1953-2003), South Korea witnessed an amazing transformation from a poor country into a world economic power. The country underwent a miraculous economic development and achieved major advances in the global economic arena. In this sense, Korea's successful story has provided some important and useful lessons in economic development for other countries as follows:

Table 1.8

**The evolution of South Korea's GDP growth rate in the period  
1961-2016**

<b>Year</b>	<b>GDP growth rate (%)</b>
1961	6.882
1965	7.184
1970	9.997
1975	7.864
1980	-1.701
1985	7.75
1990	9.811
1995	9.571
2000	8.924
2005	3.924
2010	6.497
2011	3.682
2012	2.292
2013	2.896
2014	3.341
2015	2.79
2016	2.828

*Source: World Bank, 2018c*

- The developmental state. The Korean model of authoritarian corporatism succeeded in designing, implementing and promoting a developmental state that transformed a poor country into a prosperous one. In fact, “the blending of political rule with the economic interventions of the government bureaucracy provided a comprehensive concept to reflect the interpenetration of polity and economy salient in the Korean case” (McNamara 2002, p. 12).
- Strong political leadership. It is said that “South Korea’s politics is leader-centric: the presidency has been the heart and mind of the country” (Kim 2007, p. 113). The 18 year-presidency of Park Chung Hee, from 1961 to 1979, created a stable and trustful political environment. In spite of his autocratic rule, President Park remained an emblematic political figure for Koreans as an active and capable leader, and a man of strong will and commitment. He placed the highest priority on the development of the economy and, therefore, gained a significant popular

support until the end of his regime. The 1972 Korean Constitution, called Yushin (Revitalizing), allowed President Park to complete the process of Korea's modernization in a similar way with the Meiji modernization of Japan (Cho and Kim 1991).

- Close and extensive cooperation between government and businesses. By maintaining political order to make rapid economic growth possible, the Korean presidency and government understood profoundly the need to create special industrial and trade zones that enabled Korean companies to flourish. Also, by controlling the banks, the government had the possibility to provide preferential loans to Korean companies.
- The Chaebol approach of the economic system. Highly influenced by Confucianism (e.g., the father-son relationships) and supported by the state, the Chaebols were powerful and rigidly hierarchical companies that dominated the Korean market. In time, Chaebols, such as Samsung or Hyundai, became competitive on a global scale. Also, the Korean government undertook the measure of designating the top ten companies to function as general trading companies (GTCs) in 1975. Patterned after the Japanese Shogogaisha (trading companies), they aimed to strengthen the Korean export activities and to reduce the competition among domestic companies (Cho and Kim 1991).

## **Conclusions**

One of the so-called “Four Asian Tigers”, South Korea typified a Japanese-inspired model in the period 1953-2003. However, there were Korean specific features such as the authoritarian political leadership exercised by several presidents during the post-war period. The prominent state role in Korea's impressive economic development proved to constitute a key element in achieving the status of a global economic power at the end of the past century. The state-led capitalist development succeeded in ensuring the creation of a prosperous Korean society in less than a half of century.

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## Chapter 2

# MECHANISMS FOR ENSURING THE COMPETITIVENESS OF ECONOMIC SYSTEMS

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## MARKETING COLLATERAL FOR COMPANIES COMPETITIVENESS

The modern economic space is characterized by dynamism and instability of markets, sharp aggravation of competition that is caused by the development of the digital economy, globalization processes, freedom of capital overflow and labor migration, expansion of consumer demand diversification, reduction of the life cycle of goods, and a rapid increase in the role of innovation. The underestimation of the role of marketing collateral hampers competitive development, the introduction of new types of products, the expansion of segments of sales markets and the like. Effective use of marketing to ensure an appropriate level of competitiveness will allow the company to change the quality and economic parameters of products in accordance with consumer demands and market trends.

In these conditions, it is natural to increase the interest of scientists and practitioners in marketing aspects in the context of increasing the competitiveness of companies. We find out such interesting proposals in the studies by well-known scientists such as I. Ansoff, L. Balabanova, M. Bilopsky, A. Voronkova, N. Krasnovkuska, R. Mansurov, I. Poddubny, M. Porter, R. J. Schumpeter, K. Jankowski, etc. In particular, they note that the use of marketing in combination with management tools can provide the company with persistent competitive advantages in the market. Companies should build their competitive strategies based on the basic postulate of marketing to produce what can be sold and

satisfy the needs and desires of customers, and not sell what can be worked out. F. Kotler argued that “marketing is the sphere of rapid definition of tasks, attitudes, strategies and programs. Each company must periodically reassess its general approach to the market, using for this purpose a technique known as marketing audit” [4, p.18]. Most researchers recognize the dependence of the level of competitiveness on technical and economic components, but the influence of non-material components is understated, although their role with the current aggravation of competition is significantly increased. At the end of the last century domestic companies perceived marketing collateral as a tool for improving sales or advertising methods. But today it became obvious that marketing is the basis for a multi-vector process of increasing competitiveness in each company. That is, marketing collateral includes: formulating and stimulating demand, developing strategies for each of the business units, managing competitive advantages. L. Balabanova argues [1, p.130] that in order to increase the competitiveness of the company it is necessary to choose a competitive advantage strategy and implement it through the development and use of an integrated company competitiveness management system based on marketing. J. Hamel and P. Doyle accentuate that marketing and management are concepts characterized by creativity, flexibility and the ability to adapt quickly to a changing functioning environment [2].

Marketing collateral for the company's competitiveness is a combination of interrelated elements of marketing activities that ensure the long-term competitive advantage for companies by meeting specific needs and demands of consumers with the aim of achieving (maintaining, strengthening) relevant competitive positions in the market.

Consideration of the structure of marketing collateral for the company's competitiveness allows to group marketing tools for strategic and tactical activities. D. Hussey notes that strategic marketing is an active tool in the process of company development and ensuring its competitiveness, and should prevail in the structure of the overall strategy of the company [3]. J. Lamben also adheres to this position and emphasizes on the effectiveness of strategic marketing in the process of the market environment analyzing and the development and marketing of goods. Everything else in the process of company management should be regulated by tools of the company's overall strategy [6]. At the same time, we recall that the operational activity, despite its resource intensity in terms of time and human resources, should not prevail over

the implementation of strategic efforts, but rather should focus on the fulfillment of long-term objectives of the company using marketing tools in a competitive environment [2].

Companies can use two types of marketing: product marketing, focused on a specific product that has a high level of competitiveness, and consumer marketing, targeted at a certain group of consumers. Such integration of marketing means provides that the product and the consumer should be created simultaneously. The consumer must receive products to meet his own needs, which he himself has not yet fully realized.

In accordance with the need for strategic competitive development of the company, brand management, brand building, maximum proximity to customers' requests, it is advisable to use key principles of marketing collateral for companies' competitiveness: systemic; scientific; complexity (marketing-mix) of moderate risk; orientation; the inclusiveness of all levels of government; balance of tasks and resources; increase of intangible value of the company; adaptability; innovativeness; alternative development options; targeting; client-focusedness; purposefulness; unified positioning; meeting the rational needs of consumers; systematization; flexibility in the dimension of goals. At the same time, a certain balance of external and internal development opportunities is maintained to achieve success in competition, maximize the current and long-term results of the company, etc. [5, p. 292].

Compliance with these key principles of marketing the competitiveness of the company requires the company management to use the foundations of strategic marketing to support the process of forming competitive advantages for the company. However, the role of tactical marketing is important, which allows maintaining an appropriate level of competitiveness, regulating the stages of the product life cycle and the like.

The process of marketing collateral the competitiveness of each particular company will be determined depending on many internal and external factors, available opportunities and alternatives.

Marketing collateral for company competitiveness management includes:

- the organizational block of marketing activity of the company;
- the block of marketing researches of competitiveness of the company;
- block of developing strategies and plans to improve the

competitiveness of the company.

Setting the goal of marketing collateral to improve the competitiveness for the company should be based on the realization of its intentions, taking into account the identified opportunities. The definition of the main landmarks and tasks depends on the life cycle of the company. According to its life cycle, the company develops a set of marketing measures that include various strategic alternatives through which the company can improve its competitiveness.

Marketing collateral for the company's competitiveness should be aimed at: neutralizing (overcoming) or limiting the number of destructive factors of influence on the level of the company's competitiveness by forming protection against them; use of positive external factors of influence for building up and realization of competitive advantages of the company; ensuring the flexibility of management actions and decisions – their synchronization with the dynamics of the negative and positive factors of competition in a certain market [7; 8].

Summarizing existing studies of domestic and foreign scientists, we are convinced that the features of modern marketing collateral for the competitiveness of a company should be considered:

- the transformation from marketing transactions to marketing relationships;
- the long-term relationships of companies with their customers;
- the development of consumer democracy;
- the emphasis is not on finding new ones, but preserving existing customers;
- the individualization of marketing activities;
- the orientation of companies to service their customers throughout their life cycle;
- interactive forms of communication with customers;
- the replacement of the company's attitude to one or another market share for the attitude to a particular client circle;
- the formation of client databases;
- the joint creation of consumer values;
- the marketing support, that is an important task for all employees of the company [3, 7, 8].

The main feature of modern marketing collateral for the company's competitiveness is the target orientation and complexity, which is usually realized through the use of a marketing mix, which includes the following tools: goods, price, distribution channels and

communications. At the same time, the mix of the product has the following components: quality, assortment, brand, service. The price mix consists of the following elements: prices, credits, discounts. Mix distribution channels that mean the distribution channels and logistics (transport, warehouses, delivery time). Communication mix as the main constituent elements uses: advertising, sales promotion, public relations, personal selling [4].

The marketing collateral for the companies' competitiveness dynamically develops mainly due to the development of communications and channels for promotion and distribution of products. At the same time, in recent years new directions of marketing collateral for the company's competitiveness have been formed, namely:

- the improvement of product quality, introduction of modern management systems;
- the development of production technologies, innovations introduction;
- the improvement of marketing collateral on the principles of partner marketing, activation of marketing efforts;
- the transition from the marketing collateral of the advance to the communication support due primarily to the development of external communications of companies;
- the development of customer confidence in business reputation, increasing customer loyalty to the brand and the image of the company, the use of the concept of socially responsible and internal marketing.

Fundamentally new tools for marketing collateral the competitiveness of an company, in comparison with the classical concept of "4P" are the following: instructions, claims, communications, efficiency, image, technological conveniences, social networks, price flexibility, service, lobbying, remote communications, price attractiveness, storage conditions, partnership relations, information relations, public opinion, corporate identity, qualifications, personal ethics and reputation of the staff, voluntary relations with abusers, their satisfaction and loyalty, the popularity of the brand, the evaluation of marketing costs.

To create the effective marketing collateral for the competitiveness of a company, it is necessary the formation of an appropriate concept that provides for the justification of a chain of successive tasks and activities of a theoretical and practical nature:

- the choice of the marketing tools type to conquer the market, the use of various strategic marketing alternatives depending on market

conditions;

- the development of the market activity of the company and the identification of unmet consumer needs;
- the ensuring the progress of its own technological development;
- the use of modern digital technologies to search for innovative ideas and accelerated innovation providers;
- the permanent segmentation of the market on the basis of customization and a multi-criteria modular approach, the search for new market niches for new products;
- the client-focusedness and creation and satisfaction of the needs and demands of existing and potential consumers, who are offered competitive market solutions;
- the assessment of the capacity of market segments and trends to determine the volume of production and the rate of growth in the output of new products;
- the formation of price policy, the establishment of prices for new products in accordance with demand and market conditions;
- the creation of strategically oriented divisions with the involvement of strategists, innovators, marketers, analysts that will allow to solve complex problems of planning, competitive development, financing of new ideas and promotion of goods on the market;
- the deployment of broad promotional activities to promote new products on the market.

It is thanks to a combination of benchmarks, opportunities and strategic alternatives that it becomes possible to develop new technological solutions for solving existing customer needs, as well as to find new areas of application and create new sales markets. At the same time, the well-known coordinate system developed by D. Abell [9] makes it possible to simulate the application of various technologies and consumer functions to different groups of consumers and thereby predict the success of the concept of effective marketing collateral for the company's competitiveness, taking into account the information obtained about customers, competitors and costs.

To develop a concept of effective marketing collateral for the company's competitiveness it is necessary to form an information array based on:

- economic and financial indicators that determine the demand for products (in particular, the number of people and trends, income per capita and consumption per capita, gross domestic product per capita and its annual growth, income distribution by category and age, etc.);

- assessments of the state economic policy, legal framework concerning consumption, production, import and export of commodity groups, standards, customs restrictions, taxes, as well as subsidies and other forms of incentives, lending, currency and patent regulation;
- characteristics of resource providers;
- assessment of domestic production, its technology, scale, productivity, including the production of innovative products intended for domestic consumption;
- identification of resource and time constraints;
- estimation of products import and export volumes;
- defining groups of scarce products and resources;
- assessments of competitors and their market positions;
- characteristics of consumer behavior: customs, habits, reactions (individual and collective), as well as trade practices.

This way evaluates the existing and future needs of consumers, for which competing companies can offer a variety of combinations of their products and services. This approach involves a wide range of possible combinations of Hardware and Software. New business combinations using modern digital technologies provide the opportunity to offer fundamentally new products and services. In particular, the integration of manufacturing, computer, measuring, communicative, as well as robotics is the basis of the concept of CIM (Computer Integrated Manufacturing), which allows to significantly increasing the flexibility and performance of operational and marketing activities.

The implementation of the proposed concept of effective marketing collateral for the company's competitiveness allows:

- to generate additional competitive advantages for the company;
- to bring internal development opportunities into external ones that are generated by the market environment;
- to support the complex stability of the strategic management system for the innovative development of the company by integrating the marketing tools in the company's activities;
- to form a strategic vision of the place and the role of the company in the market;
- to increase the efficiency of innovation, market, financial activity on the basis of the formation of a marketing support system for competitiveness;
- to develop alternatives to an adaptive strategy of the competitive development;
- to increase the efficiency of functioning due to the growth of the

market share and the intensification of innovative development;

- to monitor the development of market conditions and behavior of competitors and to make appropriate adjustments in the overall strategy.

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**THE UKRAINE'S  
COMPETITIVENESS  
ENHANCEMENT IN  
CONDITIONS OF  
SUSTAINABLE  
ECONOMIC  
DEVELOPMENT**

**Target setting.** The competitiveness of the national economy is one of the most influential concepts of economic development and practical

policy, since it not only covers purely economic indicators, but also assesses the economic outcomes important for the stable growth of non-economic phenomena such as the political processes quality and society governance, the education level, the scientific base, rule of law, culture, value system, information infrastructure, etc. Competitiveness enables the national economy to compete successfully in the domestic and foreign markets. The presence of powerful competitors and the increase in requirements for product quality generates the objective need to country competitive growth [1].

The national competitiveness growth is the goal of state economic policy and an instrument for implementing a sustainable economic development model. The current economic situation in Ukraine determines economic growth as the main priority of the country's development. Expanding the European integration ties of Ukraine, strengthening the dependence of the national economy on the globalization processes and, as a consequence, increasing international competition actualizes the national competitiveness development issues.

**Actual scientific researches and issues analysis.** Studies of theoretical and applied aspects of competition, global competitiveness of the national economy were carried out by foreign scientists such as E. Warner [2], M. Porter [3], J. Sax [2, 4], G. Hamel [5]. A significant contribution to the methodology development of the national economy competitiveness was made by Ukrainian scientists such as S. Voitko [6], M. Zgurovsky [7], O. Matusova [8], N. Orlova [9], I. Sitnik [10], A. Styopochkin [10], T. Khvorost [1].

The issue of sustainable economic development is being addressed by foreign scientists within the framework of the international organizations projects of the United Nations, the EU, the World Bank and a number of national institutions in the developed countries, as well as by national scientists who work at scientific institutions and practitioners. Among those who studied the problems of Ukraine's economy on the way to sustainable development and directions of their solution, there are S. Bila [11], L. Kovalenko [12].

However, despite the significant achievements in this direction, the issue of Ukraine's competitiveness ensuring is multi-vector, and therefore requires further development and research in the context of the world economy global transformations.

**The purpose of the article.** The purpose of the article is to determine the directions of increasing the competitiveness of Ukraine on the basis of economic national and international indicators analysis in

conditions of sustainable development.

**Statement of basic materials.** The country competitiveness is due to globalization processes and the international division of labor, using production factors and the country's place on the world market. It provides the state with the ability to compete and take competitive advantages over other countries [6].

The national economy competitiveness is the ability of the economic system to ensure the social and economic optimality of any influence of internal and external factors, which manifests itself in a high social effect due to the quality of life growth in the country [1].

A lot of authors consider the concept of national competitiveness as the country ability to provide sustainable economic development. In his writings J. Sachs notes that the competitiveness of the national economy is characterized by the presence of a healthy market in the country, factors of production and other macroeconomic characteristics that determine a stable economic environment [4].

Specialists of the Organization for Economic Cooperation and Development define this concept as a measure of the country's ability to produce goods and services that meet world requirements while simultaneously maintaining or enhancing the real incomes of their citizens in a free and fair market in the long term.

The world economic literature, which examines the economic growth issues and factors in its dynamics, determines the system of factors that affect the level of competitiveness. Therefore, among the factors the government efficiency, business efficiency, economic performance and the infrastructure conditions are distinguished. These factors enhance the country competitiveness.

The assessment of the economies competitiveness in different countries is conducted mainly on the basis of business climate monitoring, public administration research, the degree of economy globalization, the level of economic freedom, the level of human potential development, the level of corruption in society, etc.

Currently, the methods used by the International Institute for Management Development (IMD) (Lausanne, Switzerland), the World Economic Forum (WEF) in Davos (Switzerland) and the Institute of Strategies and Competitiveness at Harvard University (USA) are increasingly being used to assess the level of country competitiveness. Each state uses its own research methodologies and criteria for assessing the competitiveness, and world indexes are used for rating assessment. More often, as a global assessment of the countries competitiveness at

the world level, the WFF methodology is applied, which is defined by the Global Competitiveness Index (GCI). GCI is a set of key indicators for sustainable development: institutional, infrastructure, macroeconomic environment, health and primary education, higher education and training, market efficiency, labor market efficiency, financial market development, technological readiness, market size, business development level and innovations [13].

The analysis of the key indicators of sustainable development for 2016, conducted by WEF, explains in more detail that the ten leading countries are characterized by high indicators of quality of life and safety, as well as high indicators of economic, environmental, social development and harmonization. Amidst the G7 countries, the three countries are among the top ten: Germany, Canada and Japan, while other countries have a rather high level of sustainable development. For BRICS group countries, the level of sustainable development is "below average". This is due to the low level of quality of life and its components. For the outsider-countries, the characteristic feature is the low values of all indicators. Thus, Niger has the lowest indicator of environmental development, in the Central African Republic there are low economic and social indicators. Three places at the end of the list are occupied by countries with high levels of conflict in the territory, and, therefore, the safety component of life is equal to 0. Although Ukraine, Turkey and Mexico have a zero safety component, but due to their comparatively acceptable quality of life the countries have a relatively better level of sustainable development [7].

Ukraine has the major problems with the main indicators that characterize the infrastructure development, the macroeconomic environment and indicators that characterize the country financial market development. The economic growth in Ukraine is still unsustainable. In 2016, most of the economic indicators, which were among the lowest in 2015, tended to increase. It suggested that the country was overcoming the economic crisis caused by macroeconomic imbalances in recent years. The large state budget deficit, the external debt growth, the banking crisis, the hryvnia devaluation, the consumer price index growth (in the average annual measurement) by 48.7% and the gross domestic product reduction by 9.8% were just some of the obstacles that Ukraine faced in 2015. However, fiscal stabilization, tight monetary policy and international financial support largely contributed to macroeconomic stabilization [14].

At present, Ukraine is undergoing reforms that must be in line with

the declared strategic goals of sustainable development proclaimed at the global level, which involves finding a balance between economic, environmental and social components of development as well as securing peace and social harmony.

The country's economic growth implies creating a favorable investment climate and maintaining macroeconomic stability by continuing fiscal consolidation. The key to economic growth is the creation of equal, transparent and predictable business running rules, the inclusion of Ukraine in regional and global value-added chains, creation of conditions for the high-tech industries development, the investments into the Ukrainian economy attractiveness enhancement and the export potential of Ukrainian producers' development [14].

The process of forming national strategies in the new realities of Ukraine coincided in time with the sustainable development goals adoption (SDG) and their priority in the national reform agenda determination. The Ministry of Economic Development and Trade, on behalf of the Government of Ukraine in partnership with the United Nations (UN), began the process of nationwide local consultations on the SDG, which lasted until 2016 in Kyiv and ten regions of Ukraine. About 1,000 representatives of government (national and local), academia, and civil society and UN agencies were involved in the consultation [15].

The framework of the partnership between the Government of Ukraine and the United Nations (UNDP) is a general strategic partnership program between the Government of Ukraine and UN agencies, funds and programs for the period 2018-2022. The UNDP was formulated with the participation of the Government, the United Nations program in Ukraine, civil society and other stakeholders, and reaffirms the commitment of all partners to supporting the agenda for sustainable development by 2030 in areas relevant to national development priorities [15]. Under this partnership program, the UN and the Government of Ukraine have agreed on four strategic priorities: sustainable economic, the environment and employment growth; equal access to quality and inclusive services and social protection; democratic governance, rule of law and public participation; citizen safety, social cohesion and reconstruction with a special emphasis on the East.

Based on the issues of limited access to financial resources for Ukraine, the formation of rather low investment activity was characteristic. The share of gross fixed capital accumulation in

Ukraine's GDP in 2015 was the lowest during the entire period of independence (13.5%), which is almost twice less than the level of some individual European countries. This level impedes the economy modernization, reduces the return on capital of production equipment, and does not support the production potential improvement capable of creating a competitive product (Figure 2.1).

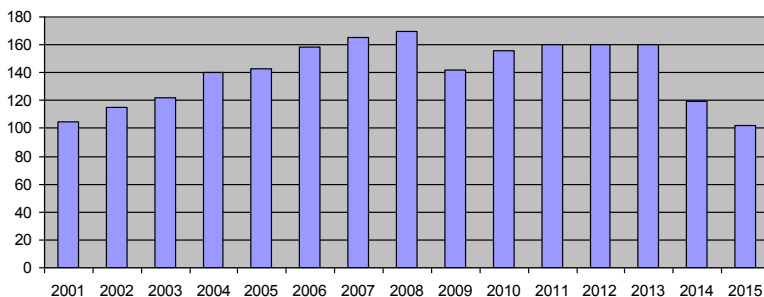


Figure 2.1 Dynamics of GDP, % to the level of 2000 year [16]

According to the results of 2016 there was a slight increase in GDP (by 2.3%), with an industrial production growth of 2.8% and an inflation slowing down to 13.9% in the average annual calculation. The level of energy intensity of GDP in Ukraine (0.28) is almost three times higher than the European analogue (0.1), GDP material content (0.88) exceeds twice the European one (0.44) [17].

In combination with low labor productivity, which is 17.2 thousand USD, or 77.7% less than the European level, it is increasing the processes of domestic producers from competitive markets supersession.

According to the statistics mentioned above, it can be concluded that the current situation in the country cannot guarantee sustainable growth and on this basis anticipated gap overcoming in GDP per capita between Ukraine and the most developed countries.

The ongoing economic depression is accompanied by job losses, the economic decline of many settlements, and massive labor migration of economically active population to other countries. In 2016, the unemployment rate in Ukraine among women aged 15-70 was 7.5%, and among men of the same age was 11.1% [16].

The development of financial infrastructure also needs to be intensified, as in Ukraine, in comparison with other countries, there are some hindrances with the cashless settlements, financial technologies development, etc.

During the year 2016, the systemic risks of the Ukrainian financial sector decreased; however, the level of represented negative loans remained at its highest historic values. Ukraine ranked 80th (out of 190 countries) in the Doing Business 2017 ranking. Germany took 17th place in the stated ranking, Poland – 24th, France – 29th, Italy – 50th. Favorable conditions for business development are a prerequisite for Ukraine to achieve a higher level of economic development and integration into the EU common market [18].

In 2014-2016, all mentioned systemic negative processes intensified as a result of the occupation of the Autonomous Republic of Crimea, as well as a protracted military conflict in the eastern part of the country, which led to the fact that certain districts of Donetsk and Lugansk regions were beyond the Government control of Ukraine.

The main objective of the financial sector reform in Ukraine by 2020 is to create a financial system that ensures sustainable economic development through efficient redistribution of financial resources in the economy, based on the fully-fledged market competitive environment development in accordance with EU standards [19].

The reform of the financial sector implies the achievement of both quantitative and qualitative indicators. Qualitative indicators include implementation of international accounting and auditing standards in the financial sector, as well as integrated international standards for electronic document circulation. The most important quantitative indicators are: a decrease in inflation to 5% per annum with allowable variation of  $\pm 1$  percentage point; increase in the share of non-cash transactions in the total volume of operations with payment cards use at least 55%; the achievement of cash in the economy is not higher than 9.5%; the reduction of the nominal rates for new loans in the national currency to 12%; a decrease in the ratio of loans to deposits in the bank up to 110%; entry into the first 50 countries by the level of financial market development by the Global Competitiveness Index [19].

At the same time, the country's development period by 2020 must be renewable, which involves modernization of industry, agriculture and other sectors of the national economy.

Taking into account aspects of the country's economic development, Ukraine ranked 81st out of 137 countries in terms of global competitiveness, which is 0.1 points higher than in 2015 and 2014 (the competitiveness indicator continues to increase from 4.0 in 2015, 2016 to 4.1 in 2017) (Table 2.1).

Switzerland (GCI is 5.86), the United States (5.85) and Singapore

Table 2.1

**The ranking of countries according to the Global Competitiveness Index, 2016-2017 [20]**

	Economy	Score		Economy	Score
1	Switzerland	5.86	12	Denmark	5.39
2	United States	5.85	13	New Zealand	5.37
3	Singapore	5.71	14	Canada	5.35
4	Netherlands	5.66	15	Taiwan, China	5.33
5	Germany	5.65	16	Israel	5.31
6	Hong Kong SAR	5.53	17	United Arab Emirates	5.30
7	Sweden	5.52	18	Austria	5.25
8	United Kingdom	5.51	19	Luxembourg	5.23
9	Japan	5.49	20	Belgium	5.23
10	Finland	5.49		...	
11	Norway	5.40	81	Ukraine	4.1

(5.71) are the most competitive countries according to this assessment. The countries with the lowest competitiveness index are Chad (2.99), Mozambique (2.89), and Yemen (2.87). The comparative analysis of Ukraine's competitiveness shows that the state is in a competitive environment and the issues of sustainable development are through existing economic problems: inefficient use of resources, dependence on imported energy, orientation on raw materials export and high-tech goods imports.

The problematic areas also include political and social instability, environmental matters, and lack of the precise strategy for country development, high level of corruption, as well as low quality of life in general.

Thus, the low level of Ukraine's competitiveness in the current conditions of globalization is mainly due to the lack of an effective mechanism of state governance on the economy and, consequently, the loss of the productive sector of its competitive potential [8].

In the conditions of continuous aggravation of international competition, the state ought to create conditions for increasing the efficiency and competitiveness of the Ukrainian economy. It is achieved primarily through a balanced macroeconomic policy. Thus, the development and implementation of effective areas of sustainable economic development is a key to increasing Ukraine's competitiveness (Table 2.2).

Table 2.2

**Directions to increase competitiveness in conditions of sustainable economic development in Ukraine**

The task of sustainable economic development	Directions
1. Ensure sustainable GDP growth on the basis of production modernization, innovations development, export potential increase	Improvement of the financial market infrastructure, introduction of an effective mechanism for protecting the creditors' rights, financial regulators' functions coordination
2. Increase the production efficiency on the basis of sustainable development and high-tech competitive industries development	Creation of conditions for the use and development of the latest IT technologies in the social and economic sphere, implementation of foreign policy
3. Increase the population employment level	Reforming the vocational education system on the basis of new competencies provision
4. Reduce the proportion of unemployed young people, as well as those who do not study or acquire professional skills	Introduction of a comprehensive program for raising financial awareness
5. Create institutional and financial opportunities for self-realization of the economically active part of the population potential and the creative economy development	Creation of conditions in order to facilitate small business running as well as small and medium business development

**Findings and recommendations.** On the basis of the analysis of economic and international indicators of competitiveness, it has been proved that the national competitiveness growth is the goal of the state economic policy of Ukraine.

The factors that influence the country competitiveness level have been identified: government efficiency, business efficiency, economic indicators and the infrastructure condition, population social security, human development etc.

For successful implementation of the sustainable development ideas and Ukraine's competitiveness enhancement it is necessary to implement the following directions of the state policy:

adaptation of economic, industrial, energy and agricultural policies to the requirements of the current socio-economic situation;

formation and implementation of effective foreign policy in the industrial sphere;

improvement of the normative and legal base grounded on the provisions of the sustainable development concept;

realization of the information and communication sphere opportunities in the socio-economic system functioning.

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**ENTERPRISE  
ENVIRONMENT AND ITS  
INFLUENCE ON THE  
PROSPERITY AND  
COMPETITIVENESS OF  
BUSINESS SUBJECTS  
FROM THE  
PERSPECTIVE OF THEIR  
SIZE AND SECTOR  
DIFFERENTIATION**

## **Introduction**

Within the scientific community, but also in the enterprise management sphere, the issue of strategic management paradigm the basis of which is a growing disagreement between the internal and

external environment within business subjects, between the determined development strategies, and the expected trajectory of world economy development resonates stronger still. A still clearer disagreement between the development of national economies and European, respectively the world economic system, the existing organization and management enterprise structures and management styles is related. Causes of this situation may not be quantified exactly at this moment, however, it may be expected that the most serious factors include the discontinual and turbulent character of the internal business environment development, a sharp development in information technologies, and the obtained level of knowledge in science and research, and social needs.

The end of the previous century is characterized by significant disconnected phenomena of business subjects' external environment; these may be marked as dramatic and unique in some periods. Such development continues even nowadays, making it even more urgent to deal with this realm of enterprise environment. Business subjects must react to these changes, very often in the interest of their own existence. Processes and methods that they use do not always respond to their needs, and very often they do not reflect the true changes that occur. In a number of business subjects their long-term strategic development is being left behind often, for their profitability and observation of financial indicators becomes the only attribute when judging their functionality and success, which naturally absorbs other enterprise parts as lively systems (entities), such as the personal, social, educational area, etc. In some subjects, this situation is so significant that it influences their development, prosperity and overall sustainability negatively.

### **Literary Research**

The environment of business subjects significantly influences the stability, prosperity, and competitiveness of business subjects, that is why a greater attention should be paid to it by top management members, it should be continually monitored and analysed (Richard, Wu and Chadwick, 2009; Virgler et al., 2017). It includes all factors that influence business, while some factors touch business directly, others prove their effects indirectly. In relation to their impact on business subjects these factors may be divided into internal and external (Wang, 2007). Csikosova a Čulková (2012), Glodowska et al. (2016), and most other authors differentiate between internal and external enterprise

environment, while the external environment includes both, mid-environment and so-called general macro-environment.

Internal environment consists of internal enterprise resources (physical, financial, personal resources, and so-called resources of a non-material nature), (Min, 2009). Enterprise resource dynamic supports enterprise growth and its competitiveness (Augier and Teece, 2006, Teece, 2012, Ambrosini and Bowman, 2009, Kuuluvainen, 2011). Hall (1992) implemented a research focused on internal resources and their significance, the study proved that the reputation of the given enterprise/its brand, and employee know-how were the most significant resources influencing the success of business subjects. Research with similar focus has proven, later on, a greater significance of human resources which had taken the first bar within the hierarchy of enterprise resources tested (Brinkman et al., 2010; Jain, Trehan, Trehan, 2014). The aim of internal analysis is, according to the authors mentioned (Zamazalová, 2010; Hiriyappa, 2008; Evans, Campbell, Stonehouse, 2011), to design a realistic profile of a business subject. That often includes a compromise, a value judgment system, an educated and qualified estimate, as well as an objective standardized analysis.

Michael Porter (1994, 2008), the author of five competing powers' model dealt with branch environment and its analysis. Via his world-famous model of five competing powers, Porter declared a mutual dependence between branch structure and profitability. According to him, the meaning of competition rests in reaching profit. Business subjects do not compete over profit only with their competition rivals, also with their suppliers, customers, and producers offering substitute products. De Castro et al. (2014) it states that the mid-environment offers both, options and threats. It contains factors of the market in which the business subject is active. Susceptible understanding the branch structure, analysis of business subject position in relation to its competition rivals, power of suppliers and customers, all this significantly influences strategical decisions of business subjects, respectively gaining competition advantage (Clegg et al., 2011).

Macro-enterprise includes the influence and impact of external factors on business subjects (Gregory, 2001; Murray-Webster and Williams, 2010). Rao (2005) describes macro-environment as a whole that stands completely outside the impact and control of business subject, and that has a direct or indirect impact on its activity and decision-making. Although according to Clegg et al. (2011) and Rumelt business subjects cannot influence this component of business

environment, macro-environment factors may be considered the sources of competition advantage (opportunity) or potential resources for disrupting competition advantage (threat). Changes in external environment and initiatives related develop and accelerate non-stop (Jain, Trehan, Trehan, 2014; Daft and Marcic, 2011; Dagnino et al., 2017). To make business subjects existent, the knowledge of macroenvironment is very important, not only from the perspective of intensity and range of changes happening within it, but also from the perspective of direct impact of business strategy formulation (Zamazalová, 2010; Kozel et al., 2006; Zuzák, 2011).

## **Material and methods**

Research survey was implemented via an extensive questionnaire survey focused on the area of enterprise strategy, strategy management and decision-making. The contribution documents results from the testing file of 207 business subjects from the whole of the Czech Republic out of 124 subjects of the medium size category and 83 large business subjects. The testing file of business subjects was further classified first from the perspective of their sector differentiation (except quarternary sector), into production and industrial sectors (126 business subjects) and a service sector (81), first from the perspective of scope, whether regional and national subjects or supra-national (110).

A generalized linear model (GLM) was used for testing (McClullagh, Nelder, 1989). GLM expresses a relation between the explained variable and a set of explaining variables (regressors) via regression function which is a linear function of unknown estimated parameters.

## **Results and Discussion**

### **Internal Environment**

*glm(formula = ZISK ~ MAN + ZAM + OS + SP + TV + TECH + PORT + FZ + MZDY + MARK + ZNAC + UVAV + SPRO + VZDEL + INFOS + NORMY + PKUL + BP, family = binomial(link = "logit"), data = MVP*

*Legend:*

*MAN – management standards, ZAM – employee standards, OS – enterprise organization structure, SP – enterprise strategy, TV –*

*hardware, TECH – production technologies/processes, PORT – product/service portfolio, FZ – enterprise's financial resources, MZDY – wage standards, MAR – marketing standards, ZNAC – enterprise's brand and name, UVAV – research and development standards, SPRO – enterprise's social environment, VZDEL – employee education, INFOS – information and communication systems, NORMY – in-house rules, norms, PKUL – enterprise culture, BP – safety.*

*MVP – production and industry sector.*

### ***Production and Industry Sector***

*Table 2.3*

#### **Optimal model of internal enterprise resources – production and industry sector**

	<b>Estimate</b>	<b>Std. Error</b>	<b>Z value</b>	<b>Pr(&gt; z )</b>
<b>(Intercept)</b>	-3.53356	1.85189	-1.908	0.05638 .
<b>Management Standard</b>	-0.42262	0.60080	-0.703	0.48178
<b>Employee Standard</b>	1.01705	0.70892	1.435	0.15139
<b>Enterprise Organization Structure</b>	0.31666	0.64974	0.487	0.62600
<b>Enterprise Strategy</b>	0.96498	0.57637	1.674	0.09408.
<b>Technical Equipment</b>	0.33356	0.66462	0.502	0.61575
<b>Production Technologies /Processes</b>	-0.84356	0.77910	-1.083	0.27893
<b>Product/ Service Portfolio</b>	0.05177	0.59905	0.086	0.93113
<b>Enterprise Financial Resources</b>	1.68700	0.59047	2.857	0.00428 **
<b>Wage Standards</b>	-0.63315	0.59298	-1.068	0.28564
<b>Marketing Standards</b>	-0.47038	0.57428	-0.819	0.41274
<b>Enterprise Brand and Name</b>	-0.10271	0.46894	-0.219	0.82663
<b>Research and Development Standards</b>	0.29478	0.46372	0.636	0.52498

<b>Enterprise Social Environment</b>	0.81931	0.64382	1.273	0.20317
<b>Employee Education</b>	-0.05800	0.56504	-0.103	0.91824
<b>Information and Communication Systems</b>	0.14183	0.51571	0.275	0.78329
<b>In-house Rules, Norms</b>	-0.70233	0.58206	-1.207	0.22758
<b>Enterprise Culture</b>	0.36129	0.78028	0.463	0.64334
<b>Safety</b>	-0.37596	0.54871	-0.685	0.49323

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

In size category in medium and big business subjects operating in production and industry sector, significance has been proven in financial resources and enterprise strategy, responding to the character of the sector tested. The top management's attention should be also focused on other resources, such as employee standards, technical equipment standards, and especially research and development standards.

### *Service Sector*

*Table 2.4*

#### **Optimal Internal Resource Model – Service Sector**

	<b>Estimate</b>	<b>Std. Error</b>	<b>Z value</b>	<b>Pr(&gt; z )</b>
<b>(Intercept)</b>	-4.3158	3.9753	-1.086	0.2776
<b>Management Standards</b>	-0.1851	1.1931	-0.155	0.8767
<b>Employee Standards</b>	-1.9254	1.3329	-1.445	0.1486
<b>Enterprise Organization Structure</b>	3.2609	1.3387	2.436	<b>0.0149 *</b>
<b>Enterprise Strategy</b>	1.6899	1.3478	1.254	0.2099
<b>Technical Equipment</b>	-0.5951	0.8759	-0.679	0.4969
<b>Production Technologies/ Processes</b>	1.6582	1.0611	1.563	0.1181
<b>Product/ Service Portfolio</b>	0.9854	0.8321	1.184	0.2363

<b>Enterprise Financial Resources</b>	1.9325	1.1149	1.733	<b>0.0830 .</b>
<b>Wage Standards</b>	1.3801	0.9837	1.403	0.1606
<b>Marketing Standards</b>	-0.2398	0.9959	-0.241	0.8098
<b>Enterprise Brand and Name</b>	0.5543	0.7384	0.751	0.4528
<b>Research and Development Standards</b>	0.4051	0.8650	0.468	0.6395
<b>Enterprise Social Environment</b>	-1.4074	1.1285	-1.247	0.2123
<b>Employee Education</b>	-1.1145	1.0358	-1.076	0.2820
<b>Information and Communication Systems</b>	1.6741	1.1306	1.481	0.1387
<b>In-house Rules, Norms</b>	-2.5640	1.3718	-1.869	<b>0.0616 .</b>
<b>Enterprise Culture</b>	-1.6815	1.2304	-1.367	0.1718
<b>Safety</b>	-0.5652	1.2802	-0.441	0.6589

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Financial resources may be marked as significant resources positively influencing economic results of enterprise subjects in service sector, which is an equal result to the one in production and industry enterprise subjects, but possessing greater intensity of organizational structure significance. Functioning organizational arrangement is very important for enterprise subjects, organizational structure makes up the spine of enterprises, as clearly shown in Table 2.4. A greater meaning is assigned by service sector business subjects, which may be explained by greater fragmentation in both service portfolio and this sector.

On the contrary, negative significance was proven in in-house rules and norms. Legislative load and its further implementation into own rules and norms by business subjects are, mainly in service sector, disproportionally high.

### **Mid-environment**

*Glm (formula = ZISK ~ KON + DOD + ZAK + DISTR + OP + FI + VS + VU + MSS + PS + VLAD + MED + ES, family = binomial (link = "logit"), data = MVP*

*Legend:*

*KON – competitors, DOD – suppliers, ZAK – customers, DISTR – distributors, OP – business partners, FI – financial institutions, VS – universities, VU – research institutions, MSS – local government, autonomy, PS – political parties , VLAD – government, MED – media, ES – ecology associations, MVP – production and industry.*

### ***Production and Industry Sector***

*Table 2.5*

**Optimal Model of Mid-Environment – Production and Industry Sector**

	<b>Estimate</b>	<b>Std. Error</b>	<b>Z value</b>	<b>Pr(&gt; z )</b>
<b>(Intercept)</b>	2.94398	1.71747	1.714	0.0865 .
<b>Competitors</b>	-0.19025	0.39296	-0.484	0.6283
<b>Suppliers</b>	0.02089	0.41627	0.050	0.9600
<b>Customers</b>	-0.27202	0.45899	-0.593	0.5534
<b>Distributors</b>	0.20028	0.40790	0.491	0.6234
<b>Business Partners</b>	0.11603	0.41194	0.282	0.7782
<b>Financial Institutions</b>	-1.03518	0.41618	-2.487	<b>0.0129 *</b>
<b>Universities</b>	-0.41123	0.60583	-0.679	0.4973
<b>Research Institutions, Academies of Science</b>	1.05032	0.95085	1.105	0.2693
<b>Local Management and Autonomy</b>	-0.52990	0.45376	-1.168	0.2429
<b>Political Parties</b>	0.01342	0.64515	0.021	0.9834
<b>Government</b>	0.76911	0.74620	1.031	0.3027
<b>Media</b>	-0.26685	0.72742	-0.367	0.7137
<b>Ecological Associations</b>	-0.05020	0.57407	-0.087	0.9303

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Within judging mid-environment factor significance in production and industry sector business subjects, significance was only proven in financial institutions, and the proof was negative. One of the possible explanations of negative perception of financial institutions working in the Czech Republic may be attributed to the restrictive character of financial control organs and institutions operating in the Czech Republic, as well as ambiguities and lack of clarity in laws and norms within enterprise subject funding. These results are very surprising as they uncover an unexpected absence of such factors, as customers, competitors, and suppliers, respectively factors the analysis of which should be definitely carried out by enterprise subjects within branch structure because they directly influence their prosperity and competitiveness. This situation may be only explained with difficulty, not even via the fact that the research was being carried out during economic growth.

### *Service Sector*

Table 2.6

#### **Optimal Mid-environment Model – Service Sector**

	Estimate	Std. Error	Z value	Pr(> z )
<b>(Intercept)</b>	0.61278	2.19460	0.279	0.7801
<b>Competitors</b>	0.30818	0.66726	0.462	0.6442
<b>Suppliers</b>	1.68368	0.73767	2.282	<b>0.0225 *</b>
<b>Customers</b>	-0.32825	0.63867	-0.514	0.6073
<b>Distributors</b>	0.50561	0.76530	0.661	0.5088
<b>Business Partners</b>	-0.47178	0.60677	-0.778	0.4369
<b>Financial Institutions</b>	0.02438	0.64100	0.038	0.9697
<b>Universities</b>	-1.23845	0.84027	-1.474	0.1405
<b>Research Institutions, Academies of Science</b>	0.27594	1.31955	0.209	0.8344
<b>Local Management and Autonomy</b>	-0.93446	0.72734	-1.285	0.1989
<b>Political Parties</b>	1.75579	1.22008	1.439	0.1501
<b>Guitar</b>	-1.11354	0.83621	-1.332	0.1830
<b>Media</b>	0.19193	0.54931	0.349	0.7268
<b>Ecological Associations</b>	0.15645	0.92923	0.168	0.8663

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Results given in Table 2.6 have proven the significance of suppliers. The significance of suppliers in business sphere is undeniable because they influence both, service cost as well as their quality itself.

## Macro-environment

*Glm (formula = ZISK ~ DEMV + DISP + ZIVS + UV + MOB + PVC + VAV + PAT + TRT + MZVP + HDP + USAZ + INF + ZCP + NEZ + STAV + RZO + DANE + LEG, family = binomial(link = "logit"), data = MVP*

*Legend:*

*DEMV – demographic development, DISP – income distribution, ZIVS – lifestyle, UV – education standards, MOB – citizen mobility, PVC – leisure approach, VAV – governmental costs on research and development, PAT – patents, TRT – technology transfer, MZVP – obsolescence of the means of production rate, GDP – gross domestic product, USAZ – interest rates, INF – inflation, ZCP – enterprise life cycle, NEZ – unemployment, STAV – government stability, RZO – foreign market regulation, DANE – tax policy, LEG – legislation.*

*MVP – production and industry.*

## **Production and Industry Sector**

Table 2.7

### **Optimal Macro-environment Model – Production and Industry Sector**

	Estimate	Std. Error	Z value	Pr(> z )
<b>(Intercept)</b>	0.67831	1.08343	0.626	0.5313
<b>Demographic Development</b>	-0.17457	0.46063	-0.379	0.7047
<b>Income Distribution</b>	-0.51680	0.58134	-0.889	0.3740
<b>Lifestyle</b>	0.74596	0.55416	1.346	0.1783
<b>Education Standards</b>	-0.29380	0.47483	-0.619	0.5361
<b>Citizen Mobility</b>	0.27718	0.44831	0.618	0.5364
<b>Leisure Approach</b>	0.25711	0.52701	0.488	0.6256
<b>New Patents</b>	-0.98091	0.53485	-1.834	<b>0.0667 .</b>
<b>New Patents</b>	0.46429	0.48028	0.967	0.3337
<b>Technology Transfer</b>	0.74173	0.50808	1.460	0.1443
<b>Degree of Obsolescence of Means of Production</b>	0.30770	0.38177	0.806	0.4203
<b>GDP Development</b>	-0.45438	0.48580	-0.935	0.3496
<b>Interest Rate</b>	-0.44185	0.60315	-0.733	0.4638
<b>Inflation</b>	0.70380	0.59700	1.179	0.2384

<b>Enterprise Life Cycle</b>	0.28608	0.51038	0.561	0.5751
<b>Unemployment</b>	-0.21668	0.40592	-0.534	0.5935
<b>Government Stability</b>	0.28932	0.53017	0.546	0.5853
<b>Foreign Market Regulation</b>	-0.01662	0.44266	-0.038	0.9700
<b>Tax Policy</b>	0.04834	0.58284	0.083	0.9339
<b>Legislation</b>	-0.66223	0.51753	-1.280	0.2007

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

In production and industry sector business subjects a negative significance of government costs on research and development was indicated. Perception of this factor is influenced by a negatively set system of government costs on science and research. Although positive steps were made in this area, a significant break has not yet occurred. Absence of other macro-environmental factors (economic and mainly technological), except socio-cultural factors (demographic and social factors) with regard to the characteristics of the given sector and production, requires further and more detailed analytical work.

### *Service Sector*

*Table 2.8*

#### **Optimal Macro-Environment Model – Service Sector**

	<b>Estimate</b>	<b>Std. Error</b>	<b>Z value</b>	<b>Pr(&gt; z )</b>
<b>(Intercept)</b>	2.66335	1.91579	1.390	0.1645
<b>Demographic Development</b>	0.41829	0.89184	0.469	0.6391
<b>Income Distribution</b>	0.49335	0.65024	0.759	0.4480
<b>Lifestyle</b>	1.86894	0.99832	1.872	0.0612 .
<b>Education Standards</b>	-0.98439	0.69273	-1.421	0.1553
<b>Citizen Mobility</b>	-2.05380	0.92126	-2.229	<b>0.0258 *</b>
<b>Leisure Approach</b>	0.63622	0.76638	0.830	0.4064
<b>Governmental Cost on Research, Development</b>	-2.12246	1.14813	-1.849	<b>0.0645 .</b>
<b>New Patents</b>	-0.02295	0.84958	-0.027	0.9784
<b>Technology Transfer</b>	1.54209	1.24638	1.237	0.2160
<b>Degree of Obsolescence of Means of Production</b>	0.51741	0.73077	0.708	0.4789
<b>GDP Development</b>	-0.07622	0.64231	-0.119	0.9055
<b>Interest Rates</b>	1.13607	0.82028	1.385	0.1661
<b>Inflation</b>	-1.19930	0.87484	-1.371	0.1704
<b>Enterprise Life Cycle</b>	0.11894	0.75575	0.157	0.8749

<b>Unemployment</b>	-0.11167	0.67448	-0.166	0.8685
<b>Government Stability</b>	-0.54929	0.72911	-0.753	0.4512
<b>Foreign Market Regulation</b>	0.13571	0.66253	0.205	0.8377
<b>Tax Policy</b>	-0.38220	0.66150	-0.578	0.5634
<b>Legislation</b>	0.10973	0.65583	0.167	0.8671

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Results in service sector enterprise subjects are equal to those in production and industry sector subjects in proven negative significance of governmental costs into research and development area. The negative meaning of socio-cultural factor – citizen mobility is a different result. The assumption that this factor may influence the structure of services offered, having an impact on wiping regional disparities may be expressed.

## Conclusion

Within testing enterprise subjects of medium and large size category, the following conclusions may be derived from the obtained results:

- Optimal model of internal resources has proven, in both tested sectors (production and industry sector and service sector) the significance of financial resources. Financial resources certainly are a necessary internal resource of each enterprise subject, however within strategic management and decision-making, equal if not greater attention should be paid to other resources, especially human sources, respectively to manager and employee standards. Besides financial resources, the optimal model has emphasized sector differentiation, a greater meaning of strategy in industrial and production enterprise subjects, and a greater meaning in organizational structure in case of service sector.

- Within mid-environment (branch environment) testing, surprisingly the significance of important factors such as customers, competitors, suppliers, etc. was not proven in production and industry sector business subjects. These results, as it has already been mentioned, are contrary to the theory in formulating enterprise strategy, because enterprise subjects should, if they wish to be competitive, deal with structure analysis of the given branch they are operating in. Optimal model has discovered only negative meaning of financial institutions in this sector. Supplier importance was proven in service sector.

- Out of the tested factors of general macro-environment a negative significance of governmental costs within the area of research and development was indicated equally in both tested sectors. Business subject managers view this factor as a limiting factor to business subject development; it is a continually criticized factor from the business subjects' side. Absence of such factors as inflation, unemployment, GDP development, interest rate, technological factors in production and industry sector or socio-cultural factors in service sector may be partially attributed to the fact that in a part of business subjects the following opinion prevails, these parameters may not be influenced; only their possible negative impact may be eliminated.

Generally, it may be stated that internal enterprise resources and their structure are important for every size category of business subjects, and they may be perceived as a starting base for creating a unique value chain enabling business subjects to reach a long-term sustainable competition advantage. Mid-term factors also significantly influence profitability and compatibility of business subjects, their analysis is necessary for business subjects' stability and compatibility in nowadays' hyper-competitive environment. Significance of external resources has not been proven too much, while this fact, as mentioned above, is not surprising, because macro-environment factors and their impact on profit generation may influence business subjects only with great difficulty.

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## Chapter 3

# INVESTMENT AND CREDIT- FINANCIAL INSTRUMENTS TO ENSURE THE DEVELOPMENT OF ECONOMIC SYSTEMS

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### **ECONOMIC VALUE ADDED UNDER SLOVAK ACCOUNTING LEGISLATION**

Enterprise performance is an indicator whose tracking and measurement is gaining in importance, especially in connection with stronger competition in the global economic environment and the need for an enterprise to survive in such an environment, in the best case to be successful. Managers should know not only how to measure the enterprise performance but also how to control it. The theory offers a number of ways of how to assess the enterprise performance as well as how to express it quantitatively. One way is to use the concept EVA or "just" the indicator EVA. Economic Value Added is a recognized and, in practice, increasingly common criterion for enterprise performance assessment, and one of the possible starting points for determining the value of an enterprise, but various difficulties associated with filling it with the right accounting data in a particular country may be a problem. In the paper, we will briefly deal with the theoretical aspects of the financial performance assessment of the company based on the indicator EVA and will then illustrate one of the possibilities of its practical use in business management. For this purpose, we have used the published accounting data of a real IT enterprise in Slovak Republic, with the fictitious name IT Services, Inc.

EVA and its think-and-methodological apparatus are currently used by many companies of international importance; these include, for

example, Siemens, Coca Cola, Polaroid, Škoda Auto and Model Obaly (in the Czech Republic and Slovak Republic). This approach to measuring and assessing the enterprise performance is so well-known and popular that many modifications to the original concept developed by Stern Stewart & Co often come up with the term and abbreviation EVA. It should be said that EVA is one of the most used indicators of enterprise performance assessment in the context of *value based management*, which has its causes and justification. Economic value added is basically an *economic profit* that an enterprise generates after all costs recorded in the accounting and capital costs are paid. As regards debt financing, Slovak business accounting records only the costs of interest-bearing debt, i.e. the liabilities of a company that require the payment of interest (Accounts 562-Interests and 568-Other Financial Expenses, or 563-Exchange-rate losses).

#### *Basic EVA constructions in brief*

Several constructions (formulas) of EVA are known from the specialized literature. The basic construction mathematically expresses EVA as the net profit from the operating activity of an enterprise reduced by its capital costs:

$$EVA = NOPAT - C \cdot WACC \quad (3.1)$$

where:

- NOPAT - Net Operating Profit After Taxes; profit from the operating activity after payment of income tax in monetary unit;
- C - Capital; capital linked to the assets, which are used for the realization of operating activity in monetary unit;
- WACC - Weighted Average Cost of Capital; weighted average capital costs in % multiplied by 1/100.

This most well-known and used form of the indicator also occurs in the following form:

$$EVA = NOPAT - NOA \cdot WACC \quad (3.2)$$

where:

- NOA - Net Operating Assets; net operating assets means assets used for operating activity in monetary unit

In regard to the business accounting in the Slovak Republic, to quantify EVA as well as the partial indicators from the relations (3.1)

and (3.2) can be a quite difficult problem. NOPAT is neither the same category as our “profit from the operating activity” and nor the profit from ordinary business activity (*Note: calculated as operating activity result plus financial activity result*), which is from 2014 financial statement no longer needed to be shown; the same is valid for the extraordinary earnings – disaster damages costs and their compensations. The definition of *net operating assets* is not a simple task, too. Dividing all business activities into operative and non-operative, is common in the world. *Operative activity* is considered to be the part of the business activity which serves the basic business purpose. *Non-operative* is usually considered to be all activities that are not necessary for the exercise of basic business activity, for so called *core business*. One of the main reasons for such a breakdown of an enterprise business activities, and hence its costs, revenues and, ultimately, the profit, is the varying level of business risk that is associated with these activities. For NOPAT, NOA and WACC, the following relationship should apply:

$$\frac{NOPAT}{NOA} \geq WACC \quad (3.3),$$

i.e. the return on net operating assets calculated using NOPAT should be higher or at least equal to the weighted average costs of capital (WACC) that represent the aggregate claims of the owners and creditors, the return required by the capital providers. Another EVA construction is the so-called EVA Equity based on the information on return on equity (ROE) and alternative equity costs ( $r_e$ ). This indicator has the following form:

$$EVA = (ROE - r_e) \cdot E \quad (3.4)$$

where:

- |               |   |  |
|---------------|---|--|
| ROE           | - | Return on Equity; profitability of equity (owners' capital) in % multiplied by 1/100, where ROE = net profit/equity;       |
| $r_e$         | - | Alternative costs of equity in % multiplied by 1/100;  |
| E             | - | Equity; owners' capital in monetary unit;  |
| $(ROE - r_e)$ | - | “Spread”; a range that determines the rate of return on equity compared to its alternative costs in % multiplied by 1/100. |

Although the calculation of EVA in this way seems to be simple, it is not so. In the current practice, it is difficult to determine the value of the parameter  $r_e$ . This parameter needs to be known when calculating WACC in previous relationships. In this case, it is also important that ROE is higher or at least equal to  $r_e$ . The Ministry of Industry and Trade of the Czech Republic uses for the calculation of EVA the relationship (3.4) after its adapting:

$$EVA = NP - r_e \cdot E \quad (3.5)$$

where:

NP - Net Profit in monetary unit (earnings after income tax – EAT – under Czech and Slovak tax law conditions);

#### *Principles for the conversion of accounting data when calculating EVA Entity*

Despite the amount of theoretical and empirical knowledge and the whole range of EVA methodologies, the process of the accounting data conversation to this economic model is ultimately in the hands of financial analysts and managers. Too much simplification seems to be an extreme, but too many adjustments and forced adaptation of models that have arisen in different economic conditions, without respecting domestic conditions are extremes, too. Both Slovak and Czech authors deal with EVA especially in connection with accounting legislation and the economic content of accounting items that may be, and often are, under our conditions different than, for example, in Anglo-Saxon countries. When making the necessary adjustments, care must be taken not to avoid simplicity and “readability” for managers. The following basic adjustments are mentioned:

- adjustment of the balance sheet for those asset items that are not recorded in the balance sheet but are assets required for the realization of the operating activity and generating operating profit,
  - adjustment of the balance sheet for such asset items that are recorded in the balance sheet but are not part of the operating activity;
- Both types of adjustments refer to the calculation of the correct *net operating assets* (NOA), respectively of the *capital* that they are covered with (C).
- adjustment of earnings to *net operating profit* (NOPAT calculation).

Under the conditions of Slovak enterprises, it is necessary to take into account Slovak legislation on business accounting, which is not

identical with the Czech or other foreign one. In the following case study we will present in brief our method and procedure of EVA calculation. We have to keep in mind that *universal solution is not possible* because of the close relationship between EVA and accounting (Bartošová, Kicová, 2015).

*Case study: IT Services, Inc.*

EVA calculation will be done for a specific enterprise – IT company, Inc., which is engaged in IT solutions and services business activities. This company does not have publicly traded shares, the individual financial statements are prepared according to Slovak accounting regulations and economic results are obligatorily published on its website.

The data from the financial statements of the company (Table 3.1 and Table 3.2) are the basis for company EVA calculation.

*Financial and economic situation of the company*

Already on the basis of the balance sheet and the profit and loss statement it is possible to outline the financial situation of the company. The financial statements of the company show that in the analysed four-year period:

- the company generated profit each year, even though its development fluctuated,
- the gain of profit was clearly based on the operating activity; in the financial activity, the company was loss-making in each year,
- in none of the analysed years, the company did not record the earnings from extraordinary activities (obligatory shown in statement until 2013) – therefore it has formally approached the structure of recording the profit for operating and financial activity only, as stipulated by the amended accounting regulations,
- the major part of revenues was revenue from selling goods, these had a growing trend, revenue from selling own products and services fluctuated (Bartošová, Kicová, 2015).

Financial situation of the company can be supplemented with growth rate according to the relationships:

\* Growth rate of sales revenue (goods, own products and services):

$$g(\text{Revenue from Sales of Goods, Own Products and Services})_{t/t-1} = \frac{\text{Revenue from Sales of GPS}_t - \text{Revenue from Sales of GPS}_{t-1}}{\text{Revenue from Sales of GPS}_{t-1}} \cdot 100 \quad [\%] \quad (3.6)$$

\* Growth rate of the total revenue:

$$g(\text{Total Revenue})_{t/t-1} = \frac{\text{Total Revenue}_t - \text{Total Revenue}_{t-1}}{\text{Total Revenue}_{t-1}} \cdot 100 \quad [\%] \quad (3.7)$$

\* Growth rate of total costs:

$$g(\text{Total Costs})_{t/t-1} = \frac{\text{Total Costs}_t - \text{Total Costs}_{t-1}}{\text{Total Costs}_{t-1}} \cdot 100 \quad [\%] \quad (3.8)$$

\* Growth rate of earnings from operating activity ( $E_{OA}$ ):

$$g(E_{OA})_{t/t-1} = \frac{E_{OA_t} - E_{OA_{t-1}}}{E_{OA_{t-1}}} \cdot 100 \quad [\%] \quad (3.9)$$

\* Growth rate of earnings from financial activity ( $E_{FA}$ ):

$$g(E_{FA})_{t/t-1} = \frac{E_{FA_t} - E_{FA_{t-1}}}{E_{FA_{t-1}}} \cdot 100 \quad [\%] \quad (3.10)$$

\* Growth rate of earnings before taxes (EBT):

$$g(EBT)_{t/t-1} = \frac{EBT_t - EBT_{t-1}}{EBT_{t-1}} \cdot 100 \quad [\%] \quad (3.11)$$

\* Growth rate of earnings after taxes (EAT):

$$g(EAT)_{t/t-1} = \frac{EAT_t - EAT_{t-1}}{EAT_{t-1}} \quad [\%] \quad (3.12)$$

The growth rates of chosen items from profit and loss statement are shown in Table 3.1. Because of the limited range we will leave out the graphs describing calculated results.

### Calculation of EVA

When calculating EVA, the main problem is that the partial indicators that are used for its calculation do not have a unified method of calculation, even in the country where concepts such as EVA, NOPAT, EBIT and others have arisen. In general, it can be said that the greater the amount of adjustments to the accounting data needs to be

done, the less we can do only with the data of the financial statements, and at the same time: with a large number of adjustments, the likelihood of different results distortions is higher. The content definition of partial indicators is largely influenced by the specific features of accounting under the conditions of the national economy. For the purpose of calculating EVA, it is therefore necessary to have very detailed accounting evidence and a lot of other internal information about the accounting entity. In this article, we will follow current Slovak accounting regulations, i.e. the structure and content of accounting items that have been set out by the Ministry of Finance of the Slovak Republic, which regulates accounting procedures for businesses and drawing up of the individual financial statements in double-entry accounting. Economic Value Added will be calculated in its basic form, using NOPAT, but also using ROE and  $r_e$  (formulas (3.1) to (3.4)).

#### *Net Operating Profit (NOPAT) calculation*

NOPAT should contain only those costs and revenues that were part of the enterprise operating activity. Under operating activity, the analysed company should understand its core business activity of providing IT services and solutions. As we only have an abbreviated profit and loss statement available, we will rely on costs and revenues from recorded “operating activity”. *The operating activity* is in Slovak accounting formed by the final balances of the cost accounts from the account groups 50 - 55 and the revenue accounts from the account groups 60 - 65, which include the following groups of costs and revenues (Bartošová, 2014):

- 0-Purchases Consumed
- 1-Services
- 2-Labour costs
- 3-Taxes and fees
- 4-Other operating activity costs
- 5-Depreciation/amortization and adjusting entries to tangible and

intangible assets  
= *Operating Activity Costs*

-----

—

0-Revenues from selling own products, services and goods

—

1-Inventory status changes

—

2-Activation

—

*ote: account group 63 doesn't exist*

—

4-Other operating activity revenues

—

5-Accounting other ordinary activity items

= *Operating Activity Revenue*

In the case of adjustments to the profit and loss statement, this is the exclusion of those cost and revenue items from recorded “operating activity” that is not related to the operating activity formulated by the authors of EVA concept. Their delimitation from the operating activity requires detailed information about what activities the company considers its main business activity and which costs and revenues recorded in accounting are really connected with them. This is a main idea for quantifying NOPAT. The Slovak financial statement does not provide data in such a structuring, so we will assume that all costs from recorded operating activity were incurred in a direct connection with the company main (operational) business activities. We know about making a certain distortion because in these costs we include, for example, depreciation of property that did not active operational functions or revenues from unnecessary assets. In terms of leasing, the legislation is different than, for example in the Czech Republic, because in Slovak conditions, the property acquired on the basis of financial lease is shown in the balance sheet (property in assets, accounts payable from lease in liabilities). On the other hand, operating activity is not possible without organizational support with everything that belongs to it, and therefore in our calculations NOPAT will be equal to *(Slovak) profit from operating activity*. We will not adjust *profit from ordinary activity*; the ordinary activity of the enterprise were *(Note: until 2014)* except operating activities, also financial operations; these include for example

interest expenses that, as recommended by the expert sources, should be excluded from NOPAT because the debt costs  $r_d$  are already taken into account in the WACC. We will modify profit from operating activity using a tax shield to get a net operating profit that means after income tax payment. The adjustment is simplified because, in practice, profit from operating activity, together with profit from financial activity, in the calculation of the income tax base is adjusted in a relatively difficult way using the tax deductible and imputable items.

### *Capital (C)*

In EVA calculations, the capital is often substituted with the total amount of liabilities and equity, i.e. all sources covering assets due to simplification, but C from the original model should only be in the amount of NOA, i.e. net operating assets, as it is the capital that covers the operational assets (expressed in net, after adjustment by depreciation and adjusting entries). This principle is not always complied with when calculating EVA, which is confirmed not only by practical experience, even the scientific literature is not consistent in this respect, it is recommended according Zalai et al. (2013) “to substitute C with only long-term (own) capital and long-term liabilities the price of which is interest, e. g. without non-interest accounts payable (current liabilities).” According to Kislingerova et al. (2010) C can be quantitated as:

$$\begin{aligned} \text{Invested Capital (C)} &= \text{Long-term Assets} + \text{Net Working Capital} \quad \text{or} \\ \text{Invested capital (C)} &= \text{Equity} + \text{Liabilities} - \text{Short-term accounts} \\ &\quad \text{payable from business relations} \quad (3.13, 3.14) \end{aligned}$$

In this case study we will make two alternative calculations: 1. Using C (capital) equal to the sum of total equity and total liabilities; 2. Using C equal to NOA; net operative assets will be calculated as the sum of long-term tangible and intangible assets expressed in net book value (depreciated costs) plus net working capital (current assets minus short-term liabilities); in NOA will not be included the long-term financial assets that the company also shows in the analysed years and which, we assume, is not related to operating activities;

### *Weighted Average Cost of Capital (WACC)*

Firstly: since the enterprise has to pay all capital costs, not only those

related to NOA, we will base the calculation of the WACC on the total capital C, which consists of owners' equity (E) and liabilities: interest-bearing liabilities and non-interest-bearing liabilities. From the published data, we cannot accurately identify liabilities (debt) that were interest-bearing, so we will assume that the company paid interests on bank loans and long-term liabilities, too. These are in our calculations *interest-bearing liabilities (IBL)*. *Non-interest-bearing liabilities (NIBL)* consist of reserves (in the Slovak accounting – items connected with an anticipated future debt), short-term accounts payable, but also accrual liabilities (Table 3.4). Secondly: we will make another calculation for C that is identical to NOA (Table 3.5).

The cost of interest-bearing liabilities  $r_d$  is calculated from accounting records as a proportion of interests (account 562) and interest-bearing liabilities IBL (bank loans and long-term liabilities). Other financial expenses (account 568) will not be used in the income statement as we do not know if they are the cost for capital (Bartošová, 2014).

$$r_d = \frac{\text{Interests}}{IBL} \cdot 100 \quad [\%] \quad (3.15)$$

When estimating the cost of own equity  $r_e$  we can help ourselves with the practice used by some enterprises. We will deduct the costs of own equity from the costs of liabilities on the assumption that it is based on the experience that in standard market economies, the costs of equity is usually at the level of several percentage points (2 to 5) above the debt costs. For comparison purposes only, in the Table 3.5 we will also show the procedure of the Swiss company Model Group, which calculates the costs of own equity by adding a 3% risk premium to the risk-free interest rate in the country. As the risk-free rate  $r_f$ , we will use the average return on 10-year government bonds (calculated from the monthly values in % p.a.) for the individual years of the analysed period. The weighted average costs of capital (WACC) will be calculated according to the relationship:

$$WACC = r_d \cdot (1-t) \cdot \frac{IBL}{C} + r_e \cdot \frac{E}{C} \quad [\%] \quad (3.16)$$

Some companies use a constant value for WACC that is valid for a certain period, e.g. Škoda Auto and Volkswagen Group use a flat rate of 9%, Coca-Cola uses the rate of 12%, and so on. These data are usually part of the individual methodologies developed at the top level of

important companies for the whole group of capital-linked companies (business combination). When calculating the WACC, we will further determine the weights – proportions of the individual capital groups in total capital (C). In the Table 3.5 weights for NIBL (Non-interest bearing liabilities) are also calculated, but these have zero capital costs and that is why so we do not place them in the formula (3.16) but it is important to take into account its share. Into the WACC calculation formula, we will substitute  $r_e$  for the upper limit of these costs determined by  $r_d$ . As the results of the calculations in the Table 3.5 show, the company created by its activity in all years of the analysed period value added for the owners: although EVA has a positive value in each year, its development fluctuates. Year-on-year changes are: 1st/2nd decline, 2nd/3rd growth and 3rd/4th decline. An increasing trend would be a desired result.

### *Resume*

We have calculated the indicator EVA of the company in a number of ways: the highest EVA values were calculated on the basis of NOPAT and C (NOA), which is understandable, because instead of total capital, we fitted in the relationship (3.2) capital C which is identical with net operating assets – at the same average WACC. The question is whether, and if so, how to adjust WACC if the total amount of equity and liabilities (total capital) is not part of the calculation, but only C (NOA). The calculation of EVA using the equity construction approximates to EVA entity with the total capital used (in Table 3.5 marked as EVA1 and EVA3). It turned out that the transfer of accounting data into the form of an economic model is difficult not only in “technical” terms, but also in terms of the assessment of the correctness of the economic considerations. Each item (partial indicator) can be quantified on the basis of a number of often different procedures: from difficult adjustments to simplifying to trivial procedures. When calculating the cost of capital, we have chosen a simple methodology, which results in an estimate of the cost of capital, in particular of its own. We had this problem: compared to other years, in the 4<sup>th</sup> year, the cost of interest-bearing liabilities  $r_d$  was quite high (in Table 3.5 marked with a grey box), the explanation is twofold: first, the company could have a higher share of interest-bearing liabilities than we included in the calculation of the IBL based on the data available; secondly, it is more likely that the company repaid a large portion of bank loans at the end of

the 4<sup>th</sup> year, so that their status on 31<sup>st</sup> December (only € 667) significantly affected the amount of the calculated IBL costs, since the interest costs as a flow rate are by 31 December in cumulative height, IBL as status indicator not. In this case, we calculate  $r_d$  at this point again – using the average IBL status:

$$\frac{IBL (status 1.1.) + IBL (status 31.12.)}{2} = \frac{840258 + 128117}{2} =$$

$$= cca 484 188 €,$$

$$r_d = \frac{interests}{average IBL} = \frac{32820}{484188} = cca 6,78 \%$$

We will not count the average statuses of IBL in the other years, in the 1<sup>st</sup> year we would miss the data (initial state). We used these as illustrations. The calculated IBL costs will be reflected in both WACC and EVA. With regard to the NOPAT calculation based on Slovak financial statements in subsequent years following the analysed period, it should be noted that from the beginning of the financial statements by 31<sup>st</sup> December 2014, a new structure of profit in the accounting of businesses in the Slovak Republic is valid, it is made of: profit from operating activity and profit from financial activity, their sum is profit for the accounting period. Extraordinary activity costs and revenues as the accounting items have been cancelled. Such showing of the profit will further strengthen the need to “clean up” the accounting costs and revenues when calculating NOPAT from the impact of accidental occurrences that will be reflected as costs or revenues as these will already form part of the costs and revenues of the operating activity according to the new legislation. As we have already mentioned, *the most important factors that affect the creation of value for the owner in the form of EVA are:* cost reductions, revenue growth and (accounting) profit growth, operating profit generation, appropriate structure and reasonable amount of assets and their efficient use, furthermore suitable structure of the enterprise and in relation to it, the amount of capital costs, and in particular their relationship to ROE (return on own equity). Already in the initial company analysis it could be assumed that it generates value for its owners – the company is profitable in the long run, its revenues and profit have a growing trend, despite the higher share of liabilities it is able to repay their price, as confirmed by EVA, it has a demanded and perspective subject of business activity. The subject matter of the discussion will therefore not be whether it creates

economic value added, but the *way of its measurement* that the company chooses. For the illustration, we have used procedures that are not the most difficult ones but are understandable and usable in the basic orientation. In this context, we will also mention an example from the practice of the OEZ Group, where they have introduced their own simplified indicator *PEVA – enterprise EVA*: instead of operating profit it uses economic activity profit, the WACC is replaced by a business constant of 6%, and all the liabilities and equity are considered to be the capital. According to the information source, the company conducted a sensitivity analysis and found that PEVA and EVA had practically the same course.

### *Conclusion*

The use of EVA in the enterprise practice is multiple: EVA can be used as a tool for:

- enterprise performance measurement and management,
- enterprise valuation and acquisition,
- investment projects assessment,
- managing and motivating employees.

Multiple use of the EVA concept is an indisputable advantage as well as the relative simplicity of calculation compared to other value indicators based on economic profit. In our country, EVA is better known from theoretical sources; in practice, we can rarely meet with its introduction into the company management system, that means that it does not apply as *a management concept*, but it is used more as *an indicator of financial and economic analysis*. These facts are still considered to be its shortcomings:

- It is based on accounting data which, in particular according to the authors' original concept, need to be adjusted from an accounting form to an economic model in a difficult way; a complete set of adjustments is not known, it is the business secret of Stern Stewart & Co.,
- the problem is the calculation of the cost of capital, especially the own equity, which is just like the calculation of EVA always an estimate,
- the enterprises are often assessed on the basis of annual EVA changes ( $\pm$  EVA), not on the basis of current value of future EVAs:

$(\sum_{t=1}^{\infty} \frac{EVA_t}{(1+WACC)^t})$  – in this case EVA takes into account only the

consequences of business activity and managerial decisions in one (particular) period, it does not include in the assessment the expected earnings in future periods,

- the model is not adjusted for the inflation impact.

Just like all models, EVA also brings simplifications, on the other hand it also enables to extend the ratings and conclusions from the financial and economic analysis including the owner and information on how they have managed to capitalize their capital (instead of another possible investment of their money).

## References

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## Data and results

Table 3.1 Balance sheet

Accounting item [€]	Analysed years			
	1st	2nd	3rd	4th
<b>TOTAL ASSETS</b>	<b>18 081 894</b>	<b>21 050 078</b>	<b>16 038 550</b>	<b>31 060 143</b>
<b>Non-circulating assets</b>	<b>1 835 033</b>	<b>1 518 703</b>	<b>1 378 091</b>	<b>1 726 212</b>
Intangible assets	556 117	456 904	369 645	650 530
Tangible (fixed) assets	536 401	319 284	189 516	256 752
Long-term financial investments	742 515	742 515	818 930	818 930
<b>Circulating assets</b>	<b>16 158 584</b>	<b>19 336 479</b>	<b>14 505 285</b>	<b>28 851 996</b>
Inventory	870 345	1 281 656	789 208	2 091 727
Long-term receivables	106 833	94 078	96 542	46 407
Short-term receivables	13 731 055	16 210 475	11 987 251	25 379 324

Marketable securities	0	0	0	0
Financial accounts	1 450 351	1 750 270	1 632 284	1 334 538
- Cash and cash equivalents	45 015	38 237	41 801	41 818
- Money on bank accounts	1 405 336	1 712 033	1 590 483	1 292 720
<b>Accrued assets</b>	<b>88 277</b>	<b>194 896</b>	<b>155 174</b>	<b>481 935</b>
Accrued costs	37 454	124 021	128 895	438 795
Accrued receipts	50 823	70 875	26 279	43 140
<b>TOTAL OWNER'S EQUITY AND LIABILITIES</b>	<b>18 081 894</b>	<b>21 050 078</b>	<b>16 038 550</b>	<b>31 060 143</b>
<b>Owner's equity</b>	<b>6 768 765</b>	<b>5 052 264</b>	<b>4 157 991</b>	<b>4 666 531</b>
Basic (registered) capital	388 464	422 700	422 700	422 700
Capital funds	9 958	9 958	9 958	9 958
Funds created from profit	84 493	84 540	84 540	84 540
Earnings retained	2 596 762	2 683 133	1 194 092	2 290 794
Current period earnings after taxes	3 689 088	1 851 933	2 446 701	1 858 539
<b>Liabilities</b>	<b>11 229 966</b>	<b>15 812 313</b>	<b>11 775 151</b>	<b>26 344 464</b>
Reserves <i>(Note: in SR they are connected with future debt)</i>	374 723	295 824	608 691	748 167
Long-term liabilities	157 783	85 839	73 448	127 450
Short-term liabilities	9 622 997	14 381 739	10 326 202	25 468 180
Bank loans	1 074 463	1 048 911	766 810	667
<b>Accrual liabilities</b>	<b>83 163</b>	<b>185 501</b>	<b>105 408</b>	<b>49 148</b>
Accrued expenses	7 202	136 979	6 238	7 026
Accrued revenues	75 961	48 522	99 170	42 122

Source: own processing according to Individual Balance Sheet IT Services, Inc.

Table 3.2 Profit and loss statement

Accounting item [€]	Analysed years			
	1st	2nd	3rd	4th
<b>TOTAL COSTS</b>				
Costs of goods sold	20 955 239	24 446 941	28 894 501	30 188 471
Material, energy and other non-warehousing delivery costs	571 965	592 088	566 582	689 169

Services	6 975 681	6 106 522	9 399 676	9 311 174
Personal costs	8 769 857	8 050 902	9 174 099	9 542 216
Taxes and fees	18 731	16 478	14 923	21 010
Depreciation and amortization (of tangible and intangible assets)	493 338	403 663	278 369	245 437
Depreciated cost of sold long-term assets		600		17 573
Adjusting entries to accounts receivable	138 077	13 820	21 334	-4 141
Other "operating activity" costs	132 579	110 657	236 518	78 673
<b>Total "operating activity" costs</b>	<b>38 055 467</b>	<b>39 741 671</b>	<b>48 586 002</b>	<b>50 089 582</b>
Sold securities and shares costs		34 000		
Interest costs	74 645	103 753	54 073	32 820
Exchange rate losses	85 401	21 878	11 549	12 386
Other financial costs	41 237	30 625	19 099	31 110
Adjusting entries to financial assets				
<b>Total financial costs</b>	<b>201 283</b>	<b>190 256</b>	<b>84 721</b>	<b>76 316</b>
<b>Extraordinary costs*</b>	<b>0</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>TOTAL COSTS</b>	<b>38 256 750</b>	<b>39 931 927</b>	<b>48 670 723</b>	<b>50 165 898</b>
<b>TOTAL REVENUE</b>				
Revenue from selling goods	26 373 955	28 670 255	37 845 502	36 509 653
Revenue from selling own products and services	16 551 284	13 274 260	13 498 069	15 838 824
<i>Total revenue from sales of goods, own products and services</i>	<i>42 925 239</i>	<i>41 944 515</i>	<i>51 343 571</i>	<i>52 348 477</i>
"Activation" of material, services, tangible and intangible assets	-131 942	121 000	305 280	133 854
Revenue from selling tangible and intangible assets and material	25 353	37 621	42 635	71 627
Other "operating activity" revenues	73 206	85 955	91 186	105 174

<b>Total "operating activity" revenue</b>	<b>42 891 856</b>	<b>42 189 091</b>	<b>51 782 672</b>	<b>52 659 132</b>
Revenue from seeling securities				
Revenue from financial assets	12 006			
Revenue interests	3 305	6 058	3 225	3 005
Exchange rate profits	46 090	18 787	12 524	1 104
Other financial activity revenues			1	
<b>Total financial revenue</b>	<b>61 401</b>	<b>24 846</b>	<b>15 749</b>	<b>4 109</b>
<b>Extraordinary revenue*</b>	<b>0</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>TOTAL REVENUE</b>	<b>42 953 257</b>	<b>42 213 937</b>	<b>51 798 421</b>	<b>52 663 241</b>
<b>"Operating activity" earnings</b>	<b>4 836 389</b>	<b>2 447 420</b>	<b>3 196 670</b>	<b>2 569 550</b>
<b>Financial activity earnings</b>	<b>-139 882</b>	<b>-165 410</b>	<b>-68 972</b>	<b>-72 207</b>
<b>Extraordinary activity earnings*</b>	<b>0</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Earnings before taxes</b>	<b>4 696 507</b>	<b>2 282 010</b>	<b>3 127 698</b>	<b>2 497 343</b>
<b>Earnings after taxes</b>	<b>3 689 088</b>	<b>1 851 933</b>	<b>2 446 701</b>	<b>1 858 539</b>
<i>*only till the year 2013</i>				

Source: own processing according to Profit and Loss statement IT Services, Inc.

Table 3.3 Growth rates of chosen items from profit and loss statement

<b>Growth rate [%]</b>	<b>Analysed years</b>		
	<b>2nd/1st</b>	<b>3rd/2nd</b>	<b>4th/3rd</b>
Sales revenue (goods, own products and services)	-2,28	22,40	1,96
Total revenue	-1,72	22,70	1,67
Total costs	4,38	21,88	3,07
Earnings from operating activity ( $E_{OA}$ )	-49,29	30,61	-19,62
Earnings from financial activity ( $E_{FA}$ )	18,25	-58,30	4,69
Earnings before taxes (EBT)	-51,41	37,06	-20,15
Earnings after taxes (EAT)	-49,80	32,12	-24,04

Source: own processing

Table 3.4 Interest-bearing liabilities and non-interest-bearing liabilities

Liabilities [€]	Analysed years			
	1st	2nd	3rd	4th
Bank loans	1 074 463	1 048 911	766 810	667
Long-term liabilities	157 783	85 839	73448	127 450
<b>Total interest-bearing liabilities</b>	1 232 246	1 134 750	840 258	128 117
Reserves	374 723	295 824	608 691	748 167
Short-term liabilities	9 622 997	14 381 739	10 326 202	25 468 180
Accrual assets	83 163	185 501	105 408	49 148
<b>Non-interest-bearing liabilities</b>	10 080 883	14 863 064	11 040 301	26 265 495
Total liabilities (including accrual assets)	11 313 129	15 997 814	11 880 559	26 393 612

Source: own processing

Table 3.5 Partial indicators and the calculation of EVA

Accounting item [€]	Unit	Analysed years			
		1st	2nd	3rd	4th
Slovak operating profit	[€]	4 836 389	2 447 420	3 196 670	2 569 550
(1-t)	decimals	0,81	0,81	0,81	0,77
NOPAT (Slovak operating profit.(1-t))	[€]	3 917 475	1 982 410	2 589 303	1 978554
EAT	[€]	3 689 088	1 851 933	2 446 701	1 858 539
C (capital)	[€]	18 081 894	21 050 078	16 038 550	31 060 143
- E-equity	[€]	6 768 765	5 052 264	4 157 991	4 666 531
- IBL	[€]	1 232 246	1 134 750	840 258	128 117
- NBL	[€]	10 080 883	14 863 064	11 040 301	26 265 495
Interests	[€]	74 645	103 753	54 073	32 820
Equity-share	decimals	0,3743	0,2400	0,2592	0,1502
IBL-share	decimals	0,0682	0,0539	0,0524	0,0042
NBL-share	decimals	0,5575	0,7061	0,6884	0,8456
Intangible assets	[€]	556 117	456 904	369 645	650 530
Tangible	[€]	536 401	319 284	189 516	256 752

(fixed) assets					
Circulating assets	[€]	16 158 584	19 336 479	14 505 285	28 851 996
Short-term liabilities	[€]	9 622 997	14 381 739	10 326 202	25 468 180
Net working capital (Circulating assets – short-term liabilities)	[€]	6 535 587	4 954 740	4 179 083	3 383 816
C (NOA) (Intangible assets+Tangible fixed assets+Net working capital)	[€]	7 628 105	5 730 928	4 738 244	4 291 098
$r_d$ (calculated according relationship (15))	[%]	6,06	9,14	6,44	25,61
$r_f$ (risk free interest rate)	[%]	3,87	4,45	4,55	3,19
$r_e$ - approach: 2-5 percentage points above $r_d$	[%]	<8,06- <b>11,06</b> >	<11,14- <b>14,14</b> >	<8,44- <b>11,44</b> >	<27,61- <b>30,61</b> >
$r_e$ - approach Model Group: 3 percentage points above $r_f$	[%]	6,87	7,45	7,55	6,19
WACC according relationship (16)	[%]	4,47	3,79	3,24	4,68
WACC in decimals * C	[€]	808 261	797 798	519 649	1 453 615
WACC in	[€]	340 976	217 202	153 519	200 823

decimals *C (C expressed as NOA)					
ROE (EAT/Equity)	[%]	54,5	36,7	58,8	39,8
(ROE – $r_e$ )	decimals	0,4344	0,2256	0,4736	0,0919
<b>EVA</b> (using NOPAT and C according relationship (1))	[€]	3 109 214	1 184 612	2 069 654	524 939
<b>EVA</b> (using NOPAT and NOA according relationship (2))	[€]	3 576 499	1 765 208	2 435 784	1 777 731
<b>EVA</b> (using ROE and $r_e$ according relationship (4))	[€]	2 940 352	1 139 791	1 969 225	428 854

Source: own processing

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**PERCEIVING  
PSYCHOLOGICAL ASPECTS  
OF PORTFOLIO INVESTMENT  
AS A SOURCE OF CREATING  
ATTRACTIVENESS  
OF FINANCIAL MARKETS**

**Portfolio investment in modern economy – an introduction**

Starting from the 80s of the twentieth century, a dynamic increase in the scale of international financial flows can be observed. This is the result of gradual abolition by the governments of developing countries of the inflow and outflow of capital abroad as well as the development of communication technologies and the globalization of financial markets.

Global financial flows generally take one of three forms: foreign direct investment, foreign portfolio investment and other investments (including trade loans, bank loans and bank accounts as well as current accounts and deposits). According to the definition applied by the majority of international institutions (including OECD and IMF), all foreign investments made by a resident of a given country in more than 10 percent of shares are considered direct investments. When the foreign investor's share in the company's capital is less than 10 percent, then such a venture is treated as a portfolio investment. However, it is worth recalling that when we talk about portfolio investments, we primarily refer to the purchase of debt securities, which due to the original maturity can be divided into long-term ones, ie over one year (Treasury bonds, municipal bonds, corporate bonds), as well as and short-term, ie less than one year, called money market instruments (eg treasury bills, negotiable certificates of deposit). The main objective of portfolio investments, in contrast to direct investments, is to diversify the investment portfolio dictated by the pursuit of risk reduction and the achievement of a higher profit from the acquisition of foreign securities.

A derivative of the various objectives for which both forms of foreign investment are undertaken is the smaller or larger variability of financial flows due to this. The latter is understood as the risk of a sudden stop of the inflow of capital or even a sudden outflow of capital from a given economy. Therefore, direct investments are characterized

by greater stability, while portfolio investments are characterized by greater fluctuations and depend to a large extent on external factors. These factors include the investor's liquidity problems and the rapidly emerging opportunities to make another investment that potentially gives a higher return. In developed countries, portfolio investment is more stable than in developing countries. This is due to the stability of the entire economy and strategic decisions of investors.

The major part of the international capital transfer is between developed and even highly developed countries. This fact seems to be inconsistent with the prevailing economic theory, according to which capital should flow from developed countries to developing states due to a significant difference in the return on investment. Research shows that in the case of developing economies, the share of FDI in the inflow of capital is higher than in the case of developed economies. This may result from various investment strategies and a significant difference in size of companies in the country of origin and in the target country. An investor from a developed country is able to easily acquire much more than 10 percent shares in a company from a developing country. However, when investing in a developed market, its relative purchasing power is limited. The bigger the company you want to invest in, the smaller the share you can get for the same amount.

An interesting question is how investors decide whether to invest directly or in a portfolio. Goldstein and Razin [Goldstein, Razin 2005, p. 21] analyze this issue from the investor's point of view. The basic difference between these two forms of investment lies in their profitability and costs. Portfolio investment does not create additional costs, but does not allow the owner to directly influence management, which limits their profitability. Direct investments, on the other hand, allow an investor to manage a company, which generates significant profits, but is associated with costs. The first type of costs is the fixed cost resulting from the transaction. The second one results from the asymmetry of information. It is connected with the difficulty of selling shares at the expected price, especially if the investor is forced to raise funds quickly and must sell his shares prematurely in a foreign enterprise.

A portfolio investor has almost the same information as the market. If he must suddenly sell his shares, he should take into account that he can get a market price. In the case of a direct investor, asymmetry of information works to its detriment. It is assumed that market participants have information about their in-depth knowledge and suspect that the

project is burdened with the risk of incurring losses or generates only small profits. This fact may translate into a drop in the market price of the project. Only if the market knows that an investor sells shares because it has liquidity problems, then it will not "guess" the existence of problems arising from the profitability of the project and will be willing to pay the right price.

### **Financial markets development and psychological aspects of investing – common points**

Rationality is an ambiguous and uneven term. In philosophy, a situation or behavior is rational when it is characterized by a sense, is appropriate, required or consistent with a recognized purpose. Psychologists under the concept of rationality understand the behavior of a man who fulfills specific cognitive standards [Over 2004, p. 3-18], but recognizes the so-called epistemic rationality, related to the formulation of rational beliefs and logical reasoning, and the rationality of action, which is mainly related to the activities undertaken and their compliance with goals and logic. It is said that theoretical rationality and practical rationality and worth noting is that both these rationalities need not be compatible with each other. Both philosophical and psychological approaches are characterized by a certain process of rationality. The look is more focused on the interpretation of rationality not in observable context behaviors, but motives for their emergence.

Economists differ in their perception of rationality. Rationality is dealt with in strictly formal aspects related to the internal coherence of preferences [Sen 1993, p. 503]. Thus, such behavior is considered rational, which is consistent with the maximization of expected utility and, at the same time, results from preferences fulfilling certain conditions [Kacelnik 2005, p. 102]. These conditions, as defined by von Neumann and Morgenstern's theories, include coherence, transitivity, the result is quite certain or the substitutability. Economic models based on the assumption of rationality show however, in many cases mismatch to reality. Such phenomena are permanent the subject of many studies, on the basis of which defines paradoxes of rationality, and their catalog from year to year is more and more extensive. Examples of such incompatibilities include Allais's paradox (excessive profit preference by some people) and Ellsberg's paradox (excessive avoidance by people of unclear / uncertain results) [Zaleśkiewicz 2012, p. 98].

From the point of view of financial decision making, the most

commonly cited derogations from rationality are: overoptimism, overconfidence, confirmation bias, illusion of control, post factum error and framing effect.

Excessive optimism lies in the unrealistic conviction of the observer on the positive course of events. In economics it is common to use the formulation of “illusory optimism” to determine the situation of exaggerating the potential benefits of the project and underestimating the probable costs, assuming success and ignoring the possibility of confusion. Excessive optimism can overstate the probability of rare occurrences and undesirable events. In the case of an investor with excessive optimism, this tendency can lead to decisions that result in unrealistic or too risky choices.

Excessive self-confidence is the over-belief of an individual in his or her own knowledge and ability. Confidence in self-efficacy leads to misconceptions about his or her abilities, abilities and is not adequate to reality. Too much confidence in the knowledge and skills of the decision maker is often combined with excessive optimism. This is justified because the first of these irrationalities refers to optimism related to the direct activity of the subject while the second irrationality is the optimistic perception of the possibility of event realization resulting from favorable external circumstances.

A confirmation trap (affirmation error) is a tendency for decision makers to search for information that confirms their beliefs and ignores the data they deny. The affirmation error consists in seeking information consistent with beliefs while ignoring facts that undermine their own predictions.

The illusion of control (control error) is based on the subjective conviction of the individual, the chance of success is disproportionately high in comparison with real probability. The effect of the decision depends on many factors: competence, knowledge, investor skills, but also from external factors, random. One can see here the phenomenon of over-certainty of the possibility of controlling the consequences of the decision.

Post factum error is a misconception that an ex post result could be ex ante obvious. This is the feeling that occurs after the occurrence event and belief that some result was predictable and very likely even when he was not. At the root of this phenomenon lies the tendency of a person to attribute him to success when the decision was correct. If it is wrong, the fate or other external factors will be blamed for failure.

The effect of framing is that different forms of presentation of the

decision problem influence the choices made. The same problem can be presented in different ways. The form of presentation of the decision problem can influence the choice

In addition to the effects mentioned above, there can be other effects observed on financial markets, like: effect of narrow frames, money illusion, mental accounting, halo effect, self-attribution error, hindsight bias, gambler's fallacy, short series errors, the right to return to the average.

### **Portfolio investment – motives of decision making process. Rational endogenous and exogenous reasons for decisions on portfolio investment**

The capital market as a component of the financial market, and thus part of the economy, does not exist as an element separated from external factors. “The concept of financial markets cannot be explained on the basis of economics based on the theory of an isolated individual, assuming the ability to understand all aspects of a complex economic system by breaking it into components” [Nowakowski, Borowski 2005, p. 297-300]. Like in any case of economic construction the theoretical model does not take into account the psychological factor. The basic errors in the theoretical assessment of the capital market are:

- 1) assuming that units behave in a linear and mechanical manner,
- 2) lack of reflection of the fact that people have a strong influence on themselves,
- 3) no picture of the volatility of moods.

The issue of the influence of psychological factors on the investment decision making process plays a great, though often underestimated, role. It is enough, however, to look at the history of financial crises and stock market crashes in order to understand their meaning. A typical example here is the so-called tulip mania from 1720 [Kindleberger 2005, p. 65]. The specificity of the situation perfectly reflects the sentence: “People become crazy in the crowd and return to healthy senses slowly, one by one” [Mackay 1996, p. 127]. A similar situation occurred during the collapse of the American market on October 24 and 29, 1929, and the human factor played a significant role here. The psychology of the crowd is very interesting, and thus the psychology of financial markets is explained by G. Le Bon. He believes that: “... regardless of what individuals make up the crowd and whether their type of occupation and way of life, their characters and mental level will be

the same or different – thanks to the fact that these individuals were able to create a crowd, they have something in the type of a collective soul. This soul tells them to think, act and feel differently than it did, it thought and felt every single individual” [Le Bon 2009, p. 95] Yet another approach to the topic is presented by C. Carolan, focusing on the behavior of stock market investors: “The crowd consists of buyers and sellers, while the dance floor is the place where both sides meet. These people are like polarized solar energy, and transactions are sparks, leaping a gap. They work under the influence of impulse, which can often be considered an advantage, but when emotions pass, it turns out to be a kind of handicap” [Carolan 1993, p. 107]. The occurrence of crises is an important stage in the development of the capital market of each country, so we see how important the role of external investment psychology plays in it. . The concept according to which the behavior of financial markets is an example of the phenomenon of collective behavior is the basis for the approach to forecasting events on the markets of bonds, shares and foreign currencies. Collective behavior can be predicted, hence the possibility of predicting price movements in the markets, because they are reflected in simple and specific indicators, eg volume of trading volume. Price movements and activity of investors examine technical analysis, the tool of which has become repetitive price formations.

In the era of globalization of financial markets, an investor can see more and more opportunities to achieve a high rate of return on invested funds. This makes investors “lose the basic element of success – control over their own emotions. If they do not control themselves, they are also unable to manage their finances” [Elder 1993, p. 54]. It seems that it is the stock market investor that is the weakest link in the investment system. The impact of emotions on the investor translated into the creation of a series of indexes, based precisely on the psychology of markets. These include TRIN (Trader’s Index), consensus indicators, tracking advisory opinions, sentiment index, signals from advertisers, cash levels of investment or pension companies, index of turnover of incomplete packages (odd lot index), short sale indicator (determines what part of the market is set to decreases).

The technical progress is connected with the increase of the role of the non-human, technical and IT factor. It limits to a large extent the possibility of making a mistake, resulting from human emotions, but history shows that it does not protect against significant perturbations on the capital market. An example here can be the panic that was called on

Wall Street in October 1987 by automatic computer systems.

As the examples did not present above show, modern solutions in neither the construction of financial instruments nor the methods of communication and information transfer are able to prevent crises on the capital markets. Impulses appearing on different markets are sent to more, more or less susceptible to shocks. Portfolio investment is one of the channels for sending information about the situation of given markets. Thus, they contribute not only to shaping the situation on them, but also condition their development.

The approach as for investment purposes should be used differently in the case of individual investors and others when it comes to people managing other people's money. Individual investors constitute a large group of participants in every capital market. These are natural persons who invest their savings or in the case of more affluent investing their financial sources. A characteristic feature of these investors is that they take their decisions carefully, they do not deal professionally with the capital market and do not devote time to stock market analysis. Individual investors investing their savings most often want to achieve exorbitant goals without accepting proportionally high risk. There are many methods of investment and speculation that give you the opportunity to earn good money, but it is not realistic to meet such exorbitant criteria. Other goals, however, are managed by someone else's money. Their goals are mainly related to gaining a position on the market. First of all, they care about guaranteeing profits with small capital lows and, as a result, customer satisfaction. It is also important that quantities such as profit and risk are not excessively deviated from the assumptions. In the case of excessive profit when it comes to the growth rate raises high expectations in clients. However, the higher level of risk achieved may cause panic in clients. Thus, eliminating these differences is one of the most important goals of managing money.

Setting realistic financial objectives is an elementary step in effective investment. When thinking about goals, we usually run into the future, however, short-term goals also naturally exist. When characterizing them, it should be assumed that the costs of their performance are greater than the fixed remuneration and are known to be so close that they motivate to save. Long-term goals, however, involve a period of many years and require the investor to be patient and systematic. The temptation to achieve long-term goals is the temptation to withdraw money faster by covering current expenses or short-term goals. Most often, however, both goals are related. These goals can be achieved

jointly by having two streams of money. Part to invest according to short-term strategy and the other according to long-term strategy. Investment goals are therefore closely related with time [Ellis 1994, p. 41-43].

In an investment, an important thing is income, which depends on the risk. When investing his money, the investor wants to know how much he will earn, but also what the risk will be his investment. The definition of investment shows that the investment is a renunciation of the present benefits for future, but not certain profits. This uncertainty is connected with risk.

In the era of globalizing economies, when capital has virtually no restrictions on the flow between markets, the availability of information is a fundamental and decisive factor for the selection of a single investor. The picture of the country against the background of other countries, its possibilities and development potential, conditions for the development of domestic enterprises may be one of the main impulses for making investment decisions.

The analysis of global markets includes a multilateral approach to the economy of each country: its GDP level (in terms of total, per capita and growth dynamics), capital investment, industrial production, inflation and interest rates. The next step is the analysis of sectors, industries and companies. It is necessary to determine whether the markets (stocks, bonds, cash) are undervalued or overvalued (the market price is lower / higher than their value). Then it is necessary to consider which of the industries of a given country and which of the companies is the most attractive investment. The analysis of particular industries includes the study of their behavior over time, the reaction of enterprises from a given industry to a specific economic or political factor. To make the right choice, it is also necessary to take into account the differences in the risk levels of the industries we are interested in.

The assessment of endogenous factors that attract investors to the capital market of a given country can be divided into the following groups:

- The ability to achieve a specific level of return or build a portfolio with a certain level of risk;
- A large selection of securities with certain parameters;
- Interest rates on the market;
- The stability of the currency system and the domestic currency exchange rates for the investor;
- The presence of market entities (or government securities) that

arouse interest due to strong international competitive position, ability to achieve above-average profits, reputation; an important information for investors looking for interesting opportunities to locate capital on global capital markets are the rankings of companies' positions on international markets;

- The amount of transaction costs and liquidity of the capital market;

- A legal system that, thanks to appropriate regulations, enables safe trading of capital and increases the level of trust in it;

- An economic system within which the capital system is developed. Its development entails further changes;

- Technological environment, i.e. the possibility of using modern ICT systems, facilitating capital operations;

- Culture of a given country, its attitude to material values, understood as an impact on transaction security and market stability;

- The degree of market openness to new foreign behavior, capital, education level of the population, etc.;

- The rate of savings of the society and business entities;

- Religion that shapes human consciousness and has an impact on the culture of society;

- A political system that gives the ability to decide the citizens of a given state about the standard of living;

- Geographical environment, wealth in basic goods, as well as urban planning, infrastructure. These conditions allow not only dynamic development thanks to the advantages of the location, but also the possibility of focusing on the missing links of the economic system.

Among the exogenous factors, there can be distinguished:

- The level of information about a given market on the international arena, its sharing by the authorities of a given country,

- Information on individual companies and investment conditions,

- Guarantee of the stability of development of a given capital market, assessed on the international arena,

- Perception of security by foreign investors,

- The situation of a given country on the international political arena,

- Indebtedness of the country on international financial markets, GDP level, position in international trade, making international investments,

- Cooperation with institutions of countries with a higher level of development and further reaching reforms of financial markets, which

can be called strategic allies in the international environment.

Seemingly insignificant factors, such as the flow of information, culture or religion of a given state, its level of isolation on the international arena have a significant impact on the level of development of its economy, financial and capital market within it. Stable stereotypes or willingness to discover new investment opportunities are an important decision-making factor for an emotionally-sensitive individual investor as well as an investment fund that searches for attractive, undiscovered areas that are ideal for various types of investors. Therefore, it is worth taking a closer look at the conditions that affect the development of a given market, and also define them for individual countries. It is also significant that endo- and exogenous factors cannot be clearly distinguished, because they intertwine with each other and condition each other.

The investor, after analyzing these factors, can determine the level of its long-term potential to generate profits. This prompts him to invest in a given company. In the era of globalization, when all the information needed to analyze markets is widely available, investments can cover all the world's economies. The attractiveness of companies contributes to the withdrawal of capital from international financial markets, and the volume of turnover on the market of a given country enforces the process of its service and as a consequence of the development of the entire market, there are institutions and instruments.

### **Investors styles at portfolio investment**

In the contemporary financial market, the terms investment style and investment system are often used interchangeably. In the meantime, these are two completely different determinants inextricably linked to the investment process. It turns out, however, that there are mutual relations between them. Each of the known investment styles and trading systems should be used in a strictly defined market situation and a suitable time horizon.

The investment style is a set of parameters and rules that are inherent in every transaction carried out by the player and independent of the investment system used or the investor's strategy. Investment style is often also referred to in the literature of the subject as a discipline in investing. In the investment pyramid, ie the composition of each investment process on the stock market, investment style occupies second place. It is right after the knowledge of the market and the

individual experience of each investor, the most important element of such a process.

Each investor should choose the investment style appropriate to psychological condition and in accordance with personal goals. The rules of each investment style can eliminate the emotional factor when making investment decisions. These rules force the investor to focus on the most important factors accompanying the transaction, allowing him to avoid improper operations.

In portfolio investment two strategies can be highlighted, not related to time, but rather to the motive of making decisions. An investor using the “buy and hold” strategy selects shares on the market that, according to his predictions, have a chance to grow in the medium or long term. The composition of the portfolio thus created does not change over the assumed investment period.

The “market intuition” strategy is based on constant analysis of the market situation and modifying the level of capital involvement from one asset class to another, which in the investor’s opinion should give maximum profits or prevent it from incurring a loss. This strategy requires a lot of analytical work. The investor cannot afford a longer break in tracking market trends.

Investing can be based on an analysis of the situation and development prospects in individual sectors of the economy. The analysis in this area has a much wider dimension than in the case of individual companies. The results of a given industry may depend on the state of the national or global economy, including the strategic costs of raw materials and the directions of technological development in the world. For example, large-scale development prospects may have companies operating in the field of nanotechnology, with which the world combines the solution of many current problems.

Investing may also be based on in-depth analyzes of the market situation and anticipated economic trends, including macroeconomic indicators such as inflation, interest rates, unemployment or economic growth rates. These factors have a fundamental impact on the situation of enterprises. Hence, they can form the basis for forecasting the situation on the capital market.

The chosen investment strategy should ensure the use of the potential in the company, industry, prices of raw materials or the market. Its proper identification gives you the chance to make a profit also in portfolio investments.

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**MAIN REQUIREMENTS  
FOR REFORM OF THE  
DOMESTIC PENSION  
SYSTEM IN THE CONTEXT  
OF EURO INTEGRATION  
PROCESSES IN UKRAINE**

Ukraine refers to those countries that at the legislative level declared that social protection of the population have the main priorities in the construction of the national financial model. It is one of the main criteria for the socialization of social development. The level of social protection of citizens of retirement age depends on the state and possibilities of developing the existing domestic pension system. That is why the requirements for the formation of an optimal modern pension system should reflect those quests that are presently in society. Their implementation will contribute to solving the problems associated with the financial provision of pension benefits, the search for additional sources of funding, and most importantly, raising the level of incomes of retirement age citizens to the relevant international standards. The pension reform in the country, every stage of its implementation, should take into account these requirements and their implementation will approximate the formation of an effective model of the national pension system.

Such researches and specialists in the field of pensions as G. Mc Taggart, P. Golisha, N. Barra paid attention to the study of problems of the development of pension systems abroad. Today, the main developers of pension reform models in the world are organizations such as the International Labor Organization (ILO) and the Organization for Economic Cooperation and Development (OECD), which are the main ideologues and strategies of pension and social policy and the world. It should be noted that the International Monetary Fund (IMF) and the World Bank, which include two financial institutions - the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA), play the leading role in reforming the pension system in different countries. These international financial organizations provide financial support to the reform processes, including in our country.

Adaptation of foreign developments to the conditions and specifics of financial science in Ukraine is of considerable scientific and practical

interest and requires special research in the field of pensions. The main aspects of the functioning of pensions in Ukraine are highlighted in the works of N. Bolotin, M. Boyko, S. Sinchuk, M. Bodnaruk; Analysis of the problems and features of the functioning of the joint system was carried out by V. Boreiko, V. Burak, B. Zaichuk, I. Yaroshenko, L. Knyazkova, A. Skorobagatko, T. Kravchuk, G. Nechai, N. Goryuk, D. Polozenko; The study of problematic issues of the accumulation of pension system is devoted to publications by E. Libanov, V. Kolbun, V. Grushko, O. Koval, S. Onyshko, L. Tkachenko A. Nechai, A. Fedorenko. However, the complexity and complexity of retirement-related issues necessitates further research.

International experience shows that in order to build an effective pension system, it is necessary to determine the requirements for it at the present stage of development of society. The task of scientists and specialists in the pension sector, at each stage of the pension reform, to develop such measures that would facilitate the implementation of these requirements and allowed to build an optimal mechanism for the functioning of the domestic pension system. The purpose of the study is to determine the basic requirements for the construction of an optimal national pension system, the analysis of the current stage of pension reform and the study of its role in the implementation of these requirements.

In Ukraine, with the 60-ies of the twentieth century, there is a gradual aging of the population, which adversely affected the retirement system in the 90's of the twentieth century. The low birth rate has not provided even a simple reproduction of generations, the intensive process of aging began to develop, and, accordingly, increased demographic load.

The demographic factor has been the main driver for reforming the national pension systems of almost all European countries. The use of multilevel pension models was not practical in implementing pension reforms. In addition to disbursing pension schemes, accumulative pension systems are increasingly being used to diversify sources of retirement benefits and increase retirement income. The principles of retirement insurance are the basis of the functioning of most national pension systems.

Leading countries in the context of the Millennium Goals program, which lists the values and principles that UN members must adhere to (solidarity and a shared responsibility for managing global economic and social development, eradicating poverty, protecting vulnerable

layers), reforming pensions, using different models of building pension systems. Since the beginning of the 80's of the last century, the problems of reforming the pension system have become practically all countries of the world. In 1981, a pension reform was held in Chile. During the 90's of the twentieth century pension reforms were carried out in countries with a developed market economy (in Germany and Italy in 1992, in France in 1993, in the UK in 1994, in the US in 1995, in subsequent years in many other countries of the world). Researchers predict that already by 2030 the burden of pensioners on working population in developed countries will almost double. Now the world's leading countries are on the verge of demographic transformation. At the same time, in countries where there was a particularly high birth rate in 1945-1965, compensating for the effects of the demographic decline of the Second World War, there was a serious problem of aging. People born in this period today reach retirement age. According to UN forecasts, by 2050, the ratio of the working-age population to the population of retirement age (over 65 years) in developed countries will decrease on average from 4.5 to today – to 2.2, while in some countries it will be even bigger: in Japan – 1.5, in France – 1.4, in Germany – 1.2, in Italy – lower 1. This means that people who receive a pension will be larger than the payers of pension contributions [1].

Emphasizing the importance of the demographic factor in creating an effective domestic pension system, most domestic financiers believe that it is not the main one. In their opinion, the main problem is the economic situation in the country. In order not to do in the pension system itself, which measures to propose, something can be “directed”, but the problems in general can not be solved. International experts are proposing to consider the demographic issue in the general context of the socio – economic development of any state. Necessary objective condition for the formation of long-term macroeconomic strategy [8].

The peculiarity of the modern pension system of Ukraine, which distinguishes it from the pension systems of other European countries, is that, on the one hand, the cost of financing pensions is one of the largest articles on social protection – about 65%. However, the level of pensions of our citizens is one of the lowest in Europe [8]. In terms of the criteria for the stability of the financial system, the national pension system does not meet the European standards. According to domestic and international experts, one of the main problems in Ukraine is a constantly growing deficit of the Pension Fund. This is confirmed by the data in Table 3.6.

Table 3.6

**The main indicators characterizing the state of the pension system  
of Ukraine during 2010 -2016**

Indexes	Years						
	2010	2011	2012	2013	2014	2015	2016
Population, mln. people	46,0	45,8	45,6	45,5	45,4	45,2	45,0
Number of pensioners, mln. people	13,7	13,7	13,8	13,6	13,5	12,3	12,2
Pensioners,% of population	29,8	30,0	30,0	29,9	29,8	27,2	27,1
Minimum pension, UAH	723	800	882	949	949	949	1074
Average pension, UAH	999,0	1121,8	1253,3	1407,7	1526,1	1581,5	1699,5
Average salary, UAH	2239	2370,5	2752,9	2979,5	3149,9	3661,4	4482,4
The ratio between minimum and average pensions,%	72,4	71,3	70,4	66,8	62,2	60,0	63,2
Budget deficit of PFCs, UAH billions.	26,6	30,1	26,2	21,8	19,0	92	145
The ratio between the minimum pension and the average wage,%	32,3	33,7	32,0	31,5	30,1	25,9	24,0
Replacement rate,%	44,62	47,32	45,53	47,23	48,45	45,61	42,39

*Source: 6; 7; was built by author*

The financial experts of the social and gender programs of the Razumkov Center believe that one of the reasons that influenced this state of the budget of the Pension Fund of Ukraine was to reduce the value of the single social contribution. In their opinion, the desired positive results did not bring these measures by the government. If viewed from a business standpoint, perhaps this step was acceptable. However, from the point of view of the broad domestic and international expert community, this step was not well thought out and it has led to a significant increase in the budget deficit of the Pension Fund of Ukraine. The grant of the state budget of Ukraine to the Pension Fund is about 4.5 percent. Compared with European countries, which have subsidies to pension funds or organizations equivalent to them, this figure is higher

than 2 – 2.5 times [8].

The analysis of the state of the domestic pension system shows that the level of minimum and average pensions remains rather low if compared with European standards. The size of the minimum pension in the country is only 24% of the average wage in Ukraine, which in 2016 amounted to 4482.4 UAH. The replacement rate this year is at 42.39% (Table 3.6). In terms of the efficiency of the pension system, this indicator is quite important, as its adequacy is determined by the ratio of pensions to wages received by a citizen in the course of work. According to the ILO's international standard, this ratio should be at least 40% [4].

The solidarity pension system of Ukraine, for the past five years, can not cope with the financing of pension payments on its own. Own financial resources are insufficient, as evidenced by the deficit of the Pension Fund of Ukraine. This leads to the attraction of funds from the state budget, because according to the current domestic pension legislation, the deficit of PFCs is covered by it. In 2017, a grant from the State Budget of Ukraine to the Pension Fund amounts to 141.3 billion UAH [6]. This is almost half of the amount needed to pay all pensions in the state.

In connection with this, the next stage of the pension reform is one of the priorities of the Government of our country. Beginning with the reform, we need to understand what we will come to, which will eventually be our pension system. International experience proves that an optimal pension system should be adequate. That is, the pension must duly replace the former wage of a person so that after retirement she did not feel serious deterioration in her financial situation. Because the main requirement for the pension system is overcoming the poverty of pensioners.

It is also important that the pension system is real. This means that society must have the financial opportunity to ensure its adequacy – and to this day, and many years later. In addition, it must be sustainable, as constant changes, unpredictability and adjustments lead to people losing confidence in their future, trust in the very retirement and power. And as today's realities show, the pension system needs to be reliable, capable of withstand challenges, including economic and demographic crises.

The legal basis for the current stage of pension reform is considered by the Verkhovna Rada of Ukraine in October 2017 to be approved by the Law of Ukraine “On Amendments to Certain Legislative Acts of Ukraine Regarding the Increase of Pensions”. It envisages the

modernization of the pensions of the solidarity pension system from October 1, 2017 [2]. Changes in the solidarity pension system should be made, as most pensioners receive a minimum pension, which is 1 January 2018 equal to 1489 UAH. This level can not provide even the most vital needs of citizens of retirement age. Given that the average pension in Ukraine at the end of 2017 was UAH 2,446, this means that most pensioners live below the poverty line [6].

An integral part of the pension reform is the introduction of European standards for the functioning of the Pension Fund bodies of Ukraine. The use of modern information and management technologies, unified standards of service quality of citizens should make service provision to Ukrainians comfortable and efficient. This stage of pension reform is intended to improve the solidarity pension system, eliminate the “equalization” and ensure the financial stability and reliability of the joint pension system and prepare the ground for the following stages of the reform: introduction of compulsory accumulative pension insurance and ensuring functioning of the system of voluntary accumulative insurance.

In Ukraine, with 12 million retirees, before the reform, almost 8 million people received only a minimum pension. This is approximately 67% of their total. It is clear that it was not enough to satisfy even the urgent needs. In fact, the size of the pension payments did not depend on the length of the insurance period and the earnings from which the citizen paid contributions. Such a situation, besides being unfair to people, did not create motives to work legally and take care of paying insurance premiums to the Pension Fund.

The statistics show that for one pensioner today there is only one employee who regularly pays contributions to the Pension Fund of Ukraine. 26 million citizens aged 18 to 60 live in our country, and insurance premiums paid until October 1, 2017 only 10.5 million people, and even more than 1.5 million people paid by the state. As of November 1, 2017, the number of insured persons amounted to 12971.3 thousand people. Consequently, only 75% of the employed population employers and the state pay contributions, and 25%, which is about four million people of working age, does not pay a single social contribution [7].

An important point in reforming the existing solidarity pension system is that the decision to secure this level at the present stage of the pension reform will be carried out without raising the retirement age. That is, the right to retire after the current retirement age is maintained.

The new pension legislation provides for the introduction of new requirements for the length of the insurance period, which will affect the amount of pension benefits.

Upgrading the operation of the joint-stock pension system, the Government proposes to dismiss it from insurance premiums that are not secured by the receipt of insurance premiums. In the current domestic pension legislation, these payments are transferred and they will be made from other sources, in particular from the State Budget. The implementation of such measures will increase the sources of financing such payments and will reduce the burden on the Pension Fund of Ukraine and make it deficit-free.

As part of the implementation of pension reform in Ukraine, the introduction of a compulsory cumulative pension insurance, which forms the second pillar of the national pension system, is considered as an important system measure. According to some financiers, accumulative pension systems could become the “driver of the economy” [8]. The cumulative level of pension provision will enable diversification of sources of income upon reaching the retirement age, further weakening the influence of the demographic factor on the state of the joint pension system. In addition, the practical use of the mandatory accumulation pension system will allow the formation of a coherent national pension system consisting of three levels, which are defined by domestic pension legislation [2].

It is the need for the simultaneous functioning of all three levels of the Ukrainian pension system to promote its consistent formation as a holistic mechanism and will enable the use of solidarity and accumulation pension programs, to bring the financial relations between the main actors of the pension system to a new level.

Summarizing the above, it should be noted that during the implementation of the pension reform, the main requirement for the construction of the national pension system is to provide citizens of retirement age with decent pensions that would allow them to meet their vital needs and feel comfortable in society at the level with the rest of the population. . The optimal pension system should be real, sustainable, adequate, reliable International experience shows that multilevel pension systems can respond more quickly to the manifestation of financial crises and get out of them more quickly. The current stage of the reform of the national pension system should include the introduction of the second pillar, the fundamental reform of the solidarity pension system and increase the efficiency of the functioning of non-state pension

provision.

An important point during the implementation of the pension reform is that it is necessary to take into account the socio-economic situation in the country. The macroeconomic situation in the country has a primary impact on the reform of the national pension system. Therefore, macroeconomic reforms in general are crucial for the successful implementation of the reform of the pension system. The emphasis should be on the fact that all reforms should be harmonized and take place simultaneously in the economic sphere, in the sphere of employment, management at the macro level. The pension system is in fact a reflection of what is happening in the economy, finance and the labor market [8].

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**BANKING SYSTEM  
STRESS-TESTING  
AS A TOOL FOR  
THE  
DEVELOPMENT  
OF ECONOMIC  
SYSTEMS**

In the new global economy after crises 2008 and 2013, appraisal the concepts banking stress-testing according different regulatory acts has become a central issue for development of economic systems. The most effective approaches to stress testing and means of clearing the banking system in USA, Great Britain, the EU was realized in the recommendations of the Basel Committee on Banking Supervision.

Starting from 2014 the banking sector in Ukraine has undergone major structural changes, which has led to the closure of many Ukrainian banks by the regulator. The National Bank of Ukraine (NBU) has agreed plans for recapitalization, which provides measures for withdrawing loans from related parties of the bank on bank loan portfolios during three years. Ukrainian banks, which will have bigger risks than the established limits related to loans with related parties, will be closed before the beginning of 2019. Large banks must have a capital adequacy ratio (CAR) at a rate of 5% of assets with weighted risk and achieve a ratio of the maximum lending loan presence of related parties

in relation to regulatory capital of 25% in the beginning of 2019. (UCRA, 2017) [1].

Stress-tests have a predictive character. They allow determining the sensitivity of the bank's loan and deposit portfolios or the entire banking system to negative shocks, assess the impact of the effects of these shocks on the financial performance and capital of banks, and to determine the measures that need to be taken for strengthen of banks' resilience. So, researching the stress-testing methods and their results in Ukrainian banks has essential role for strengthen of financial stability and for development of economic systems.

Various foreign authors studied the stress-tests as instrument of banking system diagnostic. Thus, Dua Pami & Kapoor Hema (2017) were the first to examined macro stress-testing results of Indian Bank Groups using panel data from 1997 to 2014 [2]. Regarding stress testing of bank performance, Salvador Clement-Serrano (2016) was the first to investigate and evaluation the stress test based on Oliver Wyman in central Spain Bank [3]. El Mehdi Ferrouhi (2017) analyzed the long-term determinants of Moroccan commercial banks performance, for the period 2005-2015, using the Johansen co-integration test [4]. By using stress test for 15 largest Danish banks and analyzing excess capital adequacy Danmarks Nationalbank in the period 2008-2010, Soren Korsgaard (2017) found that access for banks to external funding in the financial markets may be challenged if the minimum capital requirements are breached [5].

The issues of stress testing and banking regulation were investigated by significant number domestic scientists. So, Andriy Ramskyi et al. (2017) noticed that changes in the banks' business environment in Ukraine, taking into account the impact of domestic and global financial instability and analyzed of main indicators of Ukrainian banks' financial stability within the period of 2014-2017 [6]. Svitlana Yehorycheva et al. (2017) analyzed of the Ukrainian banks micro- and macroeconomic indicators of the capital stability of domestic banks within the period 2007-2016 and has been detected that a significant reduction in return on equity of the Ukrainian banks in 2014-2015 even with restoring their liquidity has had a crucial destabilizing impact on their capital stability [7].

Issues of financial stability management of the banking sector of the economy and regulation of the banking system are being managed by a large number of foreign and domestic scientists. The research of stress-testing different banking systems as a whole is a very important, because

allow to find out what losses and risks the banks or the system as a whole can received in unexpected events.

Main aim in this study is to investigate the differences between stress-testing program of the world's leading banking systems and Ukrainian bank system and systematizes the stress-testing experience from Ukraine. Thus, the experience of several programs has been studied to select stress-testing approaches in Ukraine, such as stress-testing program in USA in 2015 under the Dodd-Frank Law, stress-testing program in all EU member states in 2014 and programs of stress-testing in the UK at the Bank of England in 2015.

There are many features in methodology of stress-testing programs USA banks, all EU member states bank systems and United Kingdom in the Bank of England. A characteristic of the stress-testing program in the USA under the Dodd-Frank law in 2015 is the scope of application “top-down”, when the testing forecasts a balance sheet of the bank’s holding company, assets with weighted risks, net profit and appropriate capital adequacy ratios under conditions imposing stress scenarios.

In analogy to the stress-testing program in the USA, the stress-testing program in all EU member states in 2014 is also characterized by the scope of application “top-down”. The peculiarity of the approach to stress-testing in the EU consists in the fact that the impact of risk factors on the solvency of banks through the calculation of indicators of equity capital adequacy of the first level is assessed, with a focus on solvency and market risks.

In contradistinction to the stress-testing program in the USA under the Dodd-Frank law in 2015 and the stress-testing program in all EU member states in 2014, the stress-testing program in the United Kingdom in the Bank of England in 2015 has the scope of application “bottom-up”. In this case, banks provide their forecasts; the Bank of England conducts testing on the basis of bank forecasts and makes adjustments. Thus, the “bottom-up” approach of the Bank of England has some adjustments, in particular: simulation of resizing and balance composition of the business, absence of restrictions upper limit of income and the lower limit of costs restrictions and using a set of analytical tools in addition to its own forecasts of participating banks.

Paying attention to international experience of stress-testing, Ukraine has developed its approach to stress-testing of the banking sector of Ukraine taking into account the specifics of the national banking system. The comparative analysis of stress-testing in USA, EU, United Kingdom and Ukraine approaches is given in Table 3.7.

Table 3.7

**Comparative analyze of stress-test approaches in  
USA, EU, United Kingdom and Ukraine (2014-2019)**

Indicators	Stress-testing program			
	USA	EU	UK	Ukraine
Period	2015	2014	2015	2018-2019
Institutions	31 holding companies of the bank (HCB)	123 banking groups from 22 countries	7 largest banks in the UK and construction companies	30 banks
Participation criteria	HCB with assets $\geq$ 50 billion dollars USA and non-bank financial companies	Sampling of banks with assets $\geq$ 50% of the national banking sector	All banks and Construction companies with retail deposits $\geq$ £50 billion.	Top 30 of banks
Consolidation level	HCB	Banking group	Highest level consolidation	NBU
Data sources	Data by the FRS and third parties	Data collected by national authorities regulators	Data of banks, England Bank and third parties	Data of bank, audit companies and NBU
Forecast period	9 quarters	3 years	5 years	2 years
Scenarios	Basic, Unfavorable, Extremely negative	Basic, Unfavorable	Basic, annual cyclical	Basic + pessimistic

*Source: Basel Committee on Banking Supervision (2017) [8].*

So, research on different policies in the Central banks USA, EU, UK demonstrating different conceptions of stress testing, which can be traced during three years in each country. Taking into account the foreign experience of stress-testing of the banking system Ukraine chose the scope of application “top-down” – an approach which is applied in all EU member states with certain adjustments.

Thus, NBU diagnostic research of the Ukrainian banking system was

based into account the problematic aspects of the stress-testing methodology and methodology in the EU and other countries, IMF recommendations and macroeconomic indicators Ukraine.

The NBU received results of the stress-testing on the basis of research of the expected change in the quality of loans of large borrowers, as well as other loans, with the exception of loans from government institutions. An individual approach envisaged an analysis of the financial position of large borrowers (over 200 million UAH or 5% of regulatory capital) and an assessment of the probability of non-payment due to low internal cash-flow generating capacity.

In according model for all big borrowers was provided stress-testing on an individual basis. At the same time, the financial results were modeled basing on the data of the financial statements, the basic macroeconomic scenario and data of the bank adjusted by the results of the inspection for each big borrower.

According to the regulations, the historic quality of debt servicing by the borrower was affected by the probability of default musty. Therefore the main assumptions of stress-testing were:

- macroeconomic factors affect the financial performance of banks and bank borrowers;
- the schedule of repayment of the borrower's debt to the bank in comparison with the borrower's operating cash flow determines the forecast quality of debt servicing;
- borrower's income and expenses are based solely on verified historical data what means that business plans, forecasts and intentions were not accepted.

The public sector in the form of a credit portfolio of state banks did not pass stress-testing and for the rest of the credit indebtedness of banks in stress-testing a portfolio approach was used. Consequently, on a portfolio basis, stresses were tested on other loans of legal entities (apart from public sector loans and large borrowers), mortgage loans and other loans of individuals. At the same time, migration of loans between performing and non-performing (NPL) loans was estimated with using an econometric model which evaluates the dependence of credit quality on macroeconomic indicators.

The diagnostic research of the banking system was initiated by the National Bank in 2015 and included a mandatory stress-testing of the 20th largest banks. Then 60 banks took part in the stress-testing in 2015-2016 that accounted for 97% of all system assets or 1518 billion UAH. Asset Quality Review and its impact on banks had shown that many

banks need to comply with the requirements for capitalization on the results of stress-testing in 2015-2016. The NBU requirements for capitalization of banks as of 01.04.2017 are shown below in Figure 3.1.

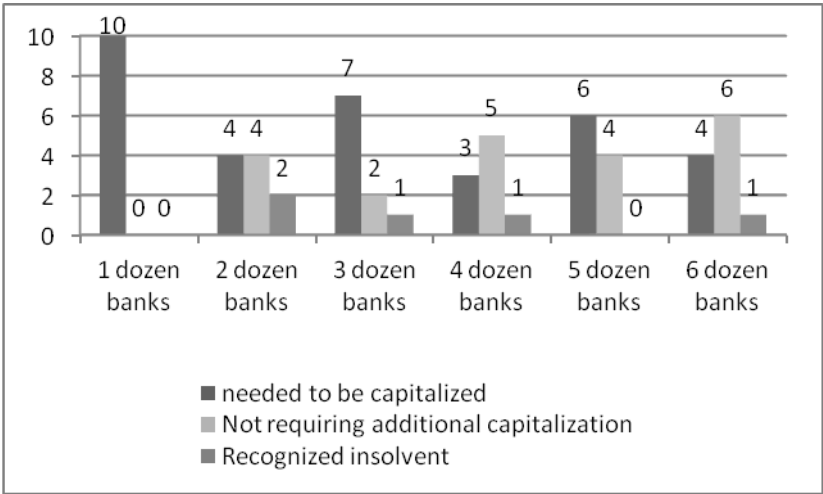


Figure 3.1 Number of banks needing additional capitalization, pcs.  
*Source: National Bank of Ukraine (2018) [9].*

In the process of stress-testing one bank of the 4 dozen was transferred to the 6 dozen banks. It was the 4 and the 6 dozen banks that had the highest percentage of banks that did not need capitalization. Thus, according to the results of stress-testing from 60 banks, 34 banks required to be capitalized, 21 bank did not required to be capitalized, 5 banks were recognized insolvent.

Experience from Ukraine showed, that stress-tests as instrument of banking system diagnostic contributed to a decrease in the number of financially unstable banks. Since the beginning of 2016, the number of functioning banking institutions has decreased in Ukraine. In January, 2016 only 117 banking institutions had the license of the National Bank of Ukraine including 41 banks with foreign capital. In January 1, 2017 only 96 banking institutions with license including 38 banks with foreign capital and in January 2018 only 82 banking institutions and 36 banks with foreign capital. Detailed information on the dynamics of changes in the number of banks in Ukraine in 2016-2018 is shown below in Figure 3.2.

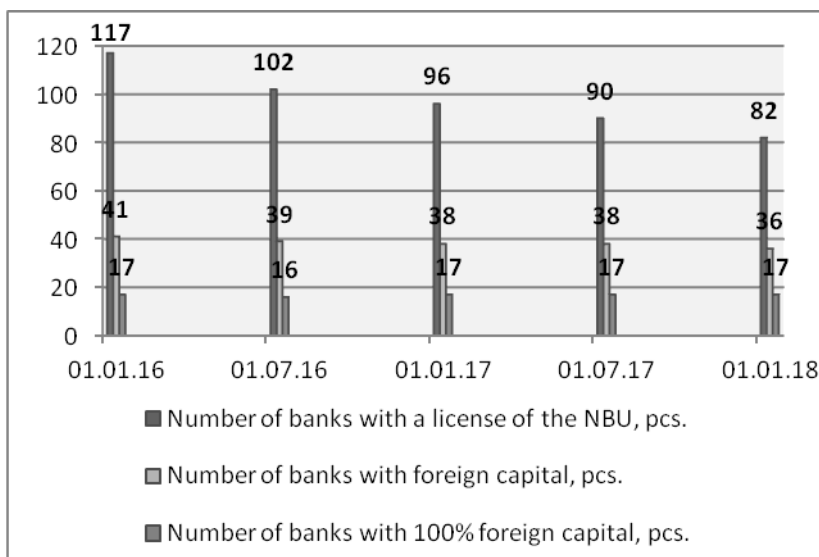


Figure 3.2 Dynamics of changes in the number of Ukrainian banks, pcs.  
Source: National Bank of Ukraine (2018) [9].

In total, during 2016-2017 the NBU revoked of bank licenses for 35 banks, including 2 banks with foreign capital. The relative stability of the number of banks with foreign capital and the constant number of banks with 100% of foreign capital in 2016 and 2018 years indicates that the methodology for calculating the borrower's credit risk have been already used in their activities by the management of foreign banks, based on assessing the real solvency of the borrower and his ability to perform conditions of the contract.

The banking system is an important element of the economy of any country. Today, many scientists and banking regulation experts consider stress-testing as an effective tools for diagnosing financial stability of the banking system for development of economic systems as a whole.

The stress-testing of Ukrainian banks has revealed some features in development of economic systems. Optimization of the banking system as a result of the diagnosis of the banking system. According to the stress-testing results, there were found a number of Ukrainian banks that had an ineffective policy in forming reserves for reimbursement of potential losses through active banking operations. Consequently, several insolvent banking institutions were withdrawn from the banking

market due to their inadequate capitalization and the inability of owners (shareholders) to provide the bank with an appropriate financial support level, banks that were incapable of complying with reserve provisions for potential losses due to active banking operations and banks that decided to reorient in other types of their financial activities at the request of their owners.

According to the results of stress tests, NBU identified “weaknesses” of banking regulation and supervision and implemented the following steps:

- Accepted New Provisions on Credit Risks
- NBU focused on the financial condition of the borrower
- Excused of risk types of collateral
- NBU Analyzed of borrower taking into account the risk of the group of companies
- NBU made decision about regular stress tests banking system
- NBU reformed of the banking supervision function.
- NBU developed schedule of debt reduction of banks
- NBU created the single credit register.

Considering the above, for identify the development of economic systems methodological tools offered on the basis of scoring and rating. The three criteria: Public sector, Legal entities and Individuals recommend used for stress-testing model for Ukrainian banks to determine the potential for the development of economic systems. Criteria and indicators the stress-testing model for Ukrainian banks for identify the development of economic systems are presented in Table 3.8.

Thus, the experience of Ukraine in the approach to stress-testing of the banking system has wide prospects and needs constant attention from the banking sector of the EU countries in order to optimize the interconnection of the banking systems and development of economic systems of the European Union as a whole.

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Table 3.8

**Criteria and indicators the Ukrainian banks stress-testing model to determine the development of economic systems**

Institutions	Participation criteria	Scenarios	Data sources
Legal entities	Big borrowers	Basic, Unfavorable, Extremely negative are stress-tested on an individual basis annual	Data of bank, audit companies and NBU
	Holding companies of the bank	Basic, Unfavorable, Extremely negative are stress-tested on an individual basis annual	
	Banking groups	Basic, Unfavorable, Extremely negative are stress-tested on an individual basis annual	
	Agro companies	Basic, Unfavorable are analyzed on a portfolio basis annual	
	IT companies	Basic, Unfavorable are analyzed on a portfolio basis annual	
Public sector	Big borrowers	Basic, annual cyclical are stress-tested	Government Supervisor Committee on Financial Stability
Individuals	Mortgage loans	Basic, pessimistic quarter cyclical are analyzed on a portfolio basis	Data of NBU, audit companies and information from third parties
	Cars loans		
	Cards loans		
	Other loans of individuals		

Source: Proposed by the authors [8-9].

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**DETERMINANTS OF  
INCREASING THE  
FOREIGN DIRECT  
INVESTMENT  
INFLOW INTO THE  
REPUBLIC OF SERBIA**

## **Introduction**

The Republic of Serbia, currently one of the largest and fastest growing markets in the Western Balkans, has undergone radical reforms in the process of transition to a market economy and has improved business conditions, making it the country with the most attractive economic potential for developing business and investment activities. However, despite this fact the Republic of Serbia is not yet saturated in terms of foreign direct investment inflow.

The goal of this science article is to investigate and quantify the impact of key indicators on the possibilities of intensifying foreign direct investment inflow into the Serbian market by applying econometric methods.

After a period of economic and political crisis in the 1980s and the rise of nationalism, the Socialist Federal Republic of Yugoslavia disintegrated along the borders of its individual republics in the early 1990s. Currently, these economies are designated as Western Balkan

countries: Croatia, which became the first EU member state since July, 1st 2013, Montenegro, the Republic of Serbia, the Former Yugoslav Republic of Macedonia and Albania, which are the official countries for the EU accession and finally Bosnia and Herzegovina and Kosovo as potential candidate countries (Zubaľová, 2015). However, the Western Balkan countries are to a certain extent controversially perceived by other countries in terms of their potential for the realization of business and investment activities. Both entrepreneurs and the public often see these markets as unprimed, economically backward, politically unstable, highly corrupt with less developed business legislation because of their past during which these countries have suffered serious ethnic, political and economic conflicts. On the other hand, the attractiveness of these transit economies cannot be overlooked, including their advantageous location and geographic proximity to the Western Europe, the Euro-integration ambitions of all countries of the region, the educated labor force and the high potential for economic growth. In 2005, the Multilateral Investment Guarantee Agency (MIGA) identified these markets as prospective locations for foreign direct investment (FDI) inflow, namely greenfield investment, in its report based on questioning foreign investors in the Western Balkans. Key factors for greenfield investment in the region include factors such as a highly competitive total costs structure, availability, quality and labor cost, strategic location and proximity, local availability of minerals and supply networks and improved fiscal and investment incentive schemes in the Western Balkan economies (MIGA, 2005).

As mentioned before, this paper focuses closely on the Republic of Serbia, the largest and most prosperous market among the Western Balkan economies, as the other Western Balkan countries are still struggling with a significantly greater number of political and economic problems which are also reflected in their international evaluations putting them in a position of uninteresting territories for the expansion of foreign companies.

As regards the Serbian economy, the government-controlled monopoly structures still dominate several sectors (energy, transport, infrastructure, postal services, telecommunications, advertising, agriculture and environment) which have a negative impact on public finances due to subsidies for loss-making state-owned enterprises. The Republic of Serbia is a fast-growing market with a high average annual GDP growth rate of 6.5% between 2001 and 2007 (Chamber of Commerce and Industry of Serbia, 2013). By 2008 Serbia's economic

growth model was built on imports and domestic consumption funded by privatization and lending revenues. These factors lead to macroeconomic imbalances including fiscal deficit and current account deficit, high unemployment and volatility of inflation rates (Vučić, 2016). At the same time, the Serbian economy is struggling with structural problems, particularly weak export performance and the dominant role of the public sector causing a considerable public finance deficit. Delaying the implementation of structural reforms has meant that the Serbian economy is still only at an early stage of transition to a market economy. Although the Serbian government has adopted a package of reforms focusing on four mutually interconnected areas – fiscal consolidation, public sector reform, economic environment and anti-recessionary measures (such as labor law, pension and subsidy reforms, bankruptcy law, privatization law) which aim to ensure long-term sustainability of public finances and improve the business environment, but these are inadequate and require further austerity measures. Government subsidies and tax incentives are not economically or fiscally sustainable. However, the Serbian authorities' reactions to the growing macroeconomic risks arising from the high fiscal deficit and the rapidly rising public debt are inadequate resulting in a decline in the Serbian economy in 2014 even negatively impacted by the devastating floods in May 2014 (Ministry of Foreign and European Affairs of the Slovak Republic, 2014). On the other hand, despite of expectations of the ongoing recession in 2015, especially under the impact of the fiscal consolidation programme adopted, the economic growth rate of the Serbian economy was positive at almost 1%. The economic growth was even higher in 2016 at the level of 2.8%, however it slowed substantially in the first half of 2017 (The World Bank, 2017b). Despite the progress made by the Republic of Serbia in improving the business environment, further structural reforms are needed to boost development and private sector investment. These include continuing the privatization process, completing the restructuring of state-owned enterprises, tackling the regional income disparities problem and speeding up public sector reforms.

## **1. Problem Formulation and Methodology**

The fact that the Republic of Serbia is still not saturated with FDI has contributed to our interest in investigating and quantifying the impact of key indicators on the potential to intensify FDI inflow into this Western Balkan market through econometric methods. We have chosen to use

the Fraser Institute's Economic Freedom of the World Index as well as its selected sub-indices as independent variables as these, in our opinion, most closely cover a whole range of factors of the quality of the business environment also taking into account the specificities of the Western Balkan economies (e.g. high level of corruption, dependent judiciary, etc.) and may determine the potential for FDI inflow. The Economic Freedom of the World Index measures the extent to which economic policy and institutions support economic freedom in the economy including personal choice, voluntary exchange, free market entry and competition and clearly defined and respected property rights. On the one hand, we have selected the subindices in which the Republic of Serbia achieves the best scores in the long run and, on the other hand, those that comprehensively cover the negative aspects of the business environment of the selected economy. We have set the following assumption for this area of research: *There is a greater FDI inflow into the Republic of Serbia associated with the increasing level of economic freedom measured by the Economic Freedom of the World Index.*

Among subindices in which there is a continual improvement of the Republic of Serbia's score and ranking, we have examined the following ones for the purpose of regression and correlation analysis (Gwartney et al., 2017):

- Tariffs – this component consists of 3 areas: revenues from trade taxes (% of trade sector), average tariff rate and standard deviation of tariff rates collecting these data from the International Monetary Fund and the World Trade Organization databases. The Republic of Serbia obtained a score of 8.32 out of a maximum of 10 points in the current edition of the index,
- Non-tariff trade barriers – subindex draws data from the Global Competitiveness Report's question "*In your country, tariff and non-tariff barriers significantly reduce the ability of imported goods to compete in the domestic market*". In this case the point score was 5.01,
- Compliance costs of importing and exporting – are based on Doing Business data on non-monetary costs (e.g. time) on the procedures required to import a full 20-foot dry cargo container that contains no dangerous or military material. Countries where import and export last a longer period of time get a lower rating. The Republic of Serbia received 9.77 points,
- Foreign ownership/investment restrictions – in this case, the subindex consists of evaluating the responses to 2 questions from

the Global Competitiveness Report: *“How prevalent is foreign ownership of companies in your country?”* and *“How restrictive are regulations in your country relating to international capital flows?”* The Republic of Serbia reached 5.20 points in this component,

- Starting a business – this component is based on the Doing Business data investigating the amount of time and funding needed to set up a limited liability company. Countries where this process is longer or more costly will get lower score. There are 3 variables observed within the subindex: the number of days required to comply with the legislation when establishing a limited liability company, the monetary costs of fees paid to the regulator and the minimum capital requirements. The country has currently received a score of 9.71 points.

On the contrary, we have selected and examined these factors from a group of subindices that have been rated at the lowest point score in the long term (Gwartney et al., 2017):

- Capital controls – the International Monetary Fund reports on 13 types of international capital controls with a score of 0 to 10 being allocated on the basis of a percentage of unrealized capital controls multiplied by 10. The Republic of Serbia has reached 1.54 points,
- Impartial courts – this component draws data from the Global Competitiveness Report question: *“The legal framework in your country for private businesses to settle disputes and challenge the legality of government actions and/or regulations is inefficient and subject to manipulation or is efficient and follows a clear, neutral process.”* The country obtained a score of 2.85 points in the current issue of the index,
- Protection of property rights – in this case, data sources are answers to the following Global Competitiveness Report question: *“Property rights, including over financial assets, are poorly defined and not protected by law or are clearly defined and well protected by law.”* The Republic of Serbia received 3.65 points,
- Legal enforcement of contracts – this component is based on Doing Business's estimates of the time and funds needed to collect the debt assuming that the debt equals 200% of the national per capita income, the applicant fulfilled the terms of the contract and the court's judgment was handed down to his advantage. The country reached 3.20 points in the current issue,

- Extra payments/bribes/favoritism – this subindex follows the answers to the following 3 Global Competitiveness Report questions: *“In your industry, how commonly would you estimate that firms make undocumented extra payments or bribes connected with import and export permits, connection to public utilities, annual tax payments, awarding of public contracts and getting favorable judicial decisions.”*, *“Do illegal payments aimed at influencing government policies, laws or regulations have an impact on companies in your country?”* and *“To what extent do government officials in your country show favoritism to well-connected firms and individuals when deciding upon policies and contracts?”*. The Republic of Serbia gained 3.49 points.

## 2. Problem Solution

### **Evaluation of the Republic of Serbia in the global ranks of competitiveness and quality of the business environment**

At times of economic disturbances, the financial, economic and debt crisis, the issue of maintaining the competitiveness for economic operators, national economies as well as the entire regions is of paramount importance. It must be remembered that the competitive ability is constantly changing and developing. Therefore, today's decisions on the economic direction of the country, on the quality of institutions or on the preference of today's consumption before the future will significantly affect the generation of the country's economic performance (Baláž et al., 2015). We have chosen the most well-known and most renowned internationally recognized ratings for the evaluation of the Republic of Serbia. The ability of the economies to establish themselves in a globalised environment is measured by the ranks and indexes of competitiveness among which the Global Competitiveness Index (GCI) published annually by the World Economic Forum is one of the most-known and most important. In the latest release of the Global Competitiveness Report 2017-2018 the Republic of Serbia ranked 78th among 137 rated states and improved its position by 12 places compared to 2016. The only two areas in which there was a deterioration compared to the previous year are infrastructure (a drop of 1 position to 75th) and technological readiness (a drop of 2 positions to 72nd). Overall the areas where the country obtains the highest marks include especially health and primary education, higher education and training, technological readiness, macroeconomic environment and

market size (The World Economic Forum, 2017).

Concerning the World Competitiveness Index which is part of the World Competitiveness Yearbook published by the Swiss Institute for Management Development the Republic of Serbia is not among 63 countries included in the evaluation. Croatia is the only Western Balkan country in the ranking occupying the 59th position (Institute for Management Development, 2017).

Given the fact that a high-quality business environment is a prerequisite for the long-term competitiveness and growth of every market economy we also include Serbia's assessment in the World Bank's study Doing Business which monitors the level of business environment regulation. The Republic of Serbia ranked 43rd out of 190 economies (an improvement of 4 positions compared to the previous year) in the most recent edition of Doing Business 2018. At the same time, it has been the best placement of the Republic of Serbia over the last 11 years. The 3 areas of regulation have contributed to the improvement, namely starting a business (the Republic of Serbia has simplified the business start-up process by shortening the time for company registration), enforcing contracts (by adopting a new enforcement legislation) and property registration (by implementing a geographic information system) (The World Bank, 2017a). We can see this progress of the Republic of Serbia as a positive signal for potential investors planning to implement their investment projects in this Western Balkan economy.

The Republic of Serbia ranked 80th among the world's 180 rated economies with a score of 62.5 out of 100 in the current edition of the Index of Economic Freedom 2018 compiled by The Heritage Foundation in collaboration with The Wall Street Journal. It is included in the group of countries labeled as "moderately free" (note: Macedonia is the only Western Balkan economy rated as "mostly free"). Compared to the 2017 edition which assesses the state of economic freedom for 2016 the Republic of Serbia recorded an increase of 3.6 points. The country has the best score in the following areas: trade freedom (87.4 points), tax burden (83.5 points), monetary freedom (82.9 points) and investment freedom (70 points). On the contrary, Serbia's worst score is in components government integrity (36.5 points), government spending (40.6 points), property rights (46.2 points) and judicial effectiveness (48.2 points) (The Heritage Foundation, 2018). The presented results correspond to the analysis of the Serbian business environment in which we identified the existence of loss-making state-owned enterprises

having a negative impact on public finances or a fiscal deficit and the resulting macroeconomic imbalance as problematic areas of the Serbian economy.

Regarding the quality of the business environment, besides many other factors the level of corruption in the economy also plays a significant role. The Corruption Perceptions Index (CPI) and Global Corruption Barometer developed by Transparency International are the world's most quoted corruption rankings. The Republic of Serbia ranked 77th among 180 economies with a score of 41 points in the current CPI 2017. This represents a decrease by 5 positions and 1 point compared to the previous year (only 176 economies were included in CPI 2016). Within the CPI Eastern Europe and Central Asia region the Republic of Serbia is the 4th country with the lowest level of perceived corruption after Georgia (46th position, 56 points), Montenegro (64th place, 46 points) and Belarus (68th position, 44 points) (Transparency International, 2018).

The Global Corruption Barometer unlike the previous index focuses on the experiences of ordinary citizens with bribery, their views on corruption in the country and the effectiveness of anti-corruption measures. In 2016 a regional barometer was conducted within which nearly 60,000 people were surveyed in 42 countries across Europe and Central Asia. Based on the survey results corruption appears to be the most serious issue in Armenia, Bosnia and Herzegovina, Lithuania, Moldova, the Russian Federation, the Republic of Serbia and Ukraine according to citizens' perception. We pick the most interesting findings about corruption perceptions in the Serbian economy from the current report (Transparency International, 2016):

- 39% of Serbian respondents consider corruption to be one of the 3 most important problems faced by the Serbian economy,
- 28% of respondents perceive the majority of parliament members as corrupt,
- 45% of Serbian citizens perceive government measures to combat corruption as ineffective and inadequate,
- 22% of households surveyed paid bribes for access to essential services over the past 12 months.

In the previous issue of the Global Corruption Barometer in 2013 34% of Serbian citizens said that the level of corruption in the country has declined significantly in the past 2 years, while 37% of respondents thought there was no change. The institutions that Serbian citizens considered to be the most corrupt in the country were mainly judiciary,

medical and health services, political parties, civil servants and public officials. As regards the payment of bribes respondents or their relatives in the household paid bribes most often to the land offices, the healthcare sector, the judiciary, the police and the authorities providing certificates and permissions during the last 12 months prior to the survey.

Given the high up-to-date corruption problem in the Western Balkan countries several studies exploring the issue in this region have been developed by international institutions in addition to global corruption indices. In 2013 the United Nations Office on Drugs and Crime in cooperation with the European Commission prepared a report “Business, Corruption and Crime in Serbia” based on questioning employees of companies active in the territory of the Republic of Serbia. More than half of respondents considered corruption to be a major barrier to business development. The fear of having to pay a bribe to obtain the required services or authorizations even led more than 9% of the companies' leaders to decide not to make any significant investment in the Serbian market during 12 months prior to the survey. Respondents' responses also included identifying additional barriers to more intensive development of investment activities in this market, among others e.g. independence and efficiency of the Serbian judiciary (United Nations Office on Drugs and Crime, 2013).

### **Evaluation of the investment environment and the conditions of the FDI inflow into the Republic of Serbia**

Due to the acceleration of the privatization process and efforts to improve the overall investment environment, the Republic of Serbia succeeded in attracting a large amount of FDI after 2000 when Slobodan Milošević regime fell (KPMG, 2014). Since 2000 the FDI inflow into the Republic of Serbia has been more than EUR 27 billion (Deloitte Serbia, 2018). According to the Ernst & Young European Attractiveness Survey 2014 the Republic of Serbia was one of the most sought-after investment locations in the Central and Eastern Europe region (CEE) in 2012. This trend continued in 2013 when the number of new jobs increased by 18% and 63 new projects were implemented making the Republic of Serbia the 2nd most attractive location in the CEE (note: Poland was the 1st market) (SIEPA, 2015b). This is mainly due to the fact that the Serbian market is still not saturated in terms of the FDI inflows. IBM Global Locations Trends report examines the world's top investment locations according to the number of new jobs in proportion

to the population. The Republic of Serbia ranked 1st in the Global Locations Trends 2016 (Development Agency of Serbia, 2018). However, the FDI stock is at a low level mainly due to the slow pace of privatization and reforms, their inconsistency, persistent state interference in the economy, bureaucracy and corruption. Over the last 10 years, the largest FDI inflow into the Republic of Serbia was made by investors from the EU followed by investors from the Central European Free Trade Area (CEFTA) and the Russian Federation. The FDI originating in the EU countries accounted for 76% of the total FDI inflow into the Republic of Serbia during the period 2005-2013 (Embassy of the Kingdom of the Netherlands, 2014). Figure 3.3 shows the 7 largest investors in the country ranked by the FDI value in 2016. The largest share is held by the Italian business entities as they accounted for up to 13.6% of the total FDI value in the Republic of Serbia, the top 7 is completed by Germany and France.

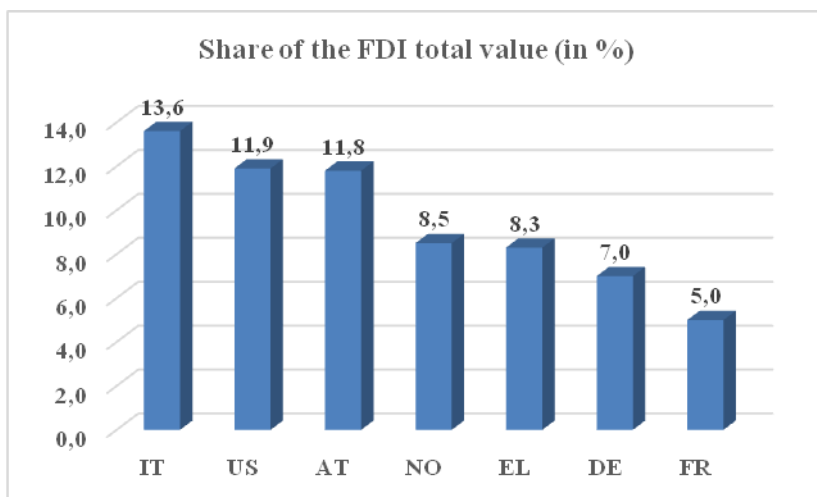


Figure 3.3 Key investors by value of the FDI in 2016

*Note: IT – Italy, US – United States, AT – Austria, NO – Norway, EL – Greece, DE – Germany, FR – France*

*Source: own compilation based on the data from Development Agency of Serbia, 2018*

In terms of the level of the FDI financial sector is one of the most attractive areas of investment accounting for 17.4% of total FDI inflow,

followed by telecommunications (16.4%), food, beverages and agriculture (12%), retail (8.8%), automotive industry (8.6%), crude oil and natural gas (6.7%), real estate (5.4%), tobacco (4.7%), construction (3.8%) and pharmaceutical industry (3.4%) (SIEPA, 2015b). The Serbian Investment and Export Promotion Agency (SIEPA) identified the following benefits of investing in the Republic of Serbia (Deloitte Serbia, 2018; SIEPA, 2015a):

- favorable geographic location,
- developed transport infrastructure,
- low operating costs – the lowest costs of electricity, natural gas, other fuels, postal services, fixed telephone line, fax services and motor vehicles maintenance among the 37 European countries,
- educated and cheap labor force – the Republic of Serbia ranks 4th among the 76 countries in business English proficiency measured by Business English Index, the average monthly gross wage is at the level of EUR 524,
- accession negotiations with the EU,
- approximation of the legal framework to the EU standards,
- existence of 14 free economic zones,
- preferential trade agreements,
- competitive tax environment compared to the other CEE countries – corporate income tax 15%, personal income tax 10% (applicable to wages, other personal income taxed at 20% rate), value added tax 20% (10% applies to basic foods, daily press, communal services and others),
- tax incentives to attract the FDI inflows – Regulation on Terms and Conditions for Attracting Direct Investments: 10-year tax holidays for investments over RSD 1 billion generating at least 100 new jobs, 58 double taxation agreements, from July 1st, 2014 to June 30th, 2016 the employer could receive substantial reductions in taxes and contributions to net wages of employees depending on the number of new jobs created,
- financial incentives – large enterprises can earn up to 50%, medium to 60% and small to 70% of eligible costs.

There are 14 free economic zones in the territory of the Republic of Serbia (Piot, Novi Sad, Sabac, FAS Kragujevac, Smederevo, Subotica, Zrenjanin, Uzice, Krusevac, Svilajnac, Apatin, Vranje, Priboj,

Belehrad). Business entities established in these free zones can carry out all types of business and industrial activities including production, storage, packaging, trade, banking and insurance. Revenues and income earned within the zone may be transferred to other countries freely without the prior consent and the need to pay any taxes, duties and charges. Companies operating in the Serbian free zones can enjoy the following benefits (Ministry of Finance and Economy of the Republic of Serbia, 2014):

- tax benefits,
- various VAT exemptions,
- exemption from the payment of customs duties and other import duties on goods intended to carry out activities and construction of facilities in the free zone (raw materials, machinery and equipment, construction materials),
- financial benefits (free movement of capital, profits and dividends),
- effective administration (one-stop shop),
- simple and fast customs procedures (each zone has a customs administration office),
- local self-government incentives – exemption from certain local taxes and fees,
- set of services available to the users on preferential terms (transport, loading, transshipment, freight forwarding services, insurance and reinsurance, banking services, etc.).

The Republic of Serbia's export regime is liberalized to a few sensitive items requiring licenses, e.g. some pharmaceutical items, precious metals, coal and others. The import regime to the country is also liberalized. All commodities can be freely imported without limitation in terms of quantities. Food commodities and chemicals require an import permit issued by the Ministry of Economy of the Republic of Serbia (Holzner & Ivanič, 2012). Thanks to the preferential trade agreements signed the Republic of Serbia represents a production node for duty-free exports to the market of 1.1 billion inhabitants while these agreements include (Ministry of Foreign and European Affairs of the Slovak Republic, 2014):

- Stabilization and Association Agreement with the EU – Interim Agreement on Trade and Trade-Related Matters in force since 2010 (preferential trade regime),

- The Republic of Serbia is a member state of the Central European Free Trade Area (CEFTA – Macedonia, Albania, Bosnia and Herzegovina, Moldova, Montenegro, the Republic of Serbia, United Nations Mission in Kosovo),
- Free Trade Agreement with the European Free Trade Area (EFTA – Iceland, Norway, Switzerland, Liechtenstein),
- Free Trade Agreement with the Russian Federation (since its conclusion in 2000 the Republic of Serbia is the only country outside the Commonwealth of Independent States that has a free trade area with the Russian Federation), Belarus and Kazakhstan,
- Free Trade Agreement with Turkey,
- The Generalized System of Preferences with the USA which allows duty-free exportation of approximately 5,000 Serbian products into the American market.

The Republic of Serbia, currently one of the largest and fastest growing Western Balkan markets, has undergone radical reforms in the process of transition to a market economy and improved business conditions making it the country with the most attractive economic potential in the region. Cheap and skilled labor force, duty-free trade with the Russian Federation, approximation of the legal framework to the EU standards and relative availability are just some of the preconditions for expanding investment and business activities in this market. On the other hand, especially in the area of public procurement and tenders, business entities should expect higher levels of corruption and clientelism when many business contracts are often concluded on the basis of long-lasting ties and contacts with influential representatives of government and state institutions.

### **Evaluation of the impact of key indicators on the possibilities of intensifying the FDI inflow into the Republic of Serbia**

The regression and correlation analysis which are an important tool for assessing and evaluating relationship between the variables examined were carried out using the computer software Dell Statistica 13.1. In this case the aggregate Economic Freedom of the World Index and 10 selected subindices feature as independent variables and the FDI inflow (USD million) into the Serbian economy features as a dependent variable. Output from Dell Statistics is shown in Table 3.9.

Table 3.9

## Paired linear regression analysis with correlation coefficient

Correlations	Mean	Std.Dv.	r(X,Y)	r <sup>2</sup>	t	p	N	Constant (dep:Y)	Slope (dep:Y)
Marked correlations are significant at p<.10000 (Casewise deletion of missing data)									
Var. X & Var. Y									
Economic_freedom_summary_index_1	6.556	0.234							
FDI_INFLOW_MIL_USD	3,285.203	1,279.282	-0.343372	0.117904	-1.03408	0.331346	10	15,602.2	-1,878.74
Capital_controls_1	1.359	1.128							
FDI_INFLOW_MIL_USD	3,285.203	1,279.282	0.072140	0.005204	0.20458	0.843011	10	3,174.1	81.77
Impartial_courts_1	<b>2.800</b>	<b>0.334</b>							
FDI_INFLOW_MIL_USD	<b>3,285.203</b>	<b>1,279.282</b>	<b>0.569707</b>	<b>0.324566</b>	<b>1.96067</b>	<b>0.085569</b>	<b>10</b>	<b>-2,814.1</b>	<b>2,178.36</b>
Protection_of_property_rights_1	3.858	0.402							
FDI_INFLOW_MIL_USD	3,285.203	1,279.282	0.484117	0.234369	1.56490	0.156238	10	-2,653.4	1,539.13
Legal_enforcement_of_contracts_1	3.807	0.148							
FDI_INFLOW_MIL_USD	3,285.203	1,279.282	0.453817	0.205950	1.44046	0.187702	10	-11,610.8	3,912.85
Extra_payments_bribes_favoritism_1	4.372	0.577							
FDI_INFLOW_MIL_USD	3,285.203	1,279.282	0.190699	0.036366	0.54946	0.597687	10	1,439.0	422.24
Tariffs_1	<b>8.076</b>	<b>0.232</b>							
FDI_INFLOW_MIL_USD	<b>3,285.203</b>	<b>1,279.282</b>	<b>-0.589836</b>	<b>0.347906</b>	<b>-2.06596</b>	<b>0.072684</b>	<b>10</b>	<b>29,498.6</b>	<b>-3,245.72</b>
Non-tariff_trade_barriers_1	5.349	0.294							
FDI_INFLOW_MIL_USD	3,285.203	1,279.282	0.290451	0.084362	0.85853	0.415581	10	-3,478.9	1,264.46
Compliance_costs_of_importing_and_exporting_1	8.421	0.478							
FDI_INFLOW_MIL_USD	3,285.203	1,279.282	-0.135062	0.018242	-0.38555	0.709882	10	6,326.6	-361.15
Foreign_ownership_investment_restrictions_1	5.002	0.467							
FDI_INFLOW_MIL_USD	3,285.203	1,279.282	0.342838	0.117538	1.03225	0.332148	10	-1,403.8	937.50
Starting_a_business_1	<b>9.407</b>	<b>0.183</b>							
FDI_INFLOW_MIL_USD	<b>3,285.203</b>	<b>1,279.282</b>	<b>-0.623291</b>	<b>0.388492</b>	<b>-2.25442</b>	<b>0.054192</b>	<b>10</b>	<b>44,312.0</b>	<b>-4,361.25</b>

Source: own compilation in Dell Statistica 13.1 based on the data from Fraser Institute, 2017

Correlation coefficients have been demonstrated as statistically significant at the level of significance  $p < 0.10000$  only in the case of subindices “impartial courts”, “tariffs” and “starting a business” which are highlighted in bold in Table 3.9. The correlation coefficient between the level of impartiality of the courts and the FDI inflow into the Republic of Serbia gained a positive value  $r = 0.569707$ , which reflects the moderate direct dependence (relationship) between the variables examined. The two remaining variables had correlation coefficients with a negative value of less than -0.8, which represents a moderate indirect dependence (relationship) between the level of tariffs and the FDI inflow as well as the complexity and the financial difficulty of starting a business and the value of the FDI inflow into the Serbian market. The results are surprising from our point of view as we predicted the existence of a direct dependence between the level the independent

variables examined and the FDI inflow. Improving economic freedom measured by the Economic Freedom of the World Index should have a positive impact on the progress of the national economy which in our view should also be reflected in increasing the attractiveness of the Serbian market as a potential prospective territory for the development of the business and investment activities of the foreign business entities and in the intensification of the FDI inflow to the country.

Regarding the quantification of the existing relationship between the variables, the quality of a linear regression analysis is determined by the value of the coefficient of determination ( $r^2$ ), t-statistic and p-value. The linear regression equation (3.17) has the following form:

$$FDI\_INFLOW\_MIL\_USD = Const + Slope \times x + u \quad (3.17)$$

where: Const - constant, Slope - regression coefficient, x - value of the independent variable and u - random component.

Interpretation of regression models for which the dependence was recorded (whether direct or indirect) in the hypothetical value of a point score is presented in Table 3.10. For example, in case of score 5 points in “impartial courts” the FDI inflow into the Serbian economy should amount USD 8,077.7 mil. Similarly, score 5 points in “tariffs” should trigger the FDI inflow amounting USD 13,270.0 mil.

*Table 3.10*

**Prediction of the FDI inflow into the Serbian economy at the value of subindices 5**

	<b>Constant (dep: Y)</b>	<b>Slope (dep:Y)</b>	<b>FDI_INFLOW_MIL_USD</b>
<b>Impartial_ courts</b>	-2,814.1	2,178.36	8,077.7
<b>Tariffs</b>	29,498.6	-3,245.72	13,270.0
<b>Starting_a_ business</b>	44,312.0	-4,361.25	22,505.75

*Source: own calculation based on the outputs from Dell Statistica 13.1*

## Conclusion

The market of the Republic of Serbia in spite of the aforementioned negative aspects represents a prospective territory for the development of business and investment activities, whose competitive advantages

include, among other things, its favorable geographic position, Euro-integration ambitions, cheap and educated labor force, high potential for economic growth, signed preferential trade agreements, tax environment and other factors. It is highly questionable how these factors outweigh the already existing weaknesses respectively the negatives of this territory. The conclusions of the analysis conducted to investigate and quantify the impact of key indicators on the possibilities of intensifying the FDI inflow into the Serbian market by applying econometric methods were surprising to a considerable extent and did not correspond to our original expectations.

We had to reject the assumption established for the given area of research as the statistically significant positive correlation between economic freedom and the FDI inflow into the Serbian market was not confirmed at the level of significance  $p < 0,10000$ . In our opinion this result should be interpreted in the context of the specificities of the political and economic development of that region. We can say that the Republic of Serbia represents an “unpredictable” market whose current economic, political and socio-demographic situation is decisively determined by its historical and political development in which this country has suffered serious ethnic, political and economic conflicts.

In addition, the postponement of the necessary reforms has meant that the Serbian economy is still only at an early stage in the transition to a market economy it has not built a strong private sector and struggles, among other things, with persistent state ownership in many sectors of the economy and with high corruption is then projected into its lower competitiveness. Despite the Euro-integration ambitions of all the Western Balkan countries, whose prospects were endorsed by the EU at the Thessaloniki European Council in 2003, the vision of the EU enlargement is not up to date in the foreseeable future at a time when conflicts between the Republic of Serbia and Kosovo are developing, Macedonia's development is marked by political instability and a persistent dispute with Greece over the name of the country and the supporters of the Islamic state are mobilizing in Bosnia and Herzegovina.

The Serbian market has undoubtedly the potential to attract the FDI to its economy, but at the same time it is still a problematic territory which, in our opinion, corresponds to the relatively low number of foreign business entities that are active in this territory or are interested in developing some business activities in future. We could define the Republic of Serbia as a state of many opportunities but also threats,

respectively challenges in which it is not easy to get oriented for foreign entrepreneurs. One of the basic prerequisites for successful establishment and acquisition of a competitive position in the Serbian market is to establish closer contacts and to obtain reliable (especially Serbian) partners who know well the territory and market conventions and have enough relevant information and already built business bonds.

The conclusions of the analysis that did not show the relationship between economic freedom and the FDI inflow into the Serbian market only confirmed the fact that the economic situation of the region is very closely linked to the political one and the improvement in the aggregate Economic Freedom of the World Index and its individual subindices is probably not a sufficient impulse to increase the attractiveness of this market reflected in the intensification of the FDI inflow. Although the Serbian market is currently not saturated, the unwillingness to risk the political instability of the Western Balkan region is from the point of view of entrepreneurs higher than potential opportunities for a successful establishment and the acquisition of a competitive position. The Western Balkan markets including the Serbian market are prospective primarily for transnational, capital-intensive companies with a stable international position who are willing to take a higher risk and that can cover potential losses by profits from other markets.

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## Chapter 4

# JUSTIFICATION OF MOTIVATIONAL MECHANISMS AND PERSONNEL MANAGEMENT OF MODERN ECONOMIC SYSTEMS

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## JUSTIFICATION OF MOTIVATIONAL MECHANISMS IN ACTIVITY THE ENTERPRISES OF EUROPE AND UKRAINE

### Topicality

Human resources management in any enterprise is part of the overall management system, but the only model of human resources management does not exist. In order for a person to work with high efficiency, productively and conscientiously, it must be interested in this, or, in other words, is motivated. So, motivation is one of the main places in the management system. Of particular importance it acquires in a highly competitive environment. Since the gaining of the markets is possible only by creating a proper motivational mechanism. Which can stimulate employees to work effectively, improve product quality, and so on. The effective activity of the enterprise to a large extent depends on how productive in the activity enterprise realized creative potentia employees, their capabilities, and so on. Therefore, the main task of the personnel department is the formation of a motivational mechanism that allows to effectively use the potential of people.

So, today in the economic activity of most countries of the world a significant place is the work with human resources. Accordingly, each country in its identity has own differences in motivating personnel at the enterprise. Each of them creates their own motivational mechanisms in the activity of enterprises. They choose whether to feed the worker with a carrot or threaten the whip. So, for example, in many European countries many enterprises it has long been understood that workers

need to be cherished and respected. Indeed, on their knowledge, skills, ability to work and much more depends the success of an enterprise. Accordingly, depending on each country, this motivational mechanism may vary. That is why relevant are research and substantiation of motivational mechanisms in the work of the enterprises of Europe and Ukraine.

**Goal** is research and substantiation of motivational mechanisms in the activity of enterprises the countries of Europe and Ukraine.

### **Analysis of recent research and publications**

Research of motivation the employees of the enterprise, the definition of the main types of motivation, the mechanisms for their creation, and others, were engaged by a few foreign scientists, in particular: F. Taylor, A. Faiol, D. McGregor, P. Drucker, J. Shermerron, F. Hertzberg, E Robins and others. In addition, domestic scientists have made a contribution to the research of motivational mechanisms in the work of the company, and in particular, they can be distinguished, such as: O.A. Bugutsky, V. Shinkarenko, I. Bondar, L. Beztelesna, G.A. Dmitrenko, A.M. Kolot, S.A. Shapiro, V.S. Diesperov, A.V. Kozachenko, I.V. Shepel, A.V. Golda and others. In their works, scientists have determined that the motivation mechanism in the activity of the enterprise should take one of the leading places. However, when investigating this issue, it was difficult not to notice that none of them could single out a single approach to creating a motivational mechanism at the enterprise that would be universal in every enterprise. This is due to the fact that, depending on each country, it has its own identity, mentality, and so on. Therefore, it is important to substantiate motivational mechanisms in the activity of enterprises in Europe and Ukraine.

### **Presentation main material**

Study of the bases of management of labor motivation (motivational mechanisms) it is advisable to begin with a deeper understanding of the essence of the category of “motivation”. For a long time in science and practice, it was believed that motivation – is an excuse, a motive reason for human action, due to his psychological reaction of instincts, feelings, intuition to external influences. However, modern science convincingly proved that motivation as a process is by its very nature and contents a much more complex phenomenon than a point, one-time incentive reason, or even their totality. Its essence is reduced to the fact that, reacting to external influences or internal needs of development, a person transforms them into their psyche and consciousness

(subconsciousness) to the level perceived by the senses and minds of sensations, desires, values, intentions, decisions, expectations. From the set of such emotional-rational components, is made the choice and the decision to act in such a way as to meet the emerging needs. If the degree of satisfaction needs is high, then the motives of the behavior will increase, positively activating the activity.

In modern literature, this concept is interpreted differently, and all authors consider motivation from their points of view. In opinion, Fedoseev V.M., motivation – is a process of influence on the employee, in order to carry out certain actions, by awakening in it certain motives [1]. “Motive” Rodionova N.V. interprets as: “the state of inclination, readiness, employee of the firm to act in one way or another” [2]. Accordingly, according to Vasiliev O.P., the motivation in its modern sense is a system of measures aimed at creating conditions that encourage personnel to make the most effective, conscientious and initiative fulfillment of their official powers [3, p. 59]. Vykhansky O.S. interprets motivation, in the broader meaning of “Motivation – the accumulation of internal and external driving forces that stimulate a person to activity, setting boundaries, forms, intensity of activity, level of expenditure of effort, diligence, perseverance and that give her direction, orientation to achieve a certain goal [4]. Consequently, motivation is the cause of people’s actions, desires and needs. It is also a direction of behavior, or something that makes a person want to repeat this behavior. Motivation comes from within personality.

Thus, in order to successfully manage it is necessary to have an idea of the main motives of the behavior of employees, the ways of influencing them and the likely results of such influence. This all forms a certain motivational mechanism. Motivational mechanism is a set of motives that are formed under the motivating influences [5]. According to Shapiro S.A., the motivational mechanism in the activity of the enterprise is a complex system of applied tools and methods of influencing on working personnel to ensure the achievement of goals of motivational policy [6]. The main task of the motivational mechanism is to form or activate a person’s state, which determines how efficiently and with what activity and direction a person is ready to act in a certain situation [7]. Thus, the motivational mechanism is a complex system that includes needs, interests, value orientations, motives, incentives, goals and beliefs. All of them are formed in the social space, under the influence of primary and secondary reference groups.

In the opinion of the scientist Kuzmichova O.A. the motivation

mechanism involves the interaction of needs, value orientations and interests, the ultimate result of which is their transformation into the purpose of the individual [8]. However, in our opinion, in addition to the needs and motives, the motivational mechanism may include:

- harassment is a person's orientation towards the achievement of a certain status, goal, and result of activity, in which her conception of the result, which it deserves and is able to achieve:

- expectation – personality assessment of the possibility of an event, hope for something, assumption about the consequences of one or another result of activity;

The tricks and expectations of the subordinates can not be neglected, because they can be a reason for the deterioration of performance;

- installations – purpose, focus on anything, human readiness to act in a certain way in a particular situation;

- assessments – determining the extent to which the results may be obtained or needs met;

- incentives – external irritants that contribute to the growth of motives in human activities.

Consequently, the peculiarity of the mechanism for stimulating the work of personnel is the ability to possibility of influence the course of the person's motivational process on the part of the enterprise in two stages. In the first case, there is an impact on the stage of the formation of needs in the form of established incentives and interests. In the second case, there is an influence on the stage of formation of motivation. In our opinion, the main principles of forming a motivational mechanism in the activity of the enterprise include:

- complex use of material and immaterial stimulation;
- direct link between the results of work and the size of the promotion;

- comprehensibility and transparency of the wages systems;
- competitiveness of wages among other industries;
- continuity of the process of development qualification, as well as professional and career growth;

- stimulation of innovative methods and technologies of work.

Consequently, on the basis of the above-mentioned terminology and theory, turn to the consideration of the main motivational mechanisms in the activity of enterprise of the European countries. With all the diversity of motivational mechanisms in the activity of the enterprise in a market economy, most industrial development countries can be identified as the most characteristic French, British and German

motivational mechanisms.

The basis of the French motivational mechanism in the activity of enterprise lies in its strategic planning, free competition and loyal taxation. In the pay mechanism of motivation in the activity of enterprise in the France incorporates two components: the indexation of wages and individualization of salaries. Indexation individualization of salaries depending on the price increases – the duty of the French employers, which is enshrined in collective agreements and strictly controlled trade unions. Individualization of salaries is the calculation of payments taking into account education, qualifications, quality of work, level of employee mobility. Accrual of individualized salaries takes place in three schemes:

- “fork” of wages, when the size of the salary depends on the amount of time worked, participation in the company’s life and – most importantly – the efficiency of work himself employee, regardless of the efficiency work of his colleagues;
- a clear salary plus a premium, the size of which varies depending from the productivity of labor;
- application of other forms of individualization: participation in profits, purchase of shares of the enterprise, payment of premiums on sales results.

In addition, in many French enterprises used the ballroom assessment of personnel which is based on six criteria: professional knowledge, productivity, quality of work, compliance with safety rules, production ethics and initiative. Thus, at the expense of these criteria transparent pay is carried out. Each employee clearly knows what and how much salary can get at the end a month. Each criterion has its % to payroll. So, such an approach to the motivational system is very effective, since it increases the efficiency of labor, and also provides a wide awareness of employees about the state of affairs in the company.

In addition, it should be noted that the best non-financial incentive for employees of the French enterprises is a flexible schedule or distance work that eliminates the need to attend the office. Equally important in the creation of motivational mechanisms in the activity of enterprises in French is that most employees encourage the obtaining of such privileges as corporate medical insurance, assistance in repayment of mortgages, dinners at the expense of the company, etc. However, the improvement of qualifications, the organization of trainings, etc., is firmly disapproved of the French heads of enterprises. Consequently, the advantage of the French motivative mechanism is that in a part that

stimulates productivity and quality of labor, is the “self-regulation” of the size of wages. All employees have information about the financial status of the entity of economic activity and know what part of the profit has the right to count on good work.

The motivational mechanism in the Great Britain has to France a so-called “flexible” payment system similar. At the core of which, as already noted, is the accounting of individual qualities of the employee, his merits and results of work using special assessment scales for a number of factors. However, in addition to this motivational mechanism in the Great Britain, there is another system of employee motivation. The basis of this system is the fact that the salary of employees depends on the overall profit of the enterprise. So distinguish two motivational systems of wages: money and equity. It is worth noting that sometimes the heads of British enterprises also allocate such a motivational system as a “fluctuating” system. The essence of which lies in the fact that wages fluctuate of proportion to the incomes of the enterprise.

The German motivational mechanism successfully combines various aspects of the market economy of the country. The scheme of motivation the employees in Germany is based on a world-view belief that an employee is a free person with his own interests, which is personally responsible to society. The concept of economic freedom for the Germans includes the consideration of public interests and the definition of the place of personality in the market system. But since not everyone is able to work in accordance with market requirements, the state creates a social market economy. The purpose of which is to create a level playing field for all residents of the country. Thus, according to western researchers, the combination of incentives and social guarantees is one of the best options for motivating work, which provides an increase in the welfare of the population. Many researchers consider the German motivated mechanism to stimulate labor and the availability of state social guarantees an excellent example of a harmonious, optimal way to embody economic theories.

However, it should be noted that in some German enterprises, employees conclude an agreement. This agreement states that employees are obliged to make the most of their potential, while having certain performance indicators. At the same time, the employee installs his own working time. As a result, labor motivation increases – a person does not just perform the tasks he faces but also engages in the management of his activities. Consequently, the modern German motivational mechanism is based on the idea that not every German can

“fit” and survive in a conditions of free market. The combination of corporate motivation systems and the state system of social justice leads to a compromise that allows an employee to freely exercise in the professional field without fear of remaining constant income.

So, after considering the main motivational mechanisms in Europe countries, in particular France, England and Germany, one can clearly see the reasons for their rapid and, importantly, stable economic development. Each of these countries has found for itself an acceptable proportion of material and approaches to motivation. By placing a bet on employees, enterprises of these countries and to this day successfully carry out their activities.

In addition, it is possible to generalize the main motivational mechanisms in the activity of enterprises in Europe:

- selection of personnel is based on the principle: for each post your employee, that is, a whole directed choice the person with a narrow specialization. This specialist has the right to make decisions only in those issues in which he is competent. On the other side, a person is busy specifically with his work and precisely understands in which direction he should improve himself. The positive result he can achieve in his case will contribute to the growth of professional qualifications and will not remain unnoticed to leadership;

- the basis for the wages of employees is the tariff agreements that determine the salary for the tariff and various types of supplementary payments, taking into account the specific working conditions. Deviations from the tariff agreement are possible only for the better, but for this the employee will have to work more, because the constant tariff is practically unchanged, but the variables depend on the employee's income;

- in addition to the financial side, abroad a significant role is played by non-material motivational methods;

- the company's management constantly develops measures about stimulate the activities of personnel who are aimed at high-productive and efficient work. At the end of these activities is carried out the certification of employees. The employees who received the highest marks are rewarded, others – work on their mistakes;

- the process of ensuring the versatile training and professional development of employees is continuous;

- the participation of ordinary employees in management is carried out through the supervisory board. At European enterprises there are councils that are elected by the teams and represent the interests of

the employees. The Industrial Council is not a trade union organization and represents the interests of only employees of this enterprise. The thoughts and ideas of each employee can be heard, and that means, which means that if his proposal is rational, then the leadership will definitely honor its employee.

Consequently, the above motivational mechanisms contain a number of effective ideas and tools for motivating personnel. Obviously, each mechanism is oriented to certain conditions of the market of its country, taking into account national specifics and features of mentality the population. What works well in the same country can have negative consequences for another (for example, due to the difference in the level of development, the less perfect social system, etc.).

However, the importance of sharing experience between countries can not be underestimated. Proper use of the works of foreign experts in the field of labor motivation can allow domestic enterprises to significantly increase their profitability. Ukraine has a colossal development potential and at the same time is very specific due to its cultural and historical peculiarities, and therefore when developing motivational mechanisms the managers of enterprises should take a very responsible approach to the choice of tools for motivating employees.

It is worth noting that in Ukraine the absolutely opposite situation regarding the motivation of employees at the enterprises. Motivation in the Ukrainian business environment is not considered an important element in increasing productivity. Moreover, in fact, on the motivation of an employee at best, when hiring a job, a specialist will talk about staffing. And in the future, the motivation of employees is no longer interested in anyone. Thus, the system of personnel motivation in Ukrainian enterprises is far from ideal and in many respects is a loss.

Consequently, in our opinion, to create an effective motivational mechanism in the activity of Ukrainian enterprises, it is necessary to use the experience of foreign practice. Thus, it is possible to allocate such advisory principles that will increase the productivity of employees:

- introduction of a shifted schedule of work. The idea of this principle is that employees of an enterprise have the opportunity within a week or a month freely to build their work schedule. Managing your own working time is very useful in the activity of enterprises. After all, this allows removing tension during work (when there are some of their own social or domestic problems, and because of the impossibility of solving them on time, there is tension). In addition, the principle of shifted graphics allows to eliminate the problem of “independent leaving

the workplace”, as well as to reduce the concealment by employees of the loss of working time;

- premiums by time. The idea of this principle lies in the fact that the precisely defined norm of output is used first of all. Every employee in the activity of the enterprise knows exactly how much he has to time at work. Thus, employees are offered the opportunity to comply with the established norm at a time when it is most convenient for them;

- bonus for initiative. Employees receive a fee for any rational offer. For a useful and effective idea, the employee is paid a reward in the form of a premium, bonus, etc.

- informal communication in the team. Regular informal meetings of the employees who help to unite the team, allow to select an informal leader through which it is possible to solve the issues of employees in the future;

- the introduction of a “flexible” system of wages. This system is quite effective, because it encourages competition. By means of special scales on a number of factors, employees will try to work better and more efficiently, etc.

Therefore, adapting the experience of foreign colleagues and applying their own knowledge and skills will help Ukrainian enterprises to achieve significant success in motivating their employees. As for Ukraine, it is necessary to take into account the peculiarities of our culture and the specifics of the population. Substantiation of foreign motivational mechanisms can significantly help Ukrainian entrepreneurs develop their own system of motivation, but at the same time it is important not only mechanically to implement foreign motivation tools in the conditions of the Ukrainian economy, but carefully select the most appropriate of them, taking into account regional and sectoral specifics, demographic situation and other important factors. Only then can expected positive results of activity the domestic enterprises.

## **Conclusion**

Today, every manager should be aware of the importance of motivation of personnel, because it depends on him the productivity of people and enterprise in general. An effective motivation program is at the same time the goal of the enterprise, the achievement of which will enable the most complete disclosure of the potential of each employee. The purpose of the motivational mechanisms is to increase the efficiency and quality of labor, and ultimately, the success of the enterprise in the market and increase its competitiveness. The employer

must always remember that motivational mechanisms are long-term investments, and real motivation is possible only when the work in the organization promotes the continuous development and improvement of professional skills, allowing it to feel in demand. However, one should not consider motivation in parts, because its material and its immaterial components always form a single complex, competent practical application of which will immediately give the enterprise positive results. The experience of the best western executives shows that success is achieved by those who do not just assign tasks to subordinates and in any way seek their implementation, but has the ability to interest them to ignite, inspire personnel to fulfill the tasks of the enterprise, form a team of unanimous people. The motivational mechanisms of each country depend from their mentality, nationality, economic and social development, etc. Thus, taking foreign experience of motivation should be taking into account the peculiarities of culture and mentality. Foolish copying other ideas will not bring the desired result. In Ukrainian enterprises the motivational mechanisms are not developed. Accordingly, the lack of proper motivation for productive labor confirms the need for the formation of a highly effective motivational system that promotes satisfaction of the needs of employees and the achievement of the goals of the enterprise.

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## **APPLICATION OF THE DONOR-ACCEPTOR APPROACH TO RESOURCE PROVIDING IN A MULTI- PROJECT ENVIRONMENT**

### **1. Introduction**

Transformation of management processes, the transition from project to program, multi-project management led to need for apply modern methodological tools of managing projects and programs [1].

Rational human resources management in a multi-project environment allows increasing the efficiency of the management company and ensures its viability. Auditing of program management in the aspect of human resources management helps to identify existing problems and develop activities for the development of personnel in the organization.

Dynamic changes in environment of the project, personnel migration, changes in the requirements for the project product in a multi-project environment poses before managers a task of applying effective methods of adapting human resources to the changes occurring in the company.

### **2. Analysis of the literature and statement of the research task**

Knowledge management of the project within the framework of

integration management allows taking into account the critical knowledge necessary for the implementation of multiprojects [2]. Creation of a repository of critical knowledge along with the formalization processes of critical competencies management will reduce the risks of loss information due to staff migration, illness, retirement.

An analysis of methods for the formation of project teams is given in scientific works [3-5]. Despite the existing different approaches to the formation of teams: functional, precedent, the formation of the project team taking into account professional and personal-psychological characteristics, the task of forming effective teams in a multi-project environment remains relevant.

The use flexible methodologies of project management (extreme project management) provides the possibility of redistributing resources both between works within the same project (terminal project) and between projects in a multi-project environment.

Issues of redistribution of resources are most relevant for multi-project management, since its content is unlimited (adaptive life cycle) and is constantly changing. Unlike from open projects with multi-project management occurs the redistributed resources within the pool of resources organization and require coordination by management. At the same time some of the resources have already been assigned to the implementation of terminal projects [6].

The application of the principles of proactive management in the formation of teams of multiprojects makes it possible to lay the capabilities for the redistribution of resources at the planning stage [7, 8]. The use of methods for the formation of adaptive teams, as elements of flexible methodologies, is also advisable in open (developing) projects.

A multiproject is a fractal network active system, because included into it's consist the also are network active systems, which makes it possible to integration of management mechanisms [9].

The increasing complexity of projects being implemented, increasing the mobility of staff, the lack of formalized methods of redistribution of human resources leads to the need to solve the task of redistributing resources in a multi-project environment.

### **3. Main material**

With multi-project management the processes of human resources management are carried out both at the level of the multiproject and at

the project level. Distribution the processes of human resource management over time depends from the time of project realization.

Since the resources in the project are involved in a certain time interval after the work are released the resources which can later be used in other projects.

When realization projects there is a change in resource provision:

- change in the functions of the availability of resources (reason: illness, dismissal, etc.);

- changing the function of resource availability (changing the resource loading level, transferring to other works in the framework of the project, etc.);

- changing the requirements for resources (changing the profile of competencies).

Changing the profile of competencies occurs throughout all the life cycle, but not always changes are wearing critical character and require a redistribution of resources between the projects. Monitoring the profile of competencies the project throughout the project will reveal the need for redistribution of resources [10, 11].

The use of competence triggers (maximum permissible levels of competence fluctuations) will allow of earlier response to the emergence of potentially risky situations associated with the influence of the human factor.

At the stage of planning the human resources of the project with purpose of ensuring reliability are used the principles of functional reserves of resources. In this case are distinguished the “cold” and “hot” reservations.

In the case of a “cold” reservation assume that in the organization there are employees who have the necessary competencies, but are involved in other projects.

By “hot” reservation mean the availability of a functional reserve directly in the project team.

In addition it is necessary to take into account that if there are several multiprojects organizations in the multiproject, it is advisable to consider the “hot” and “cold” reservations in relation to the organization’s multiprojects.

Comparison of reservation types is given in Table 4.1.

Donor-acceptor resource interaction in a multiproject environment is due to the presence of a single pool of resources the organization, with framework which is redistribution of resources occurs between the work of donor-projects and acceptor-projects.

Table 4.1

### Types of functional reservation

Characteristics	Types of reservation	
	“Cold” reservation	“Hot” reservation
Input conditions	Initiating the Project Manager	Initiating the project manager-acceptor, the consent of the donor project manager, the consent of the curator of the multiproject
Time costs	Minimum	Costs for withdrawal from the donor-project and input into the project-acceptor
Cost parameters	Minimum	Costs for withdrawal from the donor-project and input into the project-acceptor
Necessity of harmonization	Level by the project management	At the level of the management of the multiproject
Impact on competency profile	Change of project competence profile	Changing the competence profile of the multiproject
Methods for forming teams	Formation of teams with functional reservation	Formation of teams with functional reservation, the formation of adaptive teams

If it is necessary to attract additional resources in the project is made an assessment of the possibility to redistributing resources (availability of resources, their availability, cost and time of redistribution). In some cases it is possible to appeal to outside organizations. Involvement of outsourced organizations (outsourcing, outstaffing) is advisable for performing a certain element of the hierarchical structure of works (a package of work, a summary task, a phase).

For smaller jobs or jobs in which execution time can be changed, resources are redistributed. Among the factors limiting the involvement of outside organizations can identify the specifics of the project; specificity of the industry (military projects, space programs, etc.); commercial secret and actions of competitors.

Relevant are issues the redistribution of resources between work both within the project and between projects in a multi-project environment. In general the projects can be donors of some competences and acceptors of others.

Redistribution of resources occurs to ensure that there is in the acceptor-project a certain competence that is critical for the project at this stage:

$$K^i = \{K_1^i, K_2^i, \dots, K_n^i\}, \quad (4.1)$$

where  $n$  – number of projects included in the multiproject;

$K_j^i$  – minimum permissible number of team members of the  $j$ -th project, having  $i$ -th competence.

It should be borne in mind that the company's resources have a certain set of competencies, and changes in the result of redistributing of resources of one competence entail changes in the competence profiles of donor-projects and acceptor-projects.

The application of the donor-acceptor approach implies realization of the main stages:

**Stage 1.** Formation of a set of critical competencies for each project.

**Stage 2.** Definition of acceptor-projects on the basis of analysis the change of the profile of critical competencies.

**Stage 3.** Analysis and identification of potential donor-projects.

**Stage 4.** Analysis of the possibility of redistributing of resources.

**Stage 5.** Building options of redistributing of resources.

**Stage 6.** Choosing the optimal option of redistributing of resources.

**Stage 7.** Implementation of redistribution and adaptation of project teams.

Redistribution of resources is a process that has a certain duration and cost.

The release of an employee and transfer to another project requires time and financial costs (transfer of work to another employee in the donor-project, time for transfer of the employee, introduction to the project-acceptor (informing, “immersing in the project”, training at the workplace), reducing the effectiveness of the team project related to the introduction of a new employee).

The optimization criteria for the process of redistribution of resources will be:

$C$  – total cost of redistribution of resources between projects:

$$C = C_0 + \sum_{i=1}^k C_i^d + \sum_{i=1}^k C_i^a + C_c + C_{mp} \rightarrow \min, \quad (4.2)$$

where  $C_0$  – the cost of calculating the redistribution of resources;

$k$  – number of resources involved in redistribution;

$C_i^d$  – the costs necessary for the withdrawal of the  $i$ -th employee from the donor-project;

$C_i^a$  – the costs necessary to enter the i-th employee into the project-acceptor;

$C_c$  – the costs, caused by a decrease in the efficiency of the teams, associated with the introduction of new employees;

$C_{mp}$  – losses associated with changes in the cost of the project.

T – temporary losses:

$$T = T_0 + \sum_{i=1}^k T_i^d + \sum_{i=1}^k T_i^a + T_c \rightarrow \min, \quad (4.3)$$

where  $T_0$  – time of calculating the redistribution of resources;

k – number of resources involved in redistribution;

$T_i^d$  – time required for the withdrawal of the i-th employee from the donor-project;

$T_i^a$  – time required to enter i-th employee into the project-acceptor;

$T_c$  – loss of time caused by a decrease in the efficiency work of teams, associated with the introduction of new employees.

Since the problem of redistribution of resources allocation refers to specific coverage problems coatings and is NP-difficult with goal to minimize the values  $C_0$  and  $T_0$  it is proposed to use the developed software package that allows automating the process of generating options for redistribution of resources and determining the cost / duration of options [12-14].

Let's consider an example.

Let the multiproject Pr consist of 4 projects:

$$Pr = \{Pr_1, Pr_2, Pr_3, Pr_4\}. \quad (4.4)$$

For i-th competence the initial requirements for the availability of competences  $K^i = \{3, 1, 2, 2\}$ .

$Q = \{Q_1, \dots, Q_8\}$  – multiple members of the multiproject team with processing i-th competence.

Function of multiproject implementation [7]:

$$F = Q_{1,4}Q_{2,4}Q_{3,3}Q_{4,1}Q_{5,1}Q_{6,3}Q_{7,1}Q_{8,2} \vee Q_{1,2}Q_{2,4}Q_{3,3}Q_{4,1}Q_{5,1}Q_{6,3}Q_{7,1}Q_{8,4} \vee \\ Q_{1,4}Q_{2,1}Q_{3,3}Q_{4,1}Q_{5,4}Q_{6,3}Q_{7,1}Q_{8,2} \vee Q_{1,2}Q_{2,1}Q_{3,3}Q_{4,1}Q_{5,4}Q_{6,3}Q_{7,1}Q_{8,4} \vee \\ Q_{1,4}Q_{2,1}Q_{3,2}Q_{4,3}Q_{5,1}Q_{6,3}Q_{7,1}Q_{8,4} \vee Q_{1,4}Q_{2,1}Q_{3,2}Q_{4,1}Q_{5,1}Q_{6,3}Q_{7,3}Q_{8,4}.$$

The matrix of the i-th competence of the multiproject team is shown in Table 4.2, the matrix of the implementation cost of the i-th competence is given in Table 4.3.

Table 4.2

**Matrix of the i-th competence of the multiproject team**

Q\Pr	Pr <sub>1</sub>	Pr <sub>2</sub>	Pr <sub>3</sub>	Pr <sub>4</sub>
Q <sub>1</sub>	0	1	0	1
Q <sub>2</sub>	1	0	0	1
Q <sub>3</sub>	0	1	1	0
Q <sub>4</sub>	1	0	1	0
Q <sub>5</sub>	1	0	0	1
Q <sub>6</sub>	0	0	1	0
Q <sub>7</sub>	1	0	1	0
Q <sub>8</sub>	0	1	0	1

Table 4.3

**The cost matrix of the i-th competence of the multiproject team**

C\Pr	Pr <sub>1</sub>	Pr <sub>2</sub>	Pr <sub>3</sub>	Pr <sub>4</sub>
C <sub>1</sub>	0	3	0	5
C <sub>2</sub>	4	0	0	5
C <sub>3</sub>	0	2	3	0
C <sub>4</sub>	5	0	3	0
C <sub>5</sub>	6	0	0	5
C <sub>6</sub>	0	0	3	0
C <sub>7</sub>	3	0	1	0
C <sub>8</sub>	0	4	0	2

As a result of changes the conditions functioning is necessary ensure that  $K^i = \{2, 2, 2, 2\}$ .

Logical functions that display possible execution options for each project:

$$F_1 = Q_{7,1}Q_{4,1} \vee Q_{7,1}Q_{5,1} \vee Q_{7,1}Q_{2,1} \vee Q_{4,1}Q_{5,1} \vee Q_{4,1}Q_{2,1} \vee Q_{5,1}Q_{2,1}.$$

$$F_2 = Q_{8,2}Q_{3,2} \vee Q_{8,2}Q_{1,2} \vee Q_{3,2}Q_{1,2}.$$

$$F_3 = Q_{7,3}Q_{3,3} \vee Q_{7,3}Q_{4,3} \vee Q_{7,3}Q_{6,3} \vee Q_{3,3}Q_{4,3} \vee Q_{3,3}Q_{6,3} \vee Q_{4,3}Q_{6,3}.$$

$$F_4 = Q_{8,4}Q_{5,4} \vee Q_{8,4}Q_{1,4} \vee Q_{8,4}Q_{2,4} \vee Q_{5,4}Q_{1,4} \vee Q_{5,4}Q_{2,4} \vee Q_{1,4}Q_{2,4}.$$

As a result of the application of the methods described in scientific work [7] and the complex of developed software [12-14], form the realization variants presented in Table 4.4.

Table 4.4

**Variants of redistribution of resources in the multiproject**

No.	Variants of realization	Costs
1	$Q_{1,2}Q_{2,4}Q_{7,1}Q_{8,2}Q_{3,3}Q_{4,1}Q_{5,4}Q_{6,3}$	31
2	$Q_{1,4}Q_{2,4}Q_{3,2}Q_{4,3}Q_{5,1}Q_{6,3}Q_{7,1}Q_{8,2}$	31
3	$Q_{1,2}Q_{2,4}Q_{3,2}Q_{4,3}Q_{5,1}Q_{6,3}Q_{7,1}Q_{8,4}$	27
4	$Q_{1,4}Q_{2,1}Q_{3,2}Q_{4,3}Q_{5,4}Q_{6,3}Q_{7,1}Q_{8,2}$	29
5	$Q_{1,2}Q_{2,1}Q_{3,2}Q_{4,3}Q_{5,4}Q_{6,3}Q_{7,1}Q_{8,4}$	25
6	$Q_{1,4}Q_{2,4}Q_{3,2}Q_{4,1}Q_{5,1}Q_{6,3}Q_{7,3}Q_{8,2}$	31
7	$Q_{1,2}Q_{2,4}Q_{3,2}Q_{4,1}Q_{5,1}Q_{6,3}Q_{7,3}Q_{8,4}$	27
8	$Q_{1,4}Q_{2,1}Q_{3,2}Q_{4,1}Q_{5,4}Q_{6,3}Q_{7,3}Q_{8,2}$	29
9	$Q_{1,2}Q_{2,1}Q_{3,2}Q_{4,1}Q_{5,4}Q_{6,3}Q_{7,3}Q_{8,4}$	31

As can be seen from the example, the application of the proposed approach allows to choose the option of redistribution No. 5  $Q_{1,2}Q_{2,1}Q_{3,2}Q_{4,3}Q_{5,4}Q_{6,3}Q_{7,1}Q_{8,4}$  minimum at a cost of 25. For this example the cost reduction is 19%.

**4. Conclusion**

In the presented research the donor-acceptor approach to resource support in the multiproject environment allows the redistribution of resources between the projects included in the multiproject. Redistribution of resources is carried out taking into account the cost and time criteria, which allows minimizing the cost of the multiproject. The application of the developed software package reduces the influence of the subjective factor in the formation of the updated teams of projects included in the multiproject.

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**FINANCIAL AND  
ECONOMIC LEVERS  
FOR THE  
FORMATION OF  
PERSONNEL  
POTENTIAL OF THE  
REGION:  
CHALLENGES FOR  
UKRAINE**

In modern conditions, the socio-economic achievements of different countries are increasingly dependent on available human capital, the main value of which is the ability to create and spread innovations; its share in national wealth is constantly increasing to 64%, while in Japan and Germany it reaches 80% [1, p. 51].

The capacity of Ukraine's intellectual potential is confirmed by evidence that, according to the nation's intelligence, Ukraine ranks 10th in the group (97 points), along with Russia and Belarus. Estonia, which is in the 8th group (99 points), is the best place among the former Soviet republics [2].

According to the definition of most economists, human capital “consists of acquired knowledge, skills, motivation and energy, which are endowed with human beings and which can be used over a period for the production of goods and services. It is some form of capital because it is a source of future earnings” [4, p. 386].

The aggregate human capital of the region, the state primarily depends on education, personal qualities, the health of each person and the population. But to ensure economic growth, the supply of human resources to the needs of the national economy is of great importance. That is, it is essential to have the required number of non-disabled people with specific professional training. Therefore, it is expedient to use the concept of “human potential” for the regional and state level management, which unlike human capital determines the ability of the healthy population not to solve complex problems in general, namely to the purposeful realisation of strategic tasks of the region and the country. That is, an essential professional structure and it should be

mobile.

Personnel potential is an essential part of the overall development potential of countries. As the joint analytical report of the ministries of economy, finance and the National Bank on Ukraine's potential and its implementation points out, in the future, the problems of staffing will be aggravated in our country as a result of a sharp decline in the population. Therefore, the prospects of development are increasingly dependent on available human capital, the feature of which is that, with increasing efficiency of use, it does not wear out and increases due to the spread of knowledge, the acquisition of new experience and the transfer of it.

At the regional level, the ability to:

- develop and implement a regional development strategy becomes of particular importance;
- development of a mechanism for stimulating the rational use of natural resources, ensuring the restoration of natural resources;
- improvement of the structure of the economic complex of the region;
- implementation of the technology of balanced management;
- reduction of disparities in the socio-economic development of the subregions;
- combining the efforts of the authorities, business and the public in ensuring the sustainable development of the region on an innovative basis;
- creating conditions for social development, meeting the needs of the individual.

Realization of these tasks is impossible without the presence of capable personnel.

In order to realise the strategic objectives of Ukraine to ensure a faster, rather than catching-up, development, taking into account the importance of human capital, it is necessary to carry out public regulation of forming of human capital as the basis of labour (human) potential, at different levels of government.

First of all, it should be noted that without personal human capital it is not possible to form the aggregate human capital of the enterprise, region and country. Human capital is inseparable from a particular person. Its formation requires time, money and human desire to strengthen own health, gain knowledge and skills. Individual human capital depends on the physical, intellectual and psychological characteristics of a person, his willingness to learn and use his experience in practice. Since capital accumulation is to generate income,

people should be given the opportunity not only to develop their physical and intellectual abilities but also to acquire the professional knowledge, skills, skills that are needed in different fields of activity.

As for the construction of a regional system for the formation of labour potential that is implemented in the market space in the form of human capital, it is necessary to determine the modern requirements for workers of different categories and ways to ensure that their professional and moral qualities are in line with these requirements, since, according to experts, the decisive role in achievements in Ukraine is not played the industry or size of the enterprise, but the business qualities and the will of their managerial staff.

In our view, the system of formation of labour potential should cover all segments of the population.

In the process of formation of personal human capital, it is possible to distinguish three main stages.

The first stage is preparatory, which creates the preconditions for further intellectual development, a healthy lifestyle, and active work to meet their own needs and society. That is, the formation of labour potential begins in the childhood (at home or kindergarten). The first “contribution” in shaping the future qualities of a person makes the family. She, together with preschool establishments, should create conditions for healthy physical and mental development of the child, identifying her abilities, educating her aspiration for learning and achievements in the further development of her skills, caring attitude to the environment. A particular role in this may be played by television. The child must understand that everyone has to work, choose a profession, make money, and for this, it is necessary to learn.

The formation of the following stages is based on the position on the need for the distribution of human capital to the general and specialised, which is formulated by renowned scientist Gary Becker. The total capital is human literacy and has value irrespective of the scope of human labour. Specialized human capital can be used in specific industries, the sphere of activity [5, p. 33].

Accordingly, the second stage is fundamental because it creates the intellectual base for further professional development. Although the family continues to influence the formation of the child, as a person, his attitude towards others, his duties, the country, the influence of the environment, friends, and teachers becomes stronger. School education, together with extracurricular institutions, mainly determines the future of the region and the country because of its impact on the physical

condition, the way of life of young people, its desire to become the creator of positive changes, and creates an intellectual basis for further professional development. At this stage, the organisation of leisure, the creation of conditions for each child to identify their abilities and use opportunities for their further development becomes an extraordinary value. The pursuit of any sport in the presence of qualified trainers contributes not only to physical development but also to the formation of a healthy lifestyle, an active life position, a respectful attitude to teammates, rivals and community.

The third stage is professional training. Depending on preferences and general theoretical practice, young people may be trained to work in the system of vocational education to provide the sectors of the economy with highly skilled workers or to acquire higher education. At this stage of the formation of intellectual capital of the region it is necessary to take into account that at the regional level, the effectiveness of development depends on the availability of working population useful for the implementation of strategic knowledge plans. Therefore, professional and higher education regarding quantitative and qualitative parameters should be brought into line with the regional development strategy.

At each stage of the formation of human capital, the quality of preparation and organisation of leisure are of great importance. These processes must be managed. The effectiveness of these tasks at different levels of management is not the same. It is therefore advisable to identify the peculiarities of state regulation of human capital formation processes at varying levels of management and selection of the scale, which is most useful for increasing the competitiveness of the country at the expense of the relevant factor.

Consequently, the formation of human capital requires the solution of many social problems:

- care for the health of the nation and overcoming the negative trends that lead to its “extinction” (reduction of mortality, increase in fertility and life expectancy);
- promotion of comprehensive human development, increase of free time and creation of possibilities for its productive use;
- formation of an effective system of education of the population, which will ensure timely identification of various abilities of children and their development, obtaining the desired level of education, appropriate qualification improvement.

It should be borne in mind that the presence of talented, educated

people, does not guarantee the active development of the organisation. There must be created such conditions that the employees sought to reveal their creative abilities and pleased to spend all their knowledge and skills on the implementation of the strategic objectives of the organisation, region, country. However, a person with developed creative abilities, capable of constant innovation, cannot be a simple executor, a passive “cog” of a complex mechanism. Therefore, to implement the concept of sustainable development in Ukraine, first of all, it is necessary to develop “socially adequate management” [6, p. 5]. Adequacy is determined by the compliance of the management model with the ultimate goals of the system being managed [6, p. 22].

In the scientific literature, distinguish personal human capital, microeconomic level (enterprise), meso level (region), macro level (country). Consequently, at the macroeconomic level, strategic tasks related to the training of personnel for public administration, the definition of general requirements for education, the amount of its financing from the state budget, the establishment and observance of social guarantees should be addressed.

One of the essential tasks of each country is to create conditions for the person to realise their potential. Otherwise, they become employees of the labour force and lose not only human capital, the preparation of which was spent, but also the opportunity to improve the state of socio-economic development of their state significantly. Such a “donor” of highly developed countries was Ukraine. According to estimates of specialists in labour migration in Europe, there are more than 5 million inhabitants from Ukraine [7, p. 37]. Young people, who receive the modern education, have mastered foreign languages, become competitive in the international labour market. If you do not create decent working conditions and pay comfortable living conditions, Ukraine will lose the primary resource of long-term development. The migratory movement of the population and the state of socio-economic development of the regions are negatively affected.

The primary task of management on the meso-level (region) is the creation of decent living conditions and the realisation of the human capital accumulated by the person. State regulation at the regional level is necessary for all stages of the formation of human capital with the application of financial and economic, administrative and legal instruments and propaganda measures. Along with the regulation of the structure of expenditures in the region, provision of housing for dwellers, medical services, preschool institutions and educational

facilities, it is necessary to create conditions for the physical development of a person, organisation of leisure, rest. Confidence in the ability of young people to acquire the desired education, to get a job and enough to meet the needs of wages, will save the healthy population in the region.

The realisation of the task of the preparatory and primary stage requires the provision of pre-school institutions, schools of highly skilled professionals who can cause enthusiasm for children, the desire to learn the world, to be physically and spiritually developed, to achieve outstanding results in the future, to glorify their region, the country. Therefore, the particular attention of the regional authorities is needed by higher education institutions, which train teachers and educators.

The primary stage in the formation of human capital creates an intellectual base for further professional training. During the creation of the regional system of professional training, it must be taken into account that the effectiveness of the region's development depends on the availability of strategic knowledge plans useful to the working population. Therefore, professional and higher education regarding quantitative and qualitative parameters should be brought into line with the regional development strategy. For the implementation of this task will necessary the development of indicative plans of specialists' needs to ensure the rapid socio-economic development of the region and the formation of a government order for specialists.

Bases of entrepreneurship and strategic management it is expedient to teach not only students of higher educational establishments but also all those who wish.

For employees of enterprises and civil servants, acquiring skills of strategic planning and corporate culture formation is a prerequisite for achieving positive changes in the socio-economic development of both individual enterprises and the region as a whole.

Given the instability of the environment, entrepreneurs should master the methods of managing chaos, learn to perceive rapid change as a graceful opportunity to reveal their creative abilities, to realise their capabilities. But for this, one must be able to flexibly adapt to new conditions, be prepared for continuous improvement of knowledge. Therefore, in an entrepreneurial society, postgraduate education in the form of retraining or advanced training becomes a necessary part of the modern education system. In today's Ukraine, postgraduate education becomes strategic. This situation is due to the lack of knowledge in management and marketing, vital management skills in the management

of enterprises and civil servants and the inability to wait for the arrival of a new generation of specialists. It is a combination of experience with the new knowledge that will solve the problem of eliminating the crisis situation of enterprises in the region.

The best form of postgraduate education will be a combination of theoretical training in short-term seminars with the acquisition of practical experience in developing a strategy for the development of a separate organisation, district, and area under the guidance of specialists from higher education institutions.

The functions of the state in shaping human capital and human resources are somewhat different. The state, in the first place, should provide the necessary conditions for high-quality general education, a comprehensive human development, and recreation. All this positively influences various aspects of the formation of human capital, which contributes to the flowering of culture, art, sports, the creation of a positive image of the state in the world community. Scientific, technical and economic achievements create a financial basis for investments in the development of human capital and ensure the economic independence of the state. In turn, human capital is the intellectual basis for the formation of the human resources necessary for the implementation of the strategic tasks of the country. The effectiveness of this process depends on the state regulation of higher education. The main levers of influence on the structure and content of training specialists are state orders, standards of higher education.

In addition to the quantitative characteristics of a government order, its relationship with the number of students studying at their own expense, it is essential to pay attention to the “professional” composition of the state order and the qualitative composition of the students enrolled in the budget places. In recent years, budget places are predominantly occupied by “privileged persons”, which can have catastrophic consequences for the country. What kind of “breakthrough” can be provided in agriculture, when future specialists are physically unable to go to fields, farms, intellectual development of many “minimum enough” to enter higher education. This approach also applies to other industries. Talented children with a high level of knowledge in the absence of funds should trade in the market, or go to find a “better luck” in other countries. Humanity must also be weighed down. A disabled person may be granted privileges when taking up the profession of an accountant, not an agronomist. The number of seats for beneficiaries should be limited. That is, the allocation of only 10-20% of

budget places for recipients will create competition among them, will encourage them to study thoroughly, and not rely solely on their status. It is worth recalling the experience of the planned economy when there was a competition between beneficiaries (after service in the army, in the direction of enterprises, etc.).

Undoubtedly, the government order should be formed predominantly at the regional level, based on the calculation of the perspective needs of specialists following the strategy of the region's development.

When substantiating the professional composition of the region's employees, it is expedient to predict the need for workers of the leading professions, specialists with higher education.

Among the factors that affect the need for workers, the most important are: the structure and volume of production, its technical level, the organisation of labour. Therefore, the forecast of labour needs must precede the definition of the prospects for the development of a particular industry, enterprise. At the next stage, it is necessary to determine the need for workers at the existing level of labour productivity, further adjusting it taking into account the possibility of reducing the number by improving the technical level of production, labour organisation and other factors.

Today is much more difficult to determine the need for specialists with higher education. In the time of planned economy, research institutes substantiated the choice of factors influencing the number of specialists and built the equation of the number of specialists depending on the significance of these factors. On their basis, the normative staffing was determined. In market conditions, the need for specialists at their discretion is identified by the managers of enterprises depending on the strategy and financial capabilities of these enterprises. But it is still possible from its own experience and other enterprises of the industry to develop and use the dependence between the growth of volumes of production and the number of specialists in accounting, planning, marketing, finance, etc. to predict their number. Although the particular importance of planning is not the total number of specialists, their additional need, which depends not only on the difference between the current and prospective needs and the movement of personnel. It reflects the elimination of staff, the possible transition from the category of workers to the type of specialists. That is, for each enterprise it is expedient to develop a projected human resources balance, by which the average annual need for specialists of different specialities is determined. The aggregate data by region should be sent to the Cabinet

of Ministers of Ukraine, which will determine the volume of the state order, taking into account the country's development strategy and its financial capabilities.

Formation of staff potential should be carried out following the requirements of enterprises and organisations. Therefore, the crucial role in providing the necessary professional experience, personal qualities of people, is played by the subjects of management.

Public regulation should be aimed at encouraging the population to learn and entrepreneurs – to spend money on training employees. The solution of the first problem will contribute to the formation of specific public opinion about the promotion of such qualities of people as a good physical form, comprehensive development, punctuality, honesty, diligence, fertile imagination, and the speed of decision making, weightedness and, at the same time, readiness for risk.

Encouraging employers to invest in human capital development is possible through the establishment of cooperation between power structures and business, external control by public councils, certification of management personnel of enterprises and organisations. Without the right to direct interference with the economic activities of enterprises and organisations, the community can become a dominant driving force for active development. It is essential to involve the human and information factor, to give the impetus to the development of the competition in using their creative potential to improve their lives, to show the real opportunities for achieving high results in sustainable development.

In turn, enterprise executives can create favourable conditions for self-development of labour potential not only for managers but all employees, thanks to developing managerial staff.

In the realisation of the tasks of professional training of specialists for the region, the role of business is substantially increasing. It provides people with jobs, a certain level of remuneration, generates financial results that can be directed at training and raise the skills of workers, improve the environmental situation, implement social programs at the enterprise and in the region. Large enterprises may have their structures for the implementation of vocational education; cooperate with higher education institutions to prepare management personnel for the required specialties and specialisation.

However, it is worthwhile to provide business and individual rights to use personnel trained for their funds. In world practice for some reason only in sports are appreciated, and the expenses for training of

specialists are compensated. This approach should also apply at the state level. There was a paradoxical situation, when students who studied for budget funds and still received (as privileged persons), do not bear any responsibility for not working on a speciality, do not “work out” the money spent by the state on their preparation. Education requires investment, but investments must be economically justified. The person who studied for his own money is “free” from obligations. Those who have received education in public funds must have completed a specialist degree for a certain number of years.

In conditions of limiting the financial capacity of the state, it is advisable to return to the practice of training specialists for the enterprise at the expense of their funds. The enterprise will determine other conditions (payment of scholarships, housing, etc.). However, for a certain number of years, the company will be the “owner” of a trained specialist; can lease it to other enterprises.

State regulation at the regional level should aim at identifying areas of the region in which it is expedient to create clusters, stimulate their creativity and actively cooperate with them. It is the power that can solve the problem of the formation of social and organisational capital in the region, which should lead to the economic upsurge of the region (Figure 4.1).

Consequently, the current conditions of economic development in Ukraine dictate the need for specific changes in the approaches to entrepreneurship, especially at different levels of regional governance. After all, from the administrative-territorial division of Ukraine, the meso-economic level is an area, and from the point of view of the integration approach meso-economic level can be considered clusters.

The peculiarity of the formation of human capital at the meso-economic level is that at the regional level, state regulation significantly influences the creation of conditions for the physical, mental and cultural development of the child, recreation and leisure activities of adults. Promoting the formation of clusters enables businesses and the public to intensify their training in line with the needs of the regional development strategy.

Undoubtedly, further research needs ways to create a “corporate regional spirit”. According to the author, propaganda measures of the regional authorities together with public organisations will promote the formation of a strong corporate culture of the region, which unites the population on the way to achieve the ambitious goals of the region – amazing social and economic development.

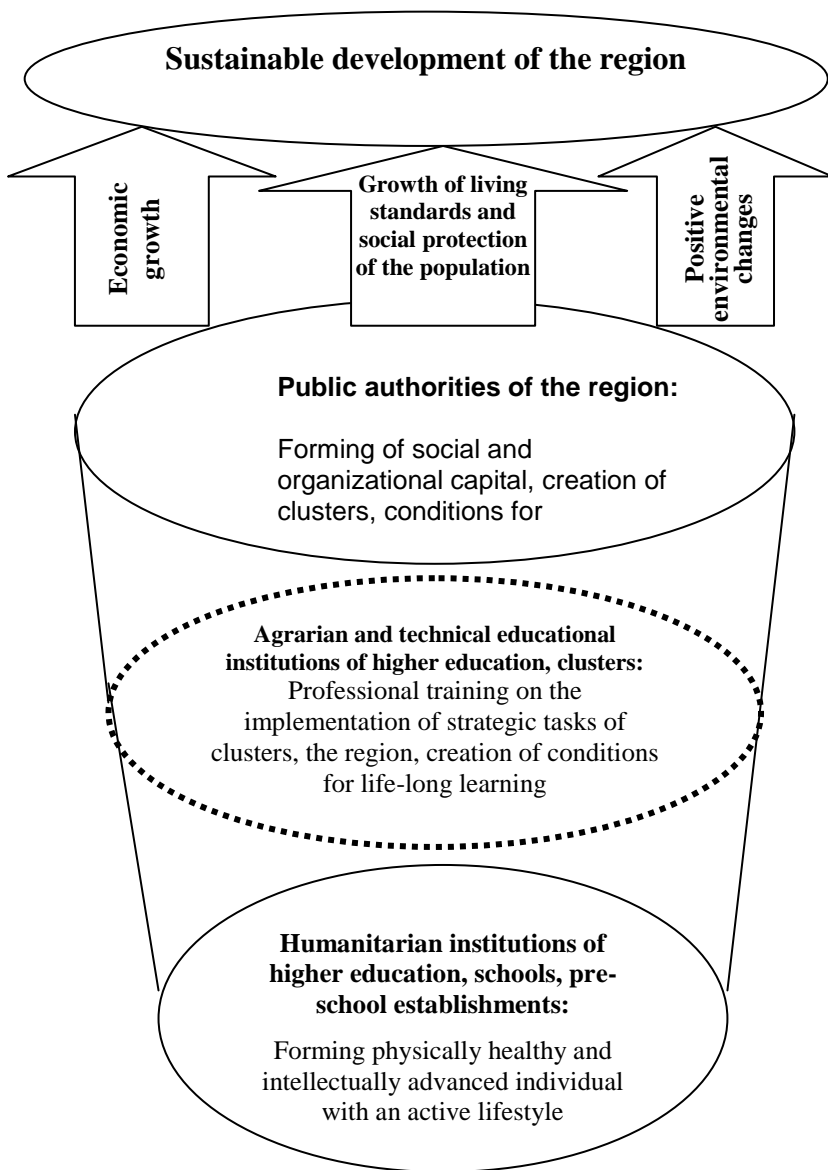


Figure 4.1 Areas of focus regional government efforts in the formation of human capital as the basis for sustainable development of the region [7, p. 191].

Increasing the role of external control on the basis of using the concept of controlling, the application of which allows the transfer of management of enterprises to a qualitatively new level with the provision of reliable feedback, should contribute to improving the mechanisms of state regulation of processes of human capital formation.

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## **HUMAN RESOURCE MANAGEMENT IN NEW ECONOMIC SYSTEMS**

### **Introduction**

Since the mid-twentieth century, in developed countries with developed market economies, we have witnessed a new view on the role of human resources being formed in corporate processes and in society. It goes without saying, that this change reflects the gradually increasing importance of information technologies in all fields. As a result, existing theories on the factors that promote the growth of economic systems are being reassessed. In the late 1990s, the position of the human factor in the world's market economies as well as in society fundamentally changed, thereby driving changes in human resource management (HRM). This new concept, role and definition of human resources in the business environment were fostered by the newly emerging knowledge economy and are referred to as the new economy.

In the 1980s, the prevailing topics within HRM included corporate culture and its management and integration with corporate strategy and other corporate processes, whereby the objective was to gain a competitive advantage through employees. In reality, every HRM concept is related to changes in the corporate environment as a whole, namely in the field of internal resources and the mezzo and macro environments. With regards to HR management in businesses, organisations and institutions, the changes to the actual practitioners of HR activities should be noted, namely to human resource officers and employees, because it is they themselves that are the targeted objects of HR management activities. Unlike the mainly static characteristics of the relationship between the HR practitioner and the subject in the past, the nature of the relationship nowadays is a dynamic one with a high level of reactivity in terms of ongoing corporate processes.

Towards the end of the 1990s, the identification and categorisation of

HR management concepts was modified across organisations. In addition to HR management, terms such as HR development or human capital development became widely used. The term people management was also adopted (unlike human resource management, this term comes from British English and has no specific Czech equivalent for now). These streams within personnel management did not yet have a theoretical conceptual framework, but rather implied changes in emphasis – that man was no longer considered to be just a resource or part of the labour force, but an independent, thinking and creative human being. Within this context, the thoughts about the strategic dimension of man's position in business, as introduced by human resource management, was maintained or even accentuated.

In the 21st century, in the environment of newly established and functioning economic systems, HRM is generally defined as a strategic and logically considered approach to the management of the greatest asset of a company – people who work for the company and who individually or collectively support the achievement of company goals. Analyses of company function clearly show that one of the essential factors of company success is the ability to form human resources and use them in such a way as to ensure the fulfilment of company goals. Human resource management is therefore an issue for every manager. However, the exploitation of human resources, as well as their quality and attraction for investors, has increasingly become a key issue related to the political and social stability of a country. The practice of human resource management provides a lot of evidence that highly successful companies differentiate themselves from less successful ones primarily by the way they are able to form and motivate their human resource to the greatest extent possible to create a positive attitude to the business and maximise performance. The new management generation must therefore be trained in theory, as well as in practice, with regards to this complex process.

## **Literature Review**

The basis for the changes in human resource management of the new economic systems and conditions in the 21st century were authoritative figures in the world of management which talk about Maslow (1954), Likert (1967) and Mintzberg (1989). Knowledge and skills are considered paramount factors of national wealth and global development. Peter Drucker was among the first to communicate this

from the UN platform in 2001. He was followed by others, for example, Walker, (2003), Edersheim (2007) and Stuart (2013). In the Czech Republic, this topic was studied by the likes of Truneček (2003), Vodáček and Vodáčková (2006), Koubek (2007) and Dvořáková (2012). These theoretical visions have gradually been reflected in HRM in practice in manufacturing processes and services. The changes can be split into several stages. The first stage saw the content and organisational definition of HRM change. In practice, this involved the job descriptions of HR practitioners or departments being minimised or transferred and incorporated into the activities of line managers. In parallel, the quality of HR departments was considerably increased through the engagement of specialists (psychologist, sociologist, lawyer, etc.) and the improvement of HR practitioners' skills. This method is referred to in professional literature as minimise administration and maximise communication (Amstrong, 1999 and 2007; Horalíková, 2003; Urban, 2003; Koubek, 2001 and 2007; Váchal, Vochozka, et al., 2013; Straková and Váchal, 2013; Straková, Pártlová and Váchal, 2016). The next stage saw the interdisciplinary basis of HRM being reinforced and the contingency approach being applied, including the implementation of strategic, project and crisis management elements (Amstrong, 2002 and 2007; DeVito, 2001; Robbins and Coulter, 2005; Armstrong and Stepfan, 2015). The third stage is characterised by new HR technologies and tools. This is fostered by state-of-the-art information technologies that focus on the process approach, which involves all employees and the electrification of administrative processes. The systems that support this must show extendibility and modularity, variability and customisation and broad scalability and should be HR process and workflow oriented (on-line processing: labour entry and reporting; overtime work; planning leave; proposing and authorising official business travel; training plans; career and adaptation plans; etc.). Unlike in the developed countries of Western Europe such as Germany, Great Britain, Sweden, Norway and France, these aspects of HRM are in their infancy in the business sphere in the Czech Republic.

A strategy based on social policy and flexibility that is connected with job security, so-called flexicurity, is very slowly gaining a foothold in the Czech Republic. This concept has been utilised for a long time in Denmark and Finland for the employment of older people or women on maternity leave. It is evident from published papers or presentations given at conferences by Czech authors that the interests of the State, companies and the whole of society are best served by the timely

introduction and implementation of new and progressive methods of human resource management in everyday practice (Urban, 2004; Halík, 2008; Vojtovič, 2011; Dvořáková, 2012; Armstrong and Stepfan, 2015; Koubek, 2015). Within this context, aspects of strategic management are now being more strongly considered under HRM. This approach (SHRM = Strategic Human Resource Management) is based on the assumption that a sustainable competitive advantage is gained if a company has resources at its disposal with the potential to generate such a sustainable competitive advantage (Wernerfelt, 1984; Barney, 1991; Šikýř, 2014; Ulrich, 2009; Koubek, 2007; Armstrong, 2007). The concept of SHRM shows that the workforce management method may be a key factor affecting the competitive advantage of a company (Salaman, Storey and Billsberry, 2005).

The main objective of SHRM is to create a vision for how to deal with matters relating to people. It allows and facilitates strategic decisions that must be made and has a significant and long-term impact on company behaviour and achievements by ensuring that it has qualified, committed, dedicated and motivated personnel in order gain a sustainable competitive advantage (Boxall and Purcell, 2011; Hendry, 2012; Lawler, 2012; Brauns, 2013; Armstrong and Taylor, 2015). The main reason for this is the advantage that arises from the very existence of a comprehensible and agreed platform to set up long-term approaches to HR management, approaches that provide an indication of the direction to follow in an often turbulent and highly variable environment (Armstrong, 2007).

New economic systems have developed on the back of globalisation and internationalisation processes and within the context of the new knowledge economy. "An inherent part of human capital management is to develop a learning organisation, and build high-performance teams, and support knowledge management and the potential of employees" (Stýblo, 2004, p. 7). As explained by Lepak and Snell (1998), HRM challenges in the 21st century include: globalisation, diversity, information technologies and their development, intellectual human capital, and the impact of the rate of change on organisational structures. Usheva (2016) it claims that modern HRM relies on building teams in which members work on a joint task. In professional literature, the concept of creative HRM has been redefined. Currently, it represents a model where an organisation facilitates the development of talents and endeavours to incorporate this way of thinking into the organisation's culture, whereby the HR department develops the programmes needed

for talents and their recruitment (Cascio and Boudreau, 2016). A HR department that searches for and selects the right candidates for specific positions is crucial to the corporate ecosystem (Sozen, et al., 2016). Similar thought processes are presented by other authors such as Walker (2003), Işoraité (2011), Brauns (2013), Subramaniam, et al. (2013), Rahardjo (2014), Armstrong and Taylor (2015), and Riccucci (2016).

Under the conditions dictated by the knowledge economy, HRM can be characterised as follows: diverse; strategic with an emphasis on integration; loyalty and commitment oriented; based on the belief that people should be treated as wealth and assets (human capital); more unitarianistic than pluralistic and more individualistic than collectivistic in the approach to the employment relationship; an activity performed by managers – practical human resource management is the issue of line managers; focused on corporate values.

The concept of HRM at its current stage of development in Europe and around the world can, on the one hand, be considered to be a continuation of the development of personnel (HR) management, while on the other hand, can be seen as a “revolutionary” change in the terms of the relationship between the practitioner and the subject (client or service user) of personnel management (Turecki, 2004; Armstrong, 2007; Martin, 2010).

## **Material and Methods**

The sample set consisted of 456 companies from across the Czech Republic, of which 109 micro-companies, 140 small companies (less than 50 employees), 124 medium-sized companies (less than 250 employees) and 83 large companies (more than 250 employees). The predominant representation of SMEs in the sample set reflects the character and structure of economic entities in the Czech Republic. The share of SMEs in the total number of active businesses is 99.83%, which is comparable to figures in the other EU countries. The companies were also classified according to the industrial sector they work in (excluding the quaternary sector): manufacturing and industry (187 companies); services (255 companies); primary sector (14 companies); and the scope of their operations: regional (189 companies); national (126 companies); or transnational (141 companies). In order to analyse the importance of the HRM factor with respect to the competitive advantage and profitability of companies, dimensionality reduction and neural networks were used.

*Dimensionality reduction (DR)* – the extraction of information from multi-dimensional data to reduce the number of variables (Cook, 1998; Cook and Lee, 1999; Chiaromonte, Cook and Li, 2002). Dimensionality reduction reduces the dimensions of variables (set of internal resources) in respect of the variable to be explained which, in this case, is economic profit or loss (HV). On the basis of the expected differences in the structure of internal corporate resources in the different sectors of the national economy, dimensionality reduction was applied to each sector separately.

*Neural networks (NS)* used for the validation of results. If the results are identical, or there are minimal differences between the results obtained from different methods, they can be considered trustworthy. DELL Statistica software (Version 12 in Czech), and in particular the neural networks data mining tool, was used for the calculations. This involved a classification task calculated using the Automated Neural Networks (ANS) tool. The dependent variable was profit and the independent variables were represented by the following partial parameters: HRZ – value chain; VZZ – internal resources; MZZ – mezzo environment; VNZ – external resources; and the size of business. All the companies were classified according to the sector they operate in and subsequently into service or manufacturing businesses. In total, 10 calculations were performed.

## **Results and Discussion**

While the opinions concerning the growth characteristics of human resources in current economic systems was respected, the existing position on the HRM issue with respect to factors that generate corporate value-added was the subject of the research. The analytical tool used was the so-called “corporate value chain”. Its origin lies in the building of corporate competitive advantage through the continued promotion of the value chain theory (Porter, 1985). Human resource management is identified as one the supporting activities for achieving this. The information obtained from the companies in the sample set was analysed to determine the importance of this factor with respect to profitability and competitive advantage. Such an analysis based on such a large sample set of companies is not only unique for the Czech Republic, but also for other European countries.

***Position of HRM factor in the value chain (HRZ) of companies in the sample set on the basis of the dimensional reduction of HRZ according to sector***

*DR (formula = HV ~ VSTUPLOG + VYROBA + VYSTUPLOG + MARK + SERVIS + NAKUP + VTR + RLZ + PINF, data = MS, MVP, PMS, method = "sir")*

Where the variables in the value chain are:

*VSTUPLOG* – input logistics; *VYROBA* – manufacturing / services; *VYSTUPLOG* – output logistics; *MARK* – marketing and sales; *SERVIS* – service and other ancillary services; *NAKUP* – procurement / materials management; *VTR* – scientific and technological development; *RLZ* – human resource management; *PINF* – corporate infrastructure; *MS* – services sector; *MVP* – manufacturing and industry; *MPS* – primary sector; *HV* – economic profit/loss.

*Table 4.5*

**Dimensional reduction of potential corporate value-added and its impact on the profitability of the companies in the sample set according to sector**

Value chain activities	Dir1	Dir1
	Manufacturing and Industry Sector	Services Sector
Input logistics	<b>0.46983</b>	-0.25018
Manufacturing / Services	0.12189	0.28829
Output logistics	-0.21121	0.21485
Marketing and sales	0.02312	<b>0.51556</b>
Service and other ancillary services	-0.05822	<b>0.41392</b>
Procurement	<b>-0.41119</b>	<b>0.49602</b>
Scientific and technological development	<b>0.62247</b>	0.31494
Human resource management	<b>0.37053</b>	-0.06629
Corporate infrastructure	0.14844	-0.14621

***Manufacturing and industry sector***

The highlighted values for the variables in Table 4.5 (value chain activities) indicate a potential positive influence on the profitability of

the companies on the basis of their higher, active and targeted involvement in the corporate value chain. In the manufacturing and industry sector, the variables that were statistically identified to have the greatest potential positive influence on the profitability of the companies in the sample set were *scientific and technological development, input logistics, and to a lesser extent, human resource management*. The conclusion is that the identified components of the value chain reflect current production and performance tendencies within the sector, whereby the issue of human resources was found to be underestimated by company managers. However, it should be noted that of all the tested factors, the practitioner role involves the human factor and that the implementation of the other activities, as described below, is dependent on the quality of that human factor. In general, scientific and technological development is considered to be an accelerator for national economies. The result (statistically validated) of this value chain component can be seen as a very favourable. A similar conclusion is also valid for the two associated indicated components of the value chain, whereby the relevance of input logistics for the manufacturing and industry sector is indisputable (dominant for many businesses, in particular for complex, challenging and highly innovative productions) *and human resource management can be considered as a corporate attribute for generating value-added*. In this respect, the workforce can be considered as the integrating component in the value chain and the important components that have a positive impact can be referred to as the “golden triangle of the manufacturing and industry sector”.

### ***Services sector***

In the services sector, the variables that were statistically identified to have the greatest potential positive influence on the profitability of the companies in the sample set were: marketing and sales, procurement and service and other ancillary services. In a similar vein to the manufacturing and industry sector, these activities can be described as the “golden triangle of the services sector”. It should also be noted that the results reflect the characteristics and specific features of this sector not only from the perspective of its present state, but even its future expected development. *In this sector, the position of human resources is alarming. The underestimated importance of this variable is a fatal error on the part of managers in the services sector and can be seen as a latent risk for the future development of services*. The dominant position of marketing and sales in the services sector is generally

accepted. Within this context, the importance of this value chain component can be expected to only strengthen on the back of the development of innovative, modern, and in particular, efficient marketing tools that are specific and targeted according to the characteristics of different inputs. *As is the case in the manufacturing and industry sector, it is qualified, skilled and competent employees that must carry out these activities, which again underlines the essential importance of human resources.* The possible reason that the human factor is underestimated in this sector may lie in the high priority given to the individual approach, which is a specific characteristic of the services sector. The workforce can therefore be identified as the most dynamic component of the services sector, whereby the importance of this value chain component is expected to increase even further in the future, as is competitiveness in the sector.

***Value chain according to sector using neural networks***

Within the scope of the research, neural networks were used to validate results. The table below summarises the active networks used for the analysis.

*Table 4.6*

**Value chain – active network overview (manufacturing and industry sector)**

Network name	1. MLP 18-24-3	2. MLP 18-16-3	3. MLP 18-19-3	4. MLP 18- 15-3	5. MLP 18- 16-3
Training performance	71.96970	75.75758	75.75758	73.48485	76.51515
Test performance	74.07407	74.07407	77.77778	74.07407	74.07407
Validation performance	70.37037	74.07407	77.77778	74.07407	74.07407
Training algorithm	BFGS (Quasi-Newton) 6	BFGS (Quasi-Newton) 13	BFGS (Quasi-Newton) 14	BFGS (Quasi-Newton) 17	BFGS (Quasi-Newton) 15
Error function	Entropy	Entropy	Entropy	Sum of squares	Entropy
Hidden layer activation	Exponential	Logistic	Tanh	Exponential	Logistic
Hidden layer activation	Softmax	Softmax	Softmax	Logistic	Softmax

Of the 10,000 neural networks tested, the 5 best multi-layer perceptron networks were retained. The performance of training, test and validation data sets is about the same – ranged above the level of 70.

All the networks were created using the BFGS (Quasi-Newton) algorithm. Entropy was used as the error function for networks 1, 2, 3 and 5, while the sum of squares was used for network 4. For the activation of the hidden layer neurons, the exponential function was used for networks 1 and 4, the logistic function for networks 2 and 5, and the hyperbolic tangent for network 3. For the activation of the output neurons, the Softmax function was used for networks 1, 2, 3 and 5, and the logistic function for network 4.

The results of the sensitivity analysis are summarised in Tables 4.7a-b.

*Table 4.7a*

**Value chain – sensitivity analysis (manufacturing and industry sector)**

Net-works	1. MLP 18-24-3	2. MLP 18-16-3	3. MLP 18-19-3	4. MLP 18-15-3	5. MLP 18-16-3	Average
<b>17.1 RLZ</b>	<b>1.049400</b>	<b>1.783906</b>	<b>1.702912</b>	<b>1.477925</b>	<b>1.589430</b>	<b>1.520715</b>
17.1 VTR	1.243114	1.572670	1.803558	1.406646	1.481737	1.501545
17.1 VYR OBA	1.048622	1.245523	1.396182	1.342680	1.414520	1.289505
17.1 VSTUP LOG	1.081940	1.351343	1.298427	1.287669	1.397936	1.283463
17.1 NAKUP	1.029558	1.359443	1.261572	1.228830	1.402258	1.256332
17.1 VYSTUP LOG	1.016740	1.408332	1.232405	1.150128	1.367124	1.234946
17.1 PINF	1.039805	1.425715	1.321617	1.032551	1.277908	1.219519

Where:

*VSTUPLOG* – input logistics; *VYROBA* – manufacturing / services; *VYSTUPLOG* – output logistics; *MARK* – marketing and sales; *SERVIS* – service and other ancillary services; *NAKUP* – procurement / materials management; *VTR* – scientific and technological development; *RLZ* – human resource management; *PINF* – corporate infrastructure.

Table 4.7b

**Value chain – sensitivity analysis (manufacturing and industry sector)**

Networks	Sensitivity analysis (data for calculation of the present state)	
	Samples: Training, Test, Validation	
	17.1MARK	17.1SERVIS
1. MLP 18-24-3	1.032285	1.003745
2. MLP 18-16-3	1.277958	1.083770
3. MLP 18-19-3	1.300687	1.134536
4. MLP 18-15-3	1.172191	1.111847
5. MLP 18-16-3	1.240417	1.087514
Average	1.204708	1.084282

*It is evident from the data presented in Tables 4.8a-b that human resource management is the number one factor affecting the economic profit/loss of the companies in the sample set, followed in close succession by scientific and technological development, manufacturing/services, input logistics, procurement/materials management, output logistics, corporate infrastructure, and marketing and sales. Service and other ancillary services finished in last place.*

**Services sector**

Table 4.8a

**Value chain – sensitivity analysis (services sector)**

Net-works	1. RBF 18-26-3	2. MLP 18-23-3	3. MLP 18-4-3	4. RBF 18-29-3	5. MLP 18-13-3	Average
17.1 VTR	1.00000	0.999702	0.999505	1.00000	1.352921	1.070426
17.1 INAKU P	1.00000	0.999040	0.997288	1.00000	1.227045	1.044675
17.1 VSTUP LOG	1.00000	0.999998	0.999967	1.00000	1.217207	1.043434
17.1 MARK	1.00000	0.999693	0.998711	1.00000	1.183237	1.036328
<b>17.1 RLZ</b>	<b>1.00000</b>	<b>0.999967</b>	<b>0.999989</b>	<b>1.00000</b>	<b>1.148355</b>	<b>1.029662</b>
17.1 VYSTU P LOG	1.00000	1.000148	0.999132	1.00000	1.052771	1.010410
17.1 SERVIS	1.00000	0.999618	0.999409	1.00000	1.046649	1.009135

Table 4.8b

**Value chain – sensitivity analysis (services sector)**

Networks	Sensitivity analysis (data for calculation of the present state)	
	Samples: Training, Test, Validation	
	17.1VYROBA	17.1PINF
1. RBF 18-26-3	1.000000	1.000000
2. MLP 18-23-3	0.999915	1.000123
3. MLP 18-4-3	1.000084	0.999597
4. RBF 18-29-3	1.000000	1.000000
5. MLP 18-13-3	1.035985	0.999419
Average	1.007197	0.999828

Where:

*VSTUPLOG* – input logistics; *VYROBA* – manufacturing / services; *VYSTUPLOG* – output logistics; *MARK* – marketing and sales; *SERVIS* – service and other ancillary services; *NAKUP* – procurement / materials management; *VTR* – scientific and technological development; *RLZ* – human resource management; *PINF* – corporate infrastructure.

For RBF neural networks, the sensitivity analysis does not need to be interpreted because all values are at level 1. For networks 2 and 3, the weight is less than 1.0, so the result does not need to be interpreted. For network 5, MLP 18-13-3, the results are better and equal to the average because network 5 creates this average. Scientific and technological development was ranked in first place followed by procurement/materials management, input logistics, marketing and sales, **human resource management**, output logistics, service and other ancillary services, manufacturing/services, with corporate infrastructure in last place.

***Characteristic features of modern human resource management under new economic systems and interfaces.***

The conclusions based on the research outputs are as follows:

- corporate and human resource management strategies need to be aligned;
- individual potential as well as that of the whole collective must be utilised (whereby the potential of the collective is not a simple sum of the skills, abilities, knowledge, experience and behaviour of the individuals, but something more);
- human resource management is no longer just a matter for

professionals/specialists in HR departments, but is part of the job descriptions of all managers and is conducted with the support and assistance of HR departments;

- corporate culture is being reinforced and stimulates the sharing of values (cooperation and trust are becoming more important), with strong corporate culture replacing rigid control;
- growing tendency towards participative control, decision-making, remuneration and employee solidarity with the organisation with a focus on teamwork;
- increased focus on the quality of the working life of employees and their satisfaction;
- greater emphasis on the personal potential, growth and development of employees through qualifications, whilst accentuating flexibility, adaptability and above all, high creativity and inventiveness;
- increased importance of human resources being viewed as human capital (intellectual capital), unlike the former concept of being considered to be just the workforce and a cost element.

### ***Sources of competitive advantage on global markets in the 21st century***

These include:

- Innovation: the implementation of innovations allows companies to promptly respond to changes in customer demand (new requirements, needs and wishes). From the customer's point of view, and of greater priority to them, innovation goes hand-in-hand with the introduction of new and better quality products on the market.
- Organisational transformation: Changes to the arrangements of the internal environment create the conditions for setting up new, more flexible and expedited relationships with customers. This improves the standard of contacts between the organisation and customers, which ultimately leads to reductions in the lead times of new products.
- Strategic alliances: By creating temporary and virtual alliances with proven and reliable partners; a company makes sensible use of the available resources of its partners (and most often rivals) to secure its own production programmes, thereby being able to considerably reduce its own costs (as well as the prices of its products).

### ***Changes to work culture and the engagement of employees***

These include: adaptability and flexibility, assertiveness; creativity, self-development, self-management, stress resistance, continuous high

performance, from factography to systematic thinking, ability to acquire and use information, lifelong learning (qualifications), informal authority, ability to motivate workers, teamwork and collaboration skills, desire to lead and manage, inter-cultural orientation, value sharing, career as path for change and movements on the labour market and moral credit and ethics.

### ***HR Department innovation***

The arrangements for HR management within companies are also undergoing a period of transformation and innovation. The outcomes confirmed the generally recognised trends in the functions of HR departments. These trends can be described by the following from-to transitions: directive management to partnership, operative and tactic to strategic, quantitative to qualitative, short-term to long-term, administrative to consultative, functional to departmental and corporate, individual to collective, internal processes to customer, reactive to proactive and operations to processes.

### **Conclusion**

The research outcomes show the essential importance of the human factor in generating a competitive advantage and in improving the profitability of companies. At the same time, however, the research confirmed a very significant underestimation of the human factor in the production process by managers. The following causes can be identified:

- the character of the human factor as the practitioner of all corporate activities;
- a lack of understanding of the human factor as a unique and natural component of the corporate environment;
- a persistently static view of the human factor in production processes;
- an underestimation of the integral part the management role plays in HR management; and
- the favourable economic cycle during the period of research, whereby the influence of technical and technological factors intensified.

The partial outputs of the research include the formulation of the characteristic features of modern human resource management within the context of new economic systems and interfaces, the definition of current sources of competitive advantage in global markets, as well as

changes in work culture and the engagement of employees, and the identification of innovative changes being implemented in HR departments of companies.

The major challenges in HR management for the 21st century include the internationalisation and globalisation processes, chaos and disorder, knowledge and information technologies and their development; the intellectual capital of workers, the rate of change within a company and its impact on corporate architecture, and last but not least, the formation of new economic systems and groupings. Within this context, and within a very short period of time, personnel/HR management is likely to see the accelerated introduction of new and innovative approaches to cooperation and integration, whereby the objective is to increase a company's competitive advantage in local and foreign markets.

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## Chapter 5

### DEVELOPMENT OF ECONOMIC SYSTEMS IN THE MARKET OF INTERNATIONAL TOURISM AND HOTEL-RESTAURANT BUSINESS

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### TOURISM DEVELOPMENT IN UKRAINE: PROBLEMS AND PROSPECTS

Dynamic economic changes, the intensification of international competition, the deepening of international investment processes, the appearance of new organizational forms of cooperation and partnership are trends of social and economic development. The complicated conditions of the functioning of economic entities determine the application of management methods that will create the basis for the realization of their economic interests. These trends have a significant impact on tourism, which is a social and economic phenomenon and is one of the most dynamic areas of the world economy. Tourism accounts for about 11% of world consumer costs, 7% of total capital investments, 6% of world gross national product and 5% of all tax incomes. According to experts from the World Tourism Organization (UNWTO), the tourism potential is not used enough in Ukraine. In addition, the national tourism is characterized by a high level of differentiation of outbound and inbound tourist traffic, which adversely affects the

competitiveness of the tourist product.

Tourism is an important branch of the country's economy and one of the fastest growing sectors of the world economy. The tourism industry can be considered both as an independent type of economic activity and as an interbranch complex, therefore the purpose of the study is to analyze the current state of tourism in Ukraine and to identify the main problems of this industry.

Modern living conditions greatly influence people and create new needs for them. In particular, the satisfaction of tourist needs of the population, providing with various tourist services in the form of food, accommodation, transport, excursion services and other types of service are among these needs.

The development of tourism in the country's economy is especially important, because it can improve the social and economic situation in the region. Therefore, it is necessary to focus on the achievements and issues in this area.

The number of foreigners who visited Ukraine over the last year is more than 16 million tourists. As it can be seen from Figure 5.1, there is a variable dynamics of changes in indicators for 10 years. The reason is the unstable political and economic situation in the country, and military events in some regions of Ukraine.

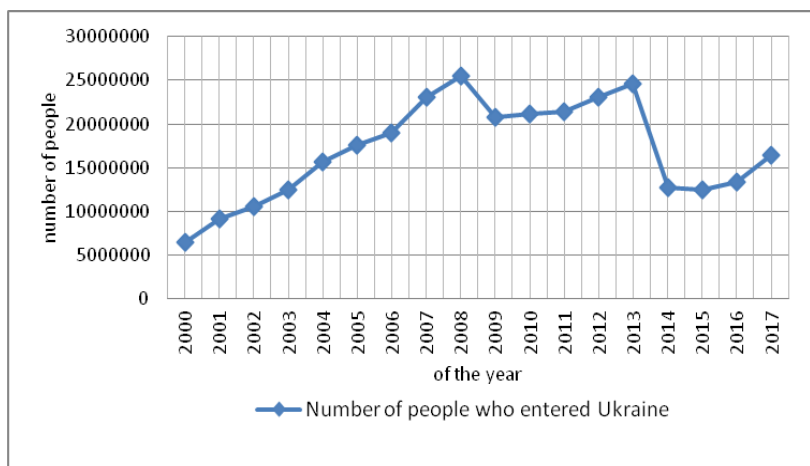


Figure 5.1 Number of foreigners who visited Ukraine

According to the Administration of the State Border Guard Service

of Ukraine, the number of foreigners who visited Ukraine in 2017 is 16.4 million people, which is 1.5% more than in 2016.

The structure of the inbound flow in 2017 by the country of origin is as follows: CIS countries – 11.2 million people (64% of the total inbound flow), EU countries – 4.3 million people (31%), the rest of the countries – 0.9 million people (5%) [1].

The main motivation for this period is private travelling, which accounts for 94.1% of all trips and grew by 6.8% in comparison with 2016.

The number of inbound foreigners' flow with the purpose of "tourism" is 38.9 thousand people, which is 4.3 times lower than in 2016.

At the same time, in 2017 the largest number of foreigners came to Ukraine from Switzerland (↑ 0.2 thousand people), Belarus (↓ 67.1 thousand people), Romania (↑ 0.1 thousand people), Israel (↓ 8.1 thousand people), Turkey (↓ 4.8 thousand people), Germany (↓ 1.6 thousand people), Russia (↓ 39.6 thousand people), Lithuania (↓ 1.1 thousand people), the USA (↓ 5.1 thousand people), Belgium (↑ 0.1 thousand people), France (↓ 1.1 thousand people) and Sweden (↓ 0.1 thousand people) for the purpose of "tourism" [1].

Table 5.1 shows the number of foreigners who visited Ukraine from 2015 to 2017 for different purposes.

*Table 5.1*

**Foreigners' travel motivation to visit Ukraine for 2015-2017**

Years	Number of foreigners who visited Ukraine	Purpose						
		Official, business, diplomatic	Tourism	Private	Education	Employment	Immigration (permanent residence)	Cultural and sports exchange, etc.
2017	16457563	88976	38958	13741653	4521	2640	4027	348867
2016	13333096	33397	172848	12953702	2087	26	3145	167891
2015	12428286	41169	137906	11525239	101	1304	2314	720253

The largest number of foreigners who visited Ukraine in 2017 was from Moldova, Belarus, Romania, Turkey, Israel, Germany (Table 5.2).

*Table 5.2*

**Leading countries of the world whose citizens visited Ukraine in 2016-2017 [2]**

Name of the country	2016		2017		Increase 2017/2016
	People	Fraction %	People	Fraction %	
Moldova	4296409	32,2	4435664	27,1	↑ 1,3 %
Belarus	1822261	13,7	2727645	16,6	↑ 1,5 %
Russia	1473633	11,1	1464764	8,9	↓ 0,9 %
Hungary	1269653	9,5	1058970	6,4	↓ 0,8 %
Poland	1195163	8,9	1144249	6,9	↓ 0,9 %
Romania	774585	5,8	791116	4,8	↑ 1,2%
Slovakia	410508	3,1	366249	2,2	↓ 0,9 %
Turkey	199618	1,5	270695	1,6	↑ 1,4 %
Israel	216638	1,6	261486	1,5	↑ 1,2 %
Germany	171118	1,3	209447	1,3	↑ 1,2 %

In comparison with 2016, the number of foreign tourists increased to 905.3 thousand people from Belarus, 139.2 thousand people from Moldova, 71.1 thousand people from Turkey, 44.8 thousand people from Israel, 38.3 thousand people from Germany, 16.5 thousand people from Romania; reduced to 8.8 thousand people from Russia, 210.6 thousand people from Hungary, 50.9 thousand people from Poland, 44.3 thousand people from Slovakia [1].

In order to improve the conditions, conducted analysis and prediction of the total demand in the tourist market showed that the number of tourists is changing slowly each year, and we hope that the trends for the tourist flow increase will be maintained in the nearest future. That is why the search of new ways of tourism development in Ukraine is particularly relevant.

The analysis confirms the interest of foreigners in meeting their tourist needs in Ukraine. After all, Ukraine is one of the largest states in Europe in terms of population (42386.4 thousand people as of January 1, 2018), territory (603 628 km<sup>2</sup>, that is, 5.7% of the territory of Europe and 0.44% of the world), has rich natural resources [2].

Unfortunately, today we have to claim that, contrary to the considerable tourism potential, Ukraine is not even among the twenty

popular tourist destinations in the world. According to the rate of the tourism competitiveness of the World Economic Forum, Ukraine takes 83rd place out of 146 [3].

Favorable geographical location, natural and climatic conditions can also be attributed to the strengths of the development of tourism and, in particular, hotel business in Ukraine; the presence of natural recreational resources for the formation of tourist routes; a rich historical and cultural heritage, as a potential for the development of excursions and relatively high transport accessibility (Figure 5.2).

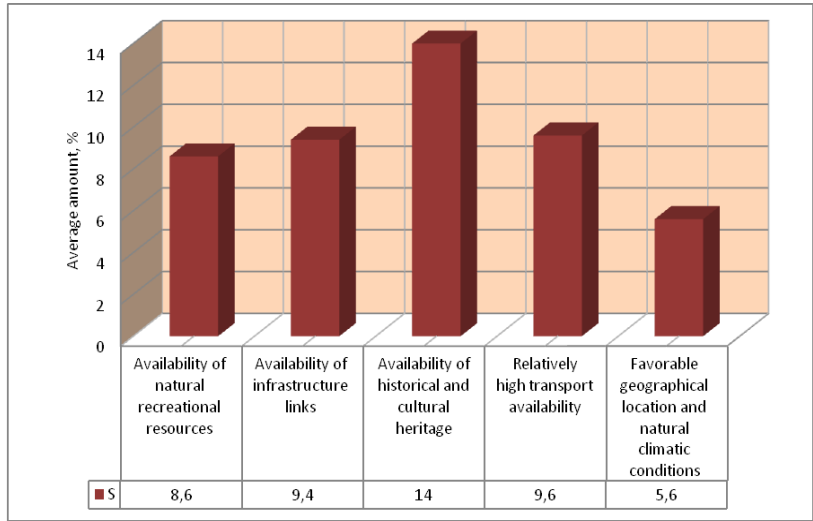


Figure 5.2 Strengths that contribute to the development and competitiveness of tourism in Ukraine

But along with the definite advantages, it is worth analyzing the components of the problem field of tourist business in Ukraine. This allows us to focus on the following aspects of tourist activity: the lack of modern vehicles for the maintenance of tourist flows (9.6%); the need for reconstruction of tourist objects (10.4%); low infrastructure development, services and tourist services (7.8%); the high price of a tourist product in the national and international markets (4.2%); mismatch of tourist services to international standards (10.8%), and the finding of tourist facilities in an unsatisfactory state that holds back the tourist flows, promotes the interest of foreign tourists in the historical and cultural heritage, etc. (Figure 5.3).

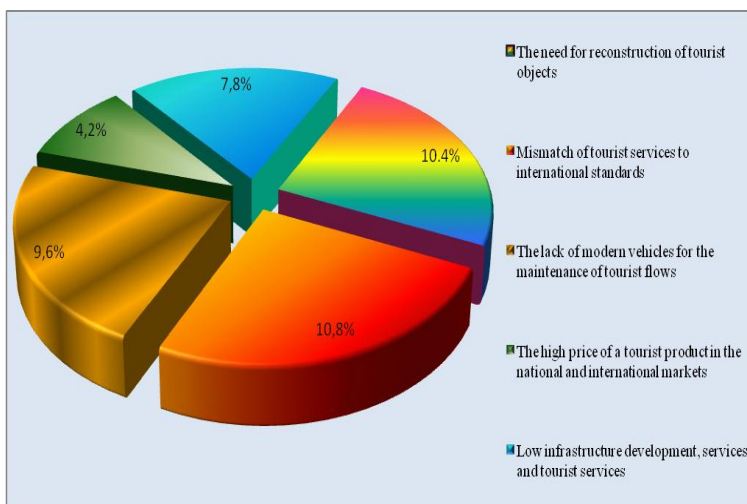


Figure 5.3 Components of the problem field of tourist business in Ukraine

The main threats affecting the competitiveness of tourist services in the country are: the significant dependence on the political and economic situation in the country; the dependence on demographic and social factors in society; the change of needs and preferences of potential consumers of tourist services; the international competition of neighboring countries; the imperfection of normative and legal base (Figure 5.4).

Despite the threatening factors, the creation of a new competitive tourist product opens up promising opportunities for the development of the tourist industry in Ukraine.

One of the most important factors for economic development of the country due to the development of tourism is the attraction of a new amount of tourist flows to Ukraine and several other significant factors, which is presented in Figure 5.5.

In order to increase the popularity of Ukraine among native and foreign tourists, it is necessary to offer Ukrainian agencies the following forms of tourism activity organization: to encourage Ukrainian travel agencies to use information technologies in order to popularize their tourist services among foreign tourists and to provide quick information updating about the services.

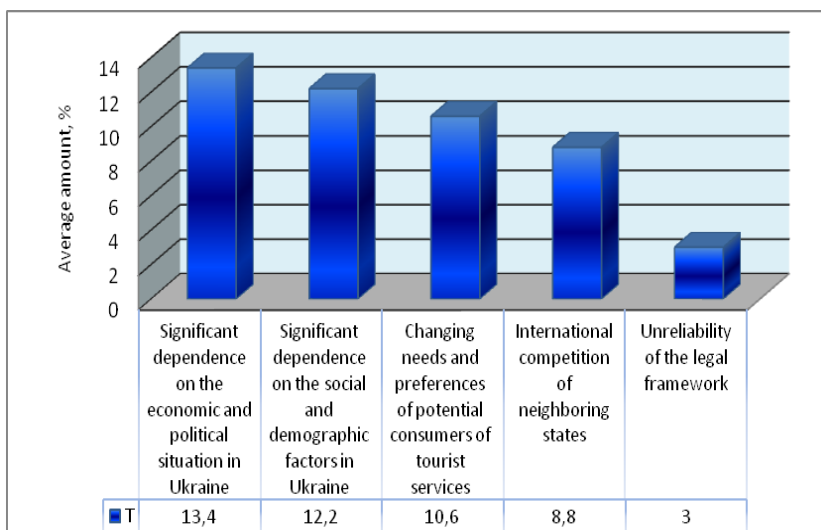


Figure 5.4 The field of threatening factors which affect the competitiveness of tourist services in Ukraine

The Ukrainian ethnographic village will contribute to increasing the popularity of Ukraine as a tourist country due to the unusual atmosphere of the times of the reign of the Cossacks.

The introduction of the suggested measures will allow increasing the revenue side of the country's budget through taxes, developing infrastructure (hotels, theaters, museums, trade enterprises, restaurants), attracting foreign currency and investment, which will contribute to the growth of incomes and increase the welfare of the nation.

According to the number of historical monuments, Ukraine does not lag behind European countries, but the country needs to increase the financing of tourist industry to improve the quality of services in order to increase the flow of foreign tourists.

Therefore, in order to create favorable conditions for the development of tourism and resorts in accordance with international standards of quality and taking into account European values, on March 16, 2017, the Government of Ukraine adopted the Resolution No. 168 "Strategy for the Development of Tourism and Resorts for the period up to 2026".

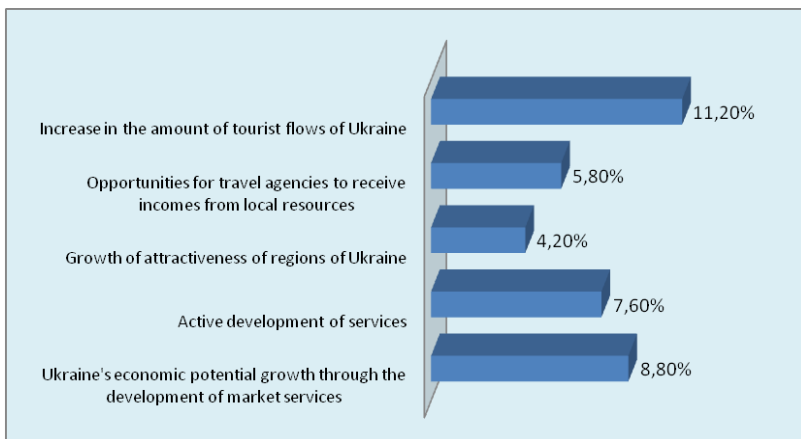


Figure 5.5 Opportunities for the tourist business development in Ukraine due to the creation of new competitive services

The introduction of the Strategy is foreseen in the following areas: the security of tourists and protection of their legitimate rights and interests, the implementation of EU legislation in the field of tourism, providing complex development of territories, in particular, the creation of favorable conditions for attracting investments in tourist infrastructure development, the improvement of the specialists' professional training system of the tourism sphere, the formation and promotion of a positive image of Ukraine as an attractive country for tourism. Introduction of the act is provided at the expense of state, local budgets and other sources not prohibited by law, and the financing amount will be determined annually, taking into account specific tasks and real possibilities [4].

And in April 2017, the Cabinet of Ministers of Ukraine approved the Resolution No. 275 "Medium-term Plan of Government Priority Actions to 2020". The plan foresees the development of the tourist sector which is capable of promoting entrepreneurship, creating new jobs and increasing budget revenues.

Taking into account the above-mentioned, in 2017 the Cabinet of Ministers of Ukraine, the appropriate committees of the Verkhovna Rada, the representatives of tourist business and the public placed great importance on the elaboration of the Draft Law of Ukraine "On Amendments to Certain Legislative Acts of Ukraine on Tourism". The main objective of the legislative initiative is to establish clear and

understandable rules for entrepreneurs and consumers.

Of course, when considering the ways of developing tourism in Ukraine, foreign experience of other countries should be taken into account. Therefore, the analysis of the profiles of the development of international competition of other countries was carried out on the example of Estonia and Turkey (Figure 5.6).

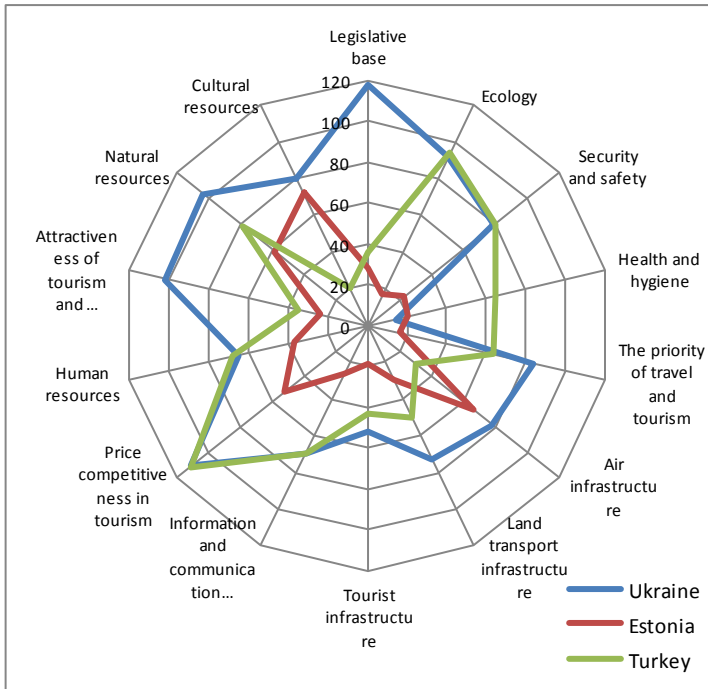


Figure 5.6 Comparative an analysis of the profiles of development of Ukraine, Estonia and Turkey

Such an analysis enables us to determine the direction and the main components of the tourist business development in Ukraine. In particular, this is the development of the sphere: health and hygiene, tourist safety, ecology, legal framework of tourism and resorts, development of tourism infrastructure and human resources, etc.

Thus, in the framework of the identified priority directions it is necessary to ensure effective interaction of legal, organizational,

economic and financial mechanisms of state regulation of the development of tourism and resorts.

This will increase the amount of capital investment in the tourism and resorts of Ukraine and become one of the main sources of revenues to the state budget.

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**DEVELOPMENT  
OF QUALITY  
MANAGEMENT  
SYSTEMS IN  
THE HOTEL-  
RESTAURANT  
BUSINESS**

**Introduction.** One of the important problems of the hotel-restaurant economy of Ukraine for today is development and implementation of a

quality management system (QMS) (Azgaldov et al, 2011, 2015; Topol'nik, Ratushnyj, 2008) [1-3]. Availability of QMS remains an important tool in competitive struggle on the market of the hotel-restaurant services (HRS) (Topol'nik, Ratushnyj, 2008) [3].

The complexity of the assessment of HRS is largely caused by difficulties of formalization, generalization and analysis of evaluation criteria, and definition of methods of their measurement. Therefore qualimetric methods are most often used for setting quality service parameters (Topol'nik, Ratushnyj, 2008; Kuzmin et al, 2017, 2018; Niemirich et al, 2018; Dietrich et al, 2017) [3-7].

A qualitative index of a product is a quantitative characteristic of one or several properties of a product, which characterize its quality, and is considered in terms of certain conditions of its creation, exploitation or consuming (Azgaldov et al, 2011, 2015; Topol'nik, Ratushnyj, 2008) [1-3].

According to the amount of characterized properties the indexes are divided into simple and complex (Topol'nik, Ratushnyj, 2008) [3]. Simple qualitative index identifies one of its properties (Sébédio, 2017; Kuzmin et al, 2014-2017) [4, 8-11]. Complex index identifies several properties of a product (Azgaldov et al, 2011; Topol'nik, Ratushnyj, 2008) [1, 3].

A product quantitative estimation is a set of operations, which includes: qualitative indexes' nomenclature selection of a product, value determination of these indexes and their comparison with basic indexes (Niemirich et al, 2018; Kuzmin et al, 2018; Dietrich et al, 2017) [5-7].

Complex method of a product quantitative estimation is based on expressing of the estimation rate by one number, which is a result of grouping of selected simple indexes to one complex index (Azgaldov et al, 2011, 2015; Topol'nik, Ratushnyj, 2008) [1-3].

Complex method of a product quantitative estimation is prevailing (Wang et al, 2016; Rodgers, 2017; Perng, Oken, 2017) [12-14]. But, a complex estimation of food products is not exclusive of differential estimation, because in some cases high value of complex qualitative index can disguise the low level of product's quality according to some simple indexes.

Each qualitative index, being a quantitative characteristic (extent) of one of object's quality model (fact) should reflect (to greater or lesser extent) the ability (property) of the object (fact), meet public demands (interests, values) in certain conditions. Therefore, in order to form a qualitative index we should take into account following qualitative

components: public demand, certain conditions, object and extent of its meeting. Qualitative index should provide an answer to the question: to what extent is this object (fact) able to meet public demand (interest, value) (Topol'nik, Ratushnyj, 2008) [3].

**Materials and methods.** The daily ration of human nutrition (breakfast, lunch, dinner) and the norms of the physiological needs of the average person – to determine the complex quantitative assessment of the quality of diets. An additive mathematical model as most widespread in a qualimetry is used for joining the quality rating into the generalized (complex) index. Methods – qualimetric (Azgaldov et al, 2011, 2015; Topol'nik, Ratushnyj, 2008) [1-3].

Method of a diet complex quantitative estimation (Topol'nik, Ratushnyj, 2008; Kuzmin O. et al. 2017) [3-4]:

1. Index values for set diets are determined from the formula:

$$P_{ij} = \frac{M_{ij}}{\sum M_{ij}}, \quad (5.1)$$

$M_{ij}$  – content of nutrient materials in group  $j$  in nutrition products included in the diet.

2. Analogously, due to recommended norm, basic indexes are determined:

$$P_{ij}^{basic} = \frac{M_{ij}^{basic}}{\sum M_{ij}^{basic}}, \quad (5.2)$$

$M_{ij}^{basic}$  – regulatory  $i$  nutrient material in group  $j$  of daily ration material.

3. Simple indexes' estimation of proteins, fats, carbohydrates is calculated by the formula:

$$K_{ij} = \left( \frac{P_{ij}}{P_{ij}^{basic}} \right)^z, \quad (5.3)$$

$P_{ij}$  – index of a nutrient material in daily ration;

$P_{ij}^{basic}$  – basic (balanced) value of index of a nutrient material in daily ration (according to norms of physiological needs);

$z$  – index, that considers the influence of changing index value on qualitative rate of an object, that is equal to plus 1 in proteins and carbohydrates content estimating and minus 1 in fats content estimating.

4. Weight coefficient value of nutrient materials  $m_{ij}$  is calculated by the formula:

$$m_{ij} = \frac{\frac{\sum M_{ij}^{basic}}{M_{ij}^{basic}}}{\sum \left( \frac{\sum M_{ij}^{basic}}{M_{ij}^{basic}} \right)}. \quad (5.4)$$

Complex qualitative index of meal due to nutrient materials equation for two-level structure is determined from the adaptive model:

$$K_o = \sum_{i=1}^t M_j \cdot \sum_{j=1}^{n_i} m_{ij} \cdot K_{ij}, \quad (5.5)$$

$M_j$  – weight coefficient value of nutrients.

**Results and discussions.** According to norms of physiological needs of a common person at the age from 18 to 59 we have developed complex qualitative index of meal: total amount of nutrient materials – 617 g (proteins – 88 g; fats – 107 g; carbohydrates – 422 g); total amount of mineral matters – 11150 mg ( $Na$  – 5000 mg;  $K$  – 3750 mg;  $Ca$  – 800 mg;  $Mg$  – 400 mg;  $P$  – 1200 mg); total amount of vitamins – 90,3 mg ( $B_1$  – 1,6 mg;  $B_2$  – 1,8 mg;  $B_6$  – 1,9 mg;  $C$  – 85,0 mg).

**1. Complex quality rating of breakfast.** Due to norms of macronutrients, mineral matters and vitamins content, included in breakfast dishes, the calculation of nutrient materials found in menu (Table 5.3).

According to the recommended norms of physiological needs basic values have been determined from the formula (5.2). Basic qualitative

indexes of macronutrients, mineral matters and vitamins are the following: for proteins –  $P_p^{basic}=0,15$ ; fats –  $P_f^{basic}=0,17$ ; carbohydrates –  $P_c^{basic}=0,68$ ; sodium –  $P_{Na}^{basic}=0,45$ ; potassium –  $P_K^{basic}=0,34$ ; calcium –  $P_{Ca}^{basic}=0,07$ ; magnesium –  $P_{Mg}^{basic}=0,03$ ; phosphorus –  $P_P^{basic}=0,11$ ; thiamine –  $P_{B1}^{basic}=0,02$ ; ribofflavinum –  $P_{B2}^{basic}=0,02$ ; perydioxine –  $P_{B6}^{basic}=0,02$ ; cevitamic acid –  $P_c^{basic}=0,94$ .

Weight coefficient value of nutrient materials  $m_{ij}$  has been calculated due to the recommended norms of physiological needs by the formula (5.4). Weight coefficients are the following: proteins –  $m_p=0,50$ ; fats –  $m_f=0,40$ ; carbohydrates –  $m_c=0,10$ ; sodium –  $m_{Na}=0,03$ ; potassium –  $m_K=0,05$ ; calcium –  $m_{Ca}=0,25$ ; magnesium –  $m_{Mg}=0,50$ ; phosphorus –  $m_P=0,17$ ; thiamine –  $m_{B1}=0,36$ ; ribofflavinum –  $m_{B2}=0,32$ ; perydioxine –  $m_{B6}=0,31$ ; cevitamic acid –  $m_c=0,01$ .

Table 5.3

**Calculation of macronutrients, mineral matters and vitamins content included in breakfast dishes**

Nutrient materials	Name of the dish						
	Diary butter	Aubergine caviar with green onions	Beef stewed	Pasta cooked	Bread of wheat flour of grade 1	Cocoa with milk	Total
Weight, g	10	150	125	150	150	200	785,0
Macronutrients, g:							
proteins	0,06	1,20	17,90	15,60	11,40	3,80	49,96
fats	8,25	4,22	6,60	1,35	1,35	3,90	25,67
carbohydrates	0,09	12,90	7,00	112,80	74,55	24,80	232,14
Mineral matters, mg:							
Na	7,40	915,00	775,00	15,00	732,00	50,00	2494,40
K	2,30	457,50	266,00	186,00	190,50	242,00	1344,30
Ca	2,20	47,10	22,00	27,00	39,00	122,00	259,30
Mg	0,30	29,40	25,00	24,00	52,50	18,00	149,20
P	1,90	84,00	178,00	130,50	124,50	120,00	638,90
Vitamins, mg:							
B <sub>1</sub>	0,00	0,11	0,07	0,26	0,24	0,00	0,67
B <sub>2</sub>	0,01	0,11	0,17	0,12	0,12	0,00	0,53
B <sub>6</sub>	0,00	0,32	0,67	0,09	0,09	0,00	1,17
C	0,00	30,00	1,10	0,00	0,00	0,00	31,10

Absolute values of qualitative indexes of macronutrients, mineral matters and vitamins calculated by the formula (5.1) are the following: for proteins –  $P_p=0,160$ ; fats –  $P_f=0,080$ ; carbohydrates –  $P_c=0,750$ ; sodium –  $P_{Na}=0,510$ ; potassium –  $P_K=0,270$ ; calcium –  $P_{Ca}=0,050$ ; magnesium –  $P_{Mg}=0,030$ ; phosphorus –  $P_p=0,130$ ; thiamine –  $P_{B1}=0,020$ ; ribofflavinum –  $P_{B2}=0,015$ ; perydioxine –  $P_{B6}=0,034$ ; cevitic acid –  $P_c=0,920$ . Obtained results are brought in the Table 5.4.

Table 5.4

Calculation of absolute values and simple qualitative indexes

Absolute values					Simple qualitative indexes				
	breakfast	dinner	supper	daily ration		breakfast	dinner	supper	daily ration
Macronutrients									
$P_p$	0,160	0,160	0,18	0,16	$K_p$	1,138	1,145	1,31	1,06
$P_f$	0,080	0,100	0,14	0,14	$K_f$	2,079	1,710	1,19	1,21
$P_c$	0,750	0,740	0,66	0,70	$K_c$	1,075	1,075	0,97	1,03
Mineral matters									
$P_{Na}$	0,510	0,390	0,38	0,47	$K_{Na}$	1,130	0,880	0,84	1,04
$P_K$	0,270	0,310	0,15	0,25	$K_K$	0,810	0,940	0,45	0,74
$P_{Ca}$	0,050	0,050	0,09	0,07	$K_{Ca}$	0,730	0,680	1,29	1,00
$P_{Mg}$	0,030	0,052	0,04	0,04	$K_{Mg}$	0,850	1,460	1,07	1,00
$P_p$	0,130	0,188	0,34	0,17	$K_p$	1,210	1,740	3,15	1,53
Vitamins									
$P_{B1}$	0,020	0,046	0,07	0,04	$K_{B1}$	1,130	2,610	4,18	2,00
$P_{B2}$	0,015	0,030	0,15	0,06	$K_{B2}$	0,780	1,480	7,91	3,00
$P_{B6}$	0,034	0,370	0,07	0,11	$K_{B6}$	1,650	1,770	3,39	0,18
$P_c$	0,920	0,880	0,69	0,79	$K_c$	0,980	0,940	0,74	0,85
Complex quality rating of daily rations									
$K_0$						1,27	1,69	3,38	2,11

Simple indexes' quality rating of proteins, fats, carbohydrates has been calculated by the formula (5.3) using data from Table 5.4. Simple indexes' estimation is the following (Figure 5.7): from proteins –  $K_p=1,138$ ; fats –  $K_f=2,079$ ; carbohydrates –  $K_c=1,075$ ; sodium –  $K_{Na}=1,130$ ; potassium –  $K_K=0,810$ ; calcium –  $K_{Ca}=0,730$ ; magnesium –  $K_{Mg}=0,850$ ; phosphorus –  $K_p=1,210$ ; thiamine –  $K_{B1}=1,130$ ; ribofflavinum –  $K_{B2}=0,780$ ; perydioxine –  $K_{B6}=1,650$ ; cevitic acid –  $K_c=0,980$ .

Complex qualitative index of meal due to nutrient materials equation for two-level structure has been determined from formula (5.5), in which weight coefficient values ( $M$ ) are for macronutrients – 0,35; vitamins – 0,55; mineral matters – 0,1. Due to the calculation results breakfast has complex quality rate  $K_o=1,27$ .

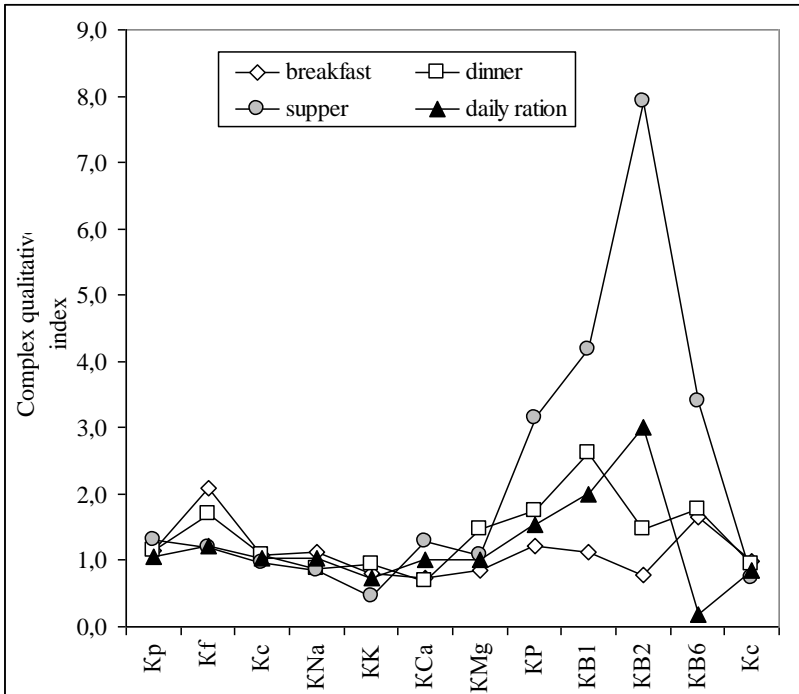


Figure 5.7 Single indexes of the quality of the diet

**2. Complex quality rating of dinner.** Due to norms of macronutrients, mineral matters and vitamins content, included in dinner dishes, the calculation of nutrient materials found in canteen menu is provided (Table 5.5).

Absolute values of qualitative indexes of macronutrients, mineral matters and vitamins calculated by the formula (5.1) are the following: for proteins –  $P_p=0,160$ ; fats –  $P_f=0,100$ ; carbohydrates –  $P_c=0,740$ ; sodium  $P_{Na}=0,390$ ; potassium –  $P_K=0,310$ ; calcium –  $P_{Ca}=0,050$ ; magnesium –  $P_{Mg}=0,052$ ; phosphorus –  $P_P=0,188$ ; thiamine –  $P_{B1}=0,046$ ; riboflavinum –  $P_{B2}=0,030$ ; perydioxine –  $P_{B6}=0,370$ ; cevitic acid –  $P_c=0,880$  (Table 5.4).

Table 5.5

**Calculation of macronutrients, mineral matters and vitamins  
content included in dinner dishes**

Nutrient materials	Name of the dish							Total
	Beetroot boiled with green onions	Vegetable soup and beans	Fried fish fried	Buckwheat porridge	Rye bread	Sugar cookies	Tea with sugar	
Weight, g	150	500	100	150	100	50	200	1250,00
Macronutrients, g:								
proteins	2,88	12,80	15,07	14,81	7,60	7,5	0,2	60,85
fats	3,37	10,90	6,67	3,90	1,10	11,8	0,0	37,74
carbo-hydrates	16,99	43,20	6,67	76,35	40,70	74,0	16,0	273,91
Mineral matters, mg:								
Na	164,40	129,20	1089,33	988,50	538,00	36,0	0,0	2990,43
K	549,60	1073,0	213,33	256,50	206,00	90,0	6,0	2394,43
Ca	70,80	93,00	70,27	81,00	38,00	20,0	1,0	374,07
Mg	81,60	75,00	84,27	94,50	49,00	13,0	1,0	398,37
P	81,60	279,00	484,27	351,00	156,00	69,0	0,0	1420,87
Vitamins, mg:								
B <sub>1</sub>	0,04	0,48	0,56	0,36	0,18	0,08	0,0	1,70
B <sub>2</sub>	0,07	0,17	0,45	0,20	0,11	0,08	0,0	1,08
B <sub>6</sub>	0,05	0,30	0,61	0,29	0,06	0,06	0,0	1,37
C	19,08	12,40	0,93	0,00	0,00	0,00	0,0	32,41

Quality rating of simple indexes for a group of nutrient materials has been determined from the formula (5.3), as a result the values are the following: for proteins –  $K_p=1,145$ ; fats –  $K_f=1,710$ ; carbohydrates –  $K_c=1,075$ ; sodium –  $K_{Na}=0,880$ ; potassium –  $K_K=0,940$ ; calcium –  $K_{Ca}=0,680$ ; magnesium –  $K_{Mg}=1,460$ ; phosphorus –  $K_P=1,740$ ; thiamine –  $K_{B_1}=2,610$ ; ribofflavinum –  $K_{B_2}=1,480$ ; perydoxine –  $K_{B_6}=1,770$ ; cevitamic acid –  $K_c=0,940$  (Table 5.4).

Complex qualitative index of meal due to nutrient materials equation for two-level structure has been determined from formula (5.5). Due to the calculation results breakfast has complex quality rate –  $K_o=1,690$ .

**3. Complex quality rating of supper.** Due to norms of macronutrients, mineral matters and vitamins content, included in supper, the calculation of nutrient materials found in canteen menu is provided (Table 5.6).

Table 5.6

**Calculation of macronutrients, mineral matters and vitamins content included in supper**

Nutrient materials	Name of the dish			
	Cheese pudding (baked with carrots)	Bullet rifled	Tea with sugar	Total
Weight, g	250	100	200	550
Macronutrients, g:				
proteins	25,28	7,40	0,20	3,88
fats	22,65	2,90	0,00	25,55
carbohydrates	49,65	51,40	16,00	117,05
Mineral matters, mg:				
$Na$	1140,00	402,00	0,00	1542,00
$K$	487,50	125,00	6,00	618,50
$Ca$	352,00	25,00	1,00	378,00
$Mg$	152,50	3,00	1,00	156,50
$P$	511,00	872,00	0,00	1383,00
Vitamins, mg:				
$B_1$	0,28	0,15	0,00	0,43
$B_2$	0,83	0,08	0,00	0,91
$B_6$	0,35	0,06	0,00	0,41
$C$	4,00	0,00	0,00	4,00

Absolute values of qualitative indexes of nutrient materials calculated by the formula (5.1) are the following: for proteins –  $P_p=0,18$ ; fats –  $P_f=0,14$ ; carbohydrates –  $P_c=0,66$ ; sodium –  $P_{Na}=0,38$ ; potassium –  $P_K=0,15$ ; calcium –  $P_{Ca}=0,09$ ; magnesium –  $P_{Mg}=0,04$ ; phosphorus –  $P_P=0,34$ ; thiamine –  $P_{B1}=0,07$ ; riboflavinum –  $P_{B2}=0,15$ ; perydioxine –  $P_{B6}=0,07$ ; cevitamic acid –  $P_c=0,69$  (Table 5.4).

Quality rating of simple indexes of nutrient materials has been determined from the formula (5.3), as a result the values are the following: for proteins –  $K_p=1,31$ ; fats –  $K_f=1,19$ ; carbohydrates –  $K_c=0,97$ ; sodium –  $K_{Na}=0,84$ ; potassium –  $K_K=0,45$ ; calcium –

$K_{Ca}=1,29$ ; magnesium–  $K_{Mg}=1,07$ ; phosphorus –  $K_P=3,15$ ; thiamine –  $K_{B1}=4,18$ ; ribofflavinum –  $K_{B2}=7,91$ ; perydioxine –  $K_{B6}=3,39$ ; cevitamic acid –  $K_c=0,74$  (Table 5.4).

Complex qualitative index of meal due to nutrient materials equation for two-level structure has been determined from formula (5.5). Due to the calculation results supper has complex quality rate –  $K_o=3,38$ .

**4. Complex quality rating of daily ration.** According to the canteen menu original data is calculated for determination of daily ration (Table 5.7).

Table 5.7

**Calculation of macronutrients, mineral matters and vitamins content for daily ration**

Nutrient materials	Name of the dish			
	Breakfast	Dinner	Supper	Total
Weight, g	785,0	1250,0	550	2585,0
Macronutrients, g:				
proteins	49,96	60,85	32,88	143,69
fats	25,67	37,74	25,55	88,96
carbohydrates	232,14	273,91	117,05	623,1
Mineral matters, mg:				
$Na$	2494,40	2990,43	1542,00	7026,83
$K$	1344,30	2394,43	618,50	4357,23
$Ca$	259,30	374,07	378,00	1011,37
$Mg$	149,20	398,37	156,50	704,07
$P$	638,90	1420,87	1383,00	3442,77
Vitamins, mg:				
$B_1$	0,67	1,70	0,43	2,8
$B_2$	0,53	1,08	0,91	2,52
$B_6$	1,17	1,37	0,41	2,95
$C$	31,10	32,41	4,00	67,51

Absolute values of qualitative indexes of nutrient materials are the following: for proteins –  $P_p=0,16$ ; fats –  $P_f=0,14$ ; carbohydrates –  $P_c=0,70$ ; sodium –  $P_{Na}=0,47$ ; potassium –  $P_K=0,25$ ; calcium –  $P_{Ca}=0,07$ ; magnesium–  $P_{Mg}=0,04$ ; phosphorus–  $P_P=0,17$ ; thiamine –  $P_{B1}=0,04$ ; ribofflavinum –  $P_{B2}=0,06$ ; perydioxine –  $P_{B6}=0,11$ ; cevitamic acid –  $P_c=0,79$ . The results are brought in Table 5.4.

Quality rating of simple indexes of nutrient materials has been determined by the formula (5.3), as a result the values are the following: for proteins –  $K_p=1,06$ ; fats –  $K_f=1,21$ ; carbohydrates –  $K_c=1,03$ ; sodium

–  $K_{Na}=1,04$ ; potassium –  $K_K=0,74$ ; calcium –  $K_{Ca}=1,00$ ; magnesium –  $K_{Mg}=1,00$ ; phosphorus –  $K_P=1,53$ ; thiamine –  $K_{B1}=2,00$ ; riboflavinum –  $K_{B2}=3,00$ ; perydioxine –  $K_{B6}=0,18$ ; cevitic acid –  $K_c=0,85$ .

Complex qualitative index of meal due to nutrient materials equation for two-level structure has been determined from formula (5.5). Due to the calculation results daily ration has complex quality rate  $K_o=2,11$ .

Obtained values of complex qualitative index of breakfast, dinner, supper and daily ration are brought in Table 5.4.

Due to the data, we can draw a conclusion that the biggest value of the complex index  $K_{0max}=3,38$  is obtained in supper, the lowest value is typical for breakfast  $K_{0min}=1,27$ . Whereas, breakfast is considered to be the most balanced meal with value  $K_o=1,27$ , which is close to the optimal value of complex quantitative rating  $K_o=1,00$ . Quality rating of daily rations in hotels and restaurants provides an opportunity to determine diet balance due to the norms of physiological need for daily ration.

**Conclusions.** Method of quality rating of daily rations in hotels and restaurants is considered. The structure of qualitative indexes and results of experimental research of complex diet quantitative rating are represented. Taking into account the norms of physiological need of a common person, complex qualitative rate of one meal and daily ration in a canteen is calculated. For this daily ration, complex qualitative indexes for group of macronutrients, mineral matters and vitamins are identified. The most balanced values of the complex qualitative index are determined which are common to breakfast with rate  $K_o=1,27$ .

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**RAISING THE QUALITY  
OF TOURISM FIRMS -  
CASE STUDY FROM  
THE CZECH REPUBLIC**

Nowadays in contemporary economy the understanding and maintaining service quality offered to guests and tourists are extremely important to the growth and competitiveness of hotel and gastronomy business. Jain and Gupta (2004) suggested that competitive pressure to deliver high-quality service has forced service organisations to understand customer assessments of service quality and then develop service provision standard that will meet and exceed customers' expectations. This implies that service-based industries, such as tourism firms are obliged to deliver outstanding services to their customers in order to have a sustainable competitive advantage. In the recent past, service quality has attracted considerable attention from both academics and business practitioners because of its effect on customer satisfaction and loyalty, operating costs, and business performance (Tam, 2000; Caro, Roemer, 2006). According to Parasuraman, Zeithaml, and Berry (1985) service quality is a measure of inconsistency between consumers' perceptions of services received and their expectations about the organisation offering the services. Hence, if what customer perceived falls below expectation, consumer evaluates quality to be low and if what is perceived meets or exceeds his/her expectation then consumer views quality to be high. The surprising quality seems to become the target of the companies in tourism. Zahari, Yusoff, and Ismail (2008) describe service quality as the degree to which a service offered to customer meets or exceed his/her expectations. Service quality, according to Eshghi, Roy, and Ganguli (2008) is the overall evaluation of a service by the customers, or the degree to which it meets customer's expectations.

To date, the foundation of service quality measurement is the

SERVQUAL Gap model, which measures the difference (gap) between expectations and actual performance that determines perception of service quality (Parasuraman, Zeithaml, Berry 1988; Cronin Taylor 1992). Parasuraman et al. (1985) and Van-Pham and Simpson (2006) maintain that expectations function as a key element of customer's service quality assessments and satisfaction. Perception on the other hand, is the process by which the individual receives, organizes and interprets a stimulus to create a meaningful picture of his or her world (Robbins, 2003); which is founded on what customers received from the service encounter (Douglas, Connor, 2003). The SERVQUAL five dimensional Gap model (tangibles, reliability, responsiveness, assurance and empathy) was promoted by Parasuraman et al. in 1988 to evaluate the difference between quality expectations and perceived service. In spite of its extensive application and popularity, SERVQUAL Gap Model has been criticized on both empirical and theoretical grounds (Jin-Woo, Rodger, Cheng-Lung, 2005; Pakdil, Aydin 2007; Ladhari, 2008). In particular these studies pointed to the nature of SERVQUAL's five-dimensional structure, the shortfalls of the expectations and perceptions gap model that underlies the SERVQUAL and the complications in the explanation and operationalization of expectations among others. One of the notable researchers to respond to the call for the modification of SERVQUAL model was for example Gilbert and Wong (2003). These authors proposed seven-dimensional structure of service quality consisting of (reliability, assurance, responsive, employees, customization, facilities, and flight patterns) which is considered to be comprehensive and fit into service quality measurement for example in airline industry.

Tourism services in the case of the Czech Republic were developing well according to the number of tourists and income indicators before the crisis 2008 (Vystoupil, Šauer, Repík, 2017; Heryán, 2017; Stasiak-Betlejewska, Tučková, Jurigová, Jelínková, 2016), but the quality of the service depending on the human capital in the branch were lagging behind (Smrčka, Arltová, Schönfeld, 2011).

## **Data and Methodology**

This study from the Czech Republic shows the improvement of service quality mainly oriented on increasing the human capital development potential. On the basis of implementing the German system of Quality assurance in Tourism (Service Qualität Deutschland)

into the Czech conditions by showing the costs for implementation and the impact on the companies and firms after adopting the new standard of Czech Service Quality System. Data for the study were obtained from the Czech Statistical Office, from the implementation team from the Ministry of Regional Development of the Czech Republic and from the organizational team from the Czech Service Quality Agency.

## **Results and Discussion**

However, the concept of improving the quality of services in tourism was established in 1996 in Switzerland where it still works successfully under the auspices of the Swiss Tourism Association. Since 2000, individual federal countries in Germany began to adopt the system of quality which leads to the establishment of a unified system of service quality for the entire country under the auspices of Service Qualität Deutschland. Up to now, more than 20,000 quality trainers have been trained in and more than 3,000 organisations have been certified in Germany. The implementation of the Czech System of Service Quality began in 2013, under which 765 tourism organisations have been certified by May 2018.

The implementation of the system for the Czech conditions was supported and financed by a project “National System of Quality of Tourism Services in the Czech Republic” subsidized from the European Social Fund particularly from the National Integrated Operational Programme (project duration was from 1<sup>st</sup> January 2010 to 31<sup>st</sup> December 2015). The system adaptation was carried out by the firm Interquality with the total expenditures of 3.2 million CZK in the year 2013. After the consultations with the associations of entrepreneurs in tourism the system was introduced and the first period of two years of existence the tourism companies had a chance to pass the trainings by the Czech Service Quality System (CSKS) free of charge (the pilotage was covered from the particular project, current certification is also free of charge).

How it works five years after its introduction? There are two levels of training systems and certificates. The certification system was successfully run and it obtained a good reputation by the companies, employees and also guest and tourists. The particular procedure of getting the certificate is as follows:

The first step towards engaging in the Czech Quality of Service system is the organization’s decision to enter the system. This step is

crucial because it assumes that organizations are aware of the importance of providing quality service to customers and wants to work on quality enhancement.

After the decision to enter the system the firm continue by the registration of the organization on the web portal [www.csks.cz](http://www.csks.cz), where it is necessary to fill in the basic input data, i.e. to fill in the data about the company (identification of the company), the data about the business premises and the contact information of the administrator. The Administrator will then select the Quality Coach, who will be responsible for the implementation of system components in the organization's second step. At the same time, the Administrator can also be a Quality Trainer. This employee is trained for First Level Quality Trainers and can start organizing with the tools and requirements necessary to obtain the CSKS quality certificate for the organization.

Subsequently, the organization sends a binding application for a certification site and the Quality Coach can begin to fill in the so-called on-line tools with the necessary documentation to obtain the CSKS certificate. The documentation includes vision, team quality commitment, and proof of compliance with technical quality assumptions (if applicable to the organization), description of the process (s), and steps of the process (s) and action plan.

Once completed, the Quality Coordinator sends the documentation to the Certification Body, which will assess it formally, and, if it is OK, pass it on to the independent Assessment Centre. In the case of a positive evaluation, the organization will receive the first degree quality certificate.

Throughout the whole period, the Quality Co-ordinator and the entire organization have been provided with CSC methodical support by the Regional Coordinator.

Certification II the degree can be sought by organizations that have already obtained a first-degree certificate, has successfully introduced the quality of services provided in their day-to-day activities, fulfils the set action plan and has made the decision to continue to deepen their quality of service.

The condition is that the organization is a holder of a certificate of the first degree CSKS min. 6 months and must have a trained Quality Coach II in the organization. Condition for participation in training of II level is that the company and its employees should be trained in level I. After completing the training, this person requests the so-called on-line tool portal [www.csks.cz](http://www.csks.cz) to begin the process of transition to II level in

CSKS.

The Certification Body shall subsequently inform the Assessment Centre of this request and forward to the Evaluation Centre all documentation completed by the organization in the first stage (i.e. the documentation from the certification, update or recertification application). The assessment centre assesses the documentation and sends a questionnaire survey form between customers and executives. At the same time, the valuation centre implements mystery shopping. After completing all the questionnaires, the organization will send it to the Evaluation Centre. This will produce a final report from a questionnaire survey and a mystery shopping that will be sent to the organization.

The organization's response to the final report is to fill in the necessary documentation in on-line tools through the Quality Trainer. The documentation includes vision, team quality commitment, and proof of compliance with the technical quality assumptions (if applicable to the organization), description of the process (s), steps of the process (s) and setting out a new plan of action that responds to the final report.

Once completed, the Quality Coach sends the documentation to the Certification Body, which will assess it formally and, if it is OK, pass it on to the Independent Assessment Centre. In the event of a positive evaluation, the organization will receive a Quality Certificate II.

Even in this case, the organization and Quality Coach can use methodological support from the relevant regional coordinator. The next level apart from the system is relevant for the companies in the form of the certification by the ISO 9000.

The particular system is based on the SERVQUAL method with 6 gaps, which will be identified as particular problems of a firm, and as problems solved by employees after the training, and it is followed by particular actions of certified firms.

The following statistics shows a progress and success of this system:

- 497 currently certified firms;
- 765 total certified firms since 2013;
- 2693 trained coaches;
- 3610 registered outlets;
- 2 suspended certificates;
- 22 expired certificates.

These statistics shows the current state in May 2018. The certification is free of charge and the organization invests only its time in it.

*Table 5.8*  
**Main indicators of the national economy and tourism in the Czech Republic in 2003-2016 (CZK mil. / %)**

<i>Indicator</i>	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015 <sup>1)</sup>	2016 <sup>2)</sup>
<i>Total output (tp)</i>	6 392 815	7 052 693	7 441 528	8 323 461	9 238 420	9 677 283	8 786 554	9 309 944	9 687 945	9 632 577	9 624 321	10 216 317	10 640 999	10 827 323
<i>Total intermediate consumption (tp)</i>	4 032 970	4 517 567	4 763 005	5 412 466	6 056 936	6 352 285	5 524 956	5 901 646	6 221 861	5 984 345	5 955 213	6 356 484	6 541 311	6 530 201
<i>Total gross value added (bc)</i>	2 359 845	2 535 126	2 678 523	2 910 995	3 181 484	3 324 998	3 261 598	3 408 298	3 466 084	3 648 232	3 669 108	3 859 833	4 099 688	4 297 122
<i>Taxes less subsidies</i>	236 249	279 033	308 602	314 709	357 449	367 624	367 913	370 582	378 936	403 348	421 534	405 522	459 503	480 843
<i>Gross domestic product</i>	2 596 094	2 814 159	2 987 125	3 225 704	3 538 933	3 692 622	3 629 511	3 778 880	3 845 020	4 051 780	4 090 642	4 265 355	4 559 191	4 777 965
<i>Tourism output (bc)</i>	216 773	235 994	226 932	241 595	250 407	251 543	238 257	238 634	248 022	254 748	267 496	272 915	285 451	305 753
<i>Tourism intermediate consumption (tp)</i>	136 753	149 243	145 250	157 101	164 173	165 116	149 815	151 722	159 286	158 265	165 518	169 805	175 474	184 406
<i>Tourism ratio on gross value added (%)</i>	3.4	3.3	3.0	2.9	2.7	2.6	2.7	2.6	2.6	2.6	2.6	2.7	2.7	2.8
<i>Tourism gross value added (bc)</i>	80 020	83 751	81 683	84 494	86 234	86 427	88 442	87 362	88 735	96 483	101 978	103 110	109 976	121 346
<i>TGVA - Characteristic industries</i>	56 379	58 459	55 386	58 581	61 086	61 117	63 940	63 425	65 297	70 452	74 250	76 019	81 265	89 678
<i>TGVA - Connected industries</i>	19 941	21 706	23 290	23 230	21 844	22 257	21 395	21 962	20 634	22 961	24 456	23 776	25 186	27 821
<i>TGVA - Non specific industries</i>	3 700	3 585	3 007	2 683	3 304	3 054	3 107	2 875	2 805	3 070	3 273	3 316	3 526	3 848
<i>TGVA - Characteristic industries (%)</i>	70.5	69.8	67.8	69.3	70.8	70.7	72.3	72.6	73.6	73.0	72.8	73.7	73.9	73.9
<i>TGVA - Connected industries (%)</i>	24.9	25.9	28.5	27.5	25.3	25.8	24.2	24.1	23.3	23.8	24.0	23.1	22.9	22.9
<i>TGVA - Non specific industries (%)</i>	4.6	4.3	3.7	3.2	3.8	3.5	3.5	3.3	3.2	3.2	3.2	3.2	3.2	3.2
<i>Tourism ratio on gross domestic product (%)</i>	10 772	18 365	17 396	15 462	16 845	17 024	15 851	12 891	13 539	14 916	15 953	14 768	16 421	17 742
<i>Tourism gross domestic product</i>	90 792	102 316	99 079	99 956	103 079	103 451	104 293	100 253	102 275	111 599	117 932	117 878	126 397	139 088
<i>Tourism ratio on gross domestic product (%)</i>	3.5	3.6	3.3	3.1	2.9	2.8	2.9	2.7	2.7	2.7	2.9	2.8	2.8	2.9

Source: Satellite Account. Czech Statistical Office

The particular development of the tourism industries in the Czech Republic does not show a significant change in the trend after adopting the Czech Service Quality System in 2013. There is a stable share of the gross domestic product created by this branch, but on the other hand the indicator of the Tourism gross value added shows a different development. We can observe a slight increase in the last years. The impact of the system will be possible to evaluate in a longer period, but in practise if we consider the number of people employed in tourism in the Czech Republic (231 481 employees and self-employed according to the Czech Statistical Office), there are 2 693 trained coaches of quality in the branch – which means over one percent of trained people in the certified quality system and almost 800 firms familiar with the certification system, it creates a stabile basis for the quality performance in the tourism.

### **Conclusions**

The main philosophy of the whole concept is based on the needs of the customers (tourists, visitors, guests etc.) and is based on constant improvement of the offered services, which of course is very important for every tourism firm management. The prestigious “Q” brand is a guarantee of quality for the guests and for the employees by awarding their work and motivating them for further actions. The participants of the system get professional and practical know-how in the area of quality management. They can develop so-called soft skills, i.e. communication and other skills useful for management and staff. The quality system serves to the management of the firms and to their employees, compare (Vaničková, 2017) its advantage is its high adaptability. Every company will determine its own vision and the measures they will take to fulfill it. In addition, deliberate quality control reduces the cost and risk of stress situations, not least the fluctuation of staff. For the customer, the internationally comparable brand is a good guide for service quality expectation.

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**COMPLEX LOGISTIC  
STRATEGY OF  
SUSTAINABLE  
DEVELOPMENT OF  
URBOTOURISM:  
GLOBAL AND  
UKRAINIAN  
EXPERIENCE**

Tourism is now one of the most dynamic sectors of the economy the regions and cities. The most actual problems in this regard are the problem of ensuring the sustainable development of the tourism industry

in the cities. This is especially true for the most popular among tourists of the destinations – metropolitan, historic cities, which attract significant tourist streams. The latter means to increase in the tourist load on the existing resource base of tourism in the cities, as well as on all city economy, urban building and urban nature. The task of sustainable development of tourism in cities in this context requires the consolidation of efforts of various scientific-practical directions, among which the important place belongs to tourism logistics. Logistics, as a science and practice from efficient management of flow processes in the economy, has something to say in this situation. Tourism logistics research the flow phenomena in the tourism industry, highlighting as the main flow of tourist streams (or streams of tourists). This main stream in tourism serves such additional flows as financial, informational, commodity, personnel, material. The task of tourism logistics in the context of sustainable development is to regulate the main flow (i.e. tourist streams), which would ensure the preservation of the resource base of tourism, both in cities and in rural areas with the aim of further development of tourism activity. This problem is especially acute not only in cities – the largest tourist centers of the world, but also acute now and in some cities of Ukraine. This applies to Lviv, Kiev, Odessa and other Ukrainian cities – popular tourist destinations. The problems of tourist overloading of Lviv in recent years are quite well-known, which was covered, in particular in the author's publications. So, at the time, there is the question of a complex logistic strategy of sustainable development of tourism in cities (Figure 5.8).

This strategy, developed by the author, is based on two concepts. The first is the concept of tourist decentralization, the second is the concept of reversible logistics. The first concept is based on the need for efficient logistic organization of tourist space of town (LO TST). The main components of LO TST include: 1) geologistical identification of the resource base of tourism; 2) logistic planning of tourist streams; 3) logistic projection of tourism infrastructure; 4) logistic projection of supply chains. Their detailed disclosure will be further.

Application of the concept of reversible logistics is to ensure the integrated complex processing of the total amount of urban waste, in particular, solid household (SHW) and others. At the same time, it is necessary to separate the municipal waste and those that are the result of tourist consumption. However, such a division has only theoretical significance, since waste collection operations in cities, their removal outside the city and recycling in waste processing plants are carried out

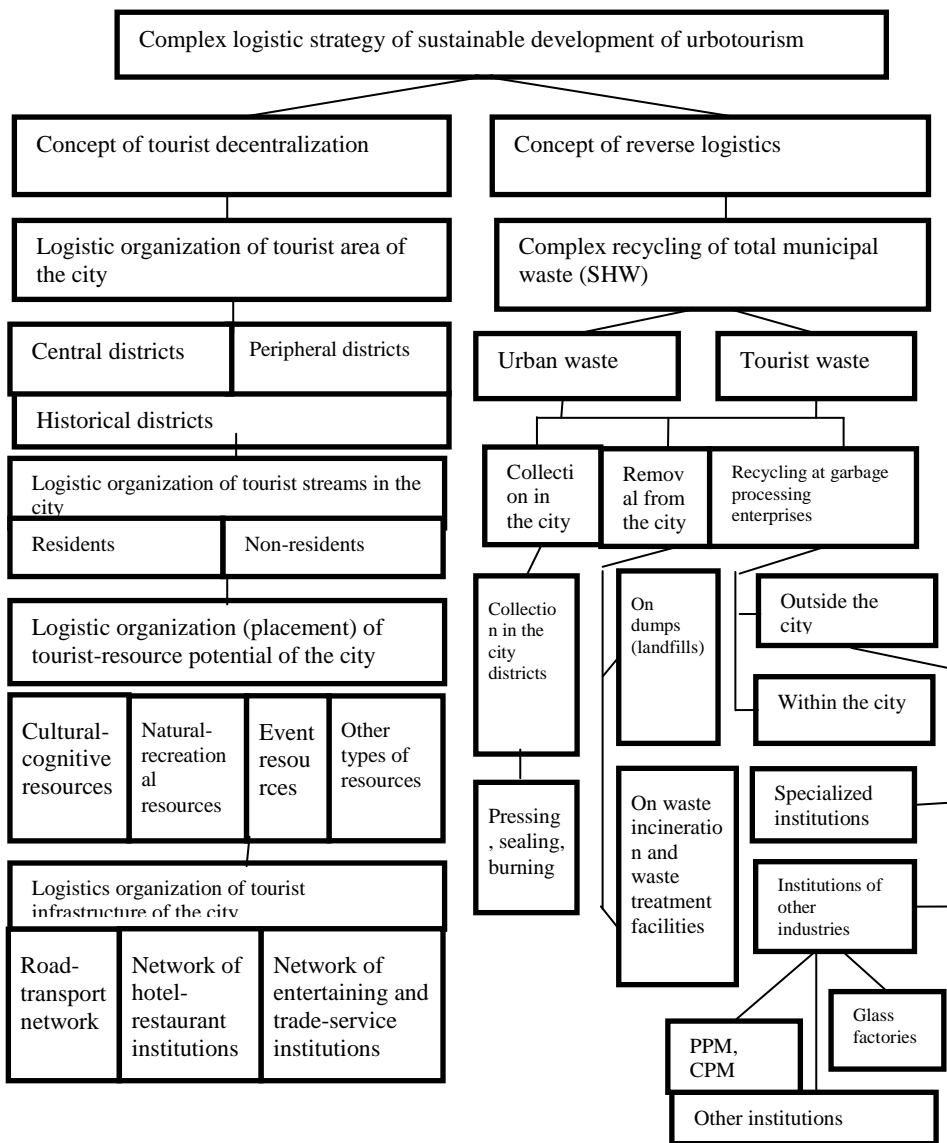


Figure 5.8 Complex logistic strategy of sustainable development of urbotourism (author's develop by [1, p. 200])

in relation to the total waste in cities, especially in their central districts, despite the sources generation of waste. The proof that tourism waste accounts a significant share in the suburban their volume is a peak increase in waste volume, in particular, in the central districts of cities after any holidays (by one third). At the same time, they have their own peculiarities of the problem of garbage collection in the city, its removal from the city and processing. Thus, garbage collection has its own characteristics depending on the distance from the center (more in the center); the removal of waste from the city can be carried out either to dumps (landfills), or to incinerators and waste recycling plants; finally, the waste treatment at the waste processing enterprises means the location of the latter within or outside the city, as well as their belonging to specialized institutions or other industries such as pulp-paper (PPM) and cardboard-paper mills (CPM), glass factories, etc. Help in the problem of removal the waste from the city can be knowledge on the geography of the pulp-paper and glass industries. So, near Lviv is located Zhydachiv PPM, and near Kiev – the Obukhiv CPM and Gostomel glass factory, which a significant part of raw materials (up to one third) buy from abroad. At the same time, both Lviv and Kiev have problems with the removal and processing of solid domestic (including waste paper) and other (including glass containers) types of waste.

Consequently, the problem of ensuring the sustainable development of the tourism industry in the regions and cities requires a complex approach. Such opportunities can provide a logistic strategy of sustainable development tourism in cities, which based on the concept of tourist decentralization and the concept of reversible logistics.

It has now become commonplace to talk about the crisis situation in the tourist industry in Ukraine (for well-known reasons), a decrease of tourist streams, a reduction in the number and incomes of travel agencies, etc. Particular emphasis is given to the reduced number of tourists, in particular, foreigners who come to Ukraine on purpose to visit the largest cities – Kiev, Kharkiv, Odessa, etc. But not all Ukrainian cities are experiencing losses of tourists in the current difficult times. Against this backdrop stands out Lviv, which currently experiencing an increase of tourist streams of not only Ukrainian but also foreign tourists. Lviv in its tourist development learned to do with problems to the benefits, which attracts more and more tourists to it – both Ukrainian and foreign. This is such a practical “city branding”, which includes in Lviv the use of all the opportunities for development the tourism that have come to this city in recent times. For example, this

was the case for international football matches, which the Shakhtar team (Donetsk) held at the stadium “Arena Lviv” (until 2017). Each such match was accompanied by the arrival of football fans from the respective countries (Germany, Austria, Turkey, Slovenia, etc.). They filled the Lviv hotels, restaurants, cafes – accordingly the city earned on it. Today, among the tourists, it was fashionable to visit not only Lviv coffee shops, but also Lviv theaters, where are shown the plays of actual patriotic themes (in particular, their actors are participants of antiterrorist operation), put social operas (for the first time in Ukraine), and so on. And this is another, somewhat higher level of Lviv culture, with which get acquainted the tourists.

Not without reason, in 2015 Lviv was recognized as one of the “literary capitals of Europe”, which again contributed to an increase in tourist arrivals to the city. At the same time, the Creative Cities Network Commission UNESCO chose leaders from 33 countries of world in seven nominations: art, design, cinema, cooking, media, music and literature. The last of these was won by Lviv in competition with the cities of Baghdad (Iraq), Barcelona (Spain), Ljubljana (Slovenia), Montevideo (Uruguay), Nottingham (Great Britain), Obidos (Portugal), Tartu (Estonia). Lviv was the only Ukrainian city to enter the list of applicants. The main criteria for selection are the presence of *literary and cultural events* in the city, the development of *literary tourism*, the active work of libraries and bookshops, the quality of educational programs. The initiator of participation the Lviv in the Program “City Literature” UNESCO became the Forum of Publishers. Money for this status the city did not receive, instead, it gained access to the Creative Cities Network, which meant greater opportunities for tourism development, additional investments, job creation, etc. Also, has proven itself well in the city the project “Night in Lviv”, which is carried out with the support of one the largest Ukrainian banks “Kredobank”. This project attracts not only guests from other cities, but also helps the indigenous Lviv people to see their hometown on the other side, discover for themselves a new interesting places, or the usual places even see in a new way – the bank branch as a concert venue. Each year within this project are held more than 100 different excursions and performances. Doors for night visitors were opened for the first time by all departments of the National Museum named after Andrei Sheptytsky, the mysterious underground of the theater named after Lesia Ukrainka, basements and courtyard of Lviv Town Hall, other interesting and sometimes mystical locations of ancient Lviv. “Night in Lviv” has

already become so popular that certain excursions have to take place in advance.

Lviv actively uses the modern possibilities of Ukraine's integration into the world and European tourist, cultural-artistic space, so the city has joined to the network of historic cities of the world, which hold Christmas fairs (on the initiative and participation of LLC "Lviv Fairs"), and also won a grant from the European Union (EU) on the project "Underground Lviv" (under the EU Neighborhood Program "Poland-Ukraine-Belarus"). Attracted tourists and numerous new monuments that recently appeared in Lviv, in particular S. Bandera, Metropolitan A. Sheptytsky, Cossack I. Pidkova, Coffee man Yu.-F. Kulchytsky, painter Nikiforov, author of music to the anthem of Ukraine, composer M. Verbitsky, and others like that. This list can be extended by several monumental works belonging to the author of the young Lviv sculptor V. Tsyarik – these are the monuments of Leopold von Zacher-Mazoch, inventors of the kerosene lamp Jan Zegu and Ignacy Lukasiewicz, Pablo Picasso, Lviv brewer and chimney sweeper, which became a kind of business cards cities that create its image.

At the time of the tourist off-season, which usually falls on February-March, Lviv offers for tourists privilege trips under the slogan "Lviv for half price" and "Twice more than Lviv" (table 1); St. Valentine's Day (February 14) turns into a holiday; held traditional festivals of chocolate, beer, pastries "in Lviv" (Pampuch Day), etc. As a result of such active marketing-advertising activities in attracting visitors to the city Lviv feels no shortage, but an excessive number of tourists, especially in the central part of the city, in particular the Market Square and Avenue Svobody. The overload of the city by tourists is also a problem, as it causes their excessive concentration, deterioration in the quality of excursion services, a reduction in the level of hotel-restaurant services (queues), etc. To solve these difficulties helps to apply a logistic approach to the efficient organization of the city's tourist space. This understanding is felt at the level of the Department of Management Tourism of the Lviv City Council, where they try not only to fix the state and problems of tourism in the city, but to manage the development of the tourism industry on the basis of sustainable development, analyze and regulate tourist streams, to draw up a tourist calendar of events in the city for a year, to initiate new tourist events and attractions in the city, in every possible way to attract tourists – both from Ukraine and from abroad.

But more tourists – more problems. Among the claims expressed by

the guests of the city are the following: a) queues in cafes and restaurants; b) too crowded of tourists on the Market Square – it is difficult for them to move around; c) lack of free tables in restaurants to sit down for dinner by a large company; d) the requirement of care for tourists in order not to remain without a purse, and so on. Tourists are pleased to visit the Opera House. Improved financial condition of museums. If earlier the museums and Opera asked the guides to direct them tourists, they are now silent because they have no problems with the visit. In hotels of Lviv there is high (almost 100 percent) fullness. Apartments, hostels are also filled out. Housing for tourists is experiencing a rush demand, even though many establishments have raised their residency prices. Thus, the revival of tourism activity in Lviv contributes to the development of many related branches of the city's economy, first of all, hotel-restaurant, cultural-museum, transport, etc., which brings additional incomes to the city's treasury.

Transformed Lviv into a significant citywide tourist holidays and a match for the world female chess crown between the current world champion Ukrainian (and Lviv, or rather, a member of the team) Maria Muzychuk and a contender, the leader of the world female chess rating Chinese Hou Yifan, held in Lviv 1-18 March 2016. At one moment, the intellectual game for the city's inhabitants has come to a new level, stopping to be interesting only for the elect. The city began a real chess rush. Lviv City Council until the match was adorned with an advertising banner, and at the time of the tournament was temporarily changed the city logo: instead of the five towers, there appeared five colorful chess pieces (instead of the Town Hall Tower, the king, instead of the Kornyakts Tower, an elephant, etc.) the inscription "Lviv is open to the world" has been changed to "Lviv is open for chess" and on the town's steeple has been installed a large chess flag. The small flags of the chess championship were decorated with local trams and trolleybuses. Theater "Resurrection" prepared a street show – the artists showed scenes "Chess Lviv". They reacted to the event and hospitality institutions, so Lviv cafes and restaurants for the time of the championship introduced a "chess menu". In one of the Lviv cafe, namely "Lviv Workroom Chocolate", they put out a chessboard with 3D-chess, in other cafes there were separate tables, where everyone could play chess. In the sweets shops, started the sale of caramels with the image of chess pieces and symbols of the match began: large caramel with chess pieces, and caramel chess plaques. Tourists, who came to Lviv on the world chess championship, willingly bought and ate caramels on a sports theme.

Participants of the match settled in the five-star hotel “Leopolis”. In the same hotel habitually lived football teams that played against “Shakhtar” in European competitions, so in the autumn of 2015 here was Cristiano Ronaldo. The match for the world chess crown among women came in one of the most beautiful houses in Lviv – the Potocki Palace. The chess players played in a specially selected hall, and the viewers and the press could watch their game in the Mirror Hall. The grand opening of the tournament took place in the Lviv Opera House, during this ceremony there was a repayment of the stamp with the image of the logo of the match.

It coincided with the “chess celebration” in Lviv and the National Holiday of Chocolate, which was held traditionally in the Palace of Arts in 4-8 March 2016. In the program of the Holiday – the exhibition-sale of chocolate products, master classes and lectures on the history of the sweet product, prize draw. Also worked “Gallery of sculptors” with the participation of chocolate makers. The masters managed to carve various shapes of chocolate blocks and at the same time smiled at the pictures. Those who wanted to take pictures with them were not missing. Traditionally, on the Holiday had a “sweet table”, where all cutlery and food were made of high quality French chocolate. Since the Chocolate Festival coincided with the match for the world chess crown in Lviv, the chocolate makers presented a chess figure with a weight of about one ton. The constant line was around the point where household chocolate stuff was sold – a hair dryer, a guitar, a hair brush, a violin, a motorcycle, etc. Entrance to the Holiday of Chocolate was paid (25 UAH per person). Last year there was a so-called “Compliment from the organizers” – a free portion of cocoa, which was lined with long queues. This year, there was no “compliment”, but in the Holy Chocolate took part the Lviv Confectionery Factory “Svitoch”, which became the second confectionery brand in Ukraine in terms of sales. She in the lobby of the Palace of Arts created the “Street of Happiness”, where the worked photo zone, in which each visitor could take a picture with a large chocolate tile “Tiramisu” and a chocolate maker in form. Also on this “street” could taste chocolate from “Svitoch”, have a snack in the cafe “Dessert on the fortune”, take part in the master-class from making chocolate delicacies, drawings of chocolate prize every hour, etc. Confectionary “Svitoch” now belongs to the network of the global company “Nestle” (Switzerland), which in 2016 turned 150 years old. This was another reason for the active participation of the Lviv Confectionery Factory in the Holy Chocolate.

Not without reason, Lviv, as a tourist pearl of Ukraine, was on the fifth place in the ranking of the best European cities, which experts advise to visit in the summer. This recommendation was provided by company Lonely Planet – a leader among global travel companies, which informs travelers about the best of the best tourist cities. Its projects the company started in 1973. It is a brand that offers complex information for travelers through various channels of information: publicizing ratings, guides, illustrated book reviews, magazines, mobile applications, videos. What is the Lviv phenomenon? According to Lonely Planet experts, the city offers all the best that is available in Ukraine: resources, hospitality, festivals. By the way, every year in Lviv fixed a record number of entertainment events – more than 100. The central streets of Lviv are constantly filled with new attractions for tourists, for example, this is a “coffee bicycle-mile”, which involves local coffee lovers and European tourists. After Lviv in the Lonely Planet list, there are Warwickshire (England), Extremadura (Spain), East Coast Tenerife (Canary Islands), Texel Island (Netherlands), Northern Dalmatia (Croatia). And in the first places – peninsula Peloponnese (Greece), Aarhus (Denmark), Venice (Italy), Dordogne (France). Recommendations Lonely Planet is an excuse for pride, inspiration and motivation, but at the same time it is a great responsibility. Therefore, all participants of the tourist market of Lviv should make every effort to maintain the tourist image of the city, European service and Galician hospitality. Confirmation of this is the advertising slogans of Lviv, which successfully attracts tourists (Table 5.9).

Sustainable Tourism is a definition about the relevance of which today should not be reminded. So, in the EU this is stated in the document “Europe as the most popular tourist destination in the world – a new political framework for the European tourist sector” [2]. The prospects for development sustainable tourism are related to the new EU economic strategy “Europe 2020 – a strategy for intellectual, sustainable and complex development” [3]. According to the Treaty of Lisbon, the main task of European tourism policy is to stimulate the competitiveness of the tourism sector, which in the long run is based on the strategy of equilibrium and sustainable development of this sector [4]. This strategy includes four main provisions, which, in turn, cover a range of activities within their boundaries. Firstly, it is stimulating the competitiveness of the tourism sector in Europe; secondly, the development of sustainable tourism of high quality; thirdly, the positioning of United Europe as a system of sustainable tourist destinations of high quality; fourthly, the

Table 5.9

**Advertising slogans of Lviv to attract tourists**

Year	Advertising slogan	Explanation
2015	“Lviv for half price”	Tour to Lviv for two people at the price of one
2016	“Twice more than Lviv”	The standard tour price, but the program is twice as rich
2017	“Hospitable Lvivian”	Preparation of large apartments and their owners for the reception of tourists at prices lower than the hotel
2018	“QR-tour of Lviv”	An individual tour of the city with the help of a QR
2018	“Quest tours by Lviv”	Adventure tourism, within which offered quests
2018	“Lviv on the palms”	A social project for tourists with disabilities (moving on wheelchairs or blind people), when can touch the miniature bronze copies of sights of architecture (in the Market Square - a miniature town hall, on the Sviatourskaya Square – the miniature cathedral of St. George, near the memorial the monument to Kobzar – mini-sculpture of Taras Shevchenko), at the same time there is a sign printed in Braille with information about the object)

*Source: author's develop by [1, p. 200]*

use of the potential of different spheres of policy and financial instruments of the EU in favor the development of sustainable tourism. Measures and financial support for development tourism in the border regions of Ukraine (Lviv, Volyn, and Zakarpattya) are envisaged within the framework of the European Instrument of Neighborhood and Partnership (EINP), an initiative EU aimed at developing cooperation between the EU and partner countries to ensure integrated and sustainable development of border regions. The envelope of the EINP is the “Poland-Belarus-Ukraine”; in the framework of which are funded various projects in Ukraine, in particular, “Underground Lviv” [5].

As you know, distinguish ecological, economic and social constancy. But in tourism, the basis of which are tourist resources (and, first of all, nature-recreational, cultural-cognitive, event, etc.), the requirement of constancy refers, first of all, to the need to preserve, continuously restore

and develop its resource base, which will form the basis of the ecological, economic and social dimensions of sustainable tourism development. This has to be reminded, since the number of tourists in the world is constantly increasing (as of 2018 it has exceeded 1.2 billion people), and the resource base for meeting their tourist needs remains unchanged and limited tourist opportunities (resources) of the Earth (if not counted space tourism, but it is still paid to gain mass distribution). Thus, without the regulation of tourist streams, the rationalization of their geographical distribution, effective logistic organization of the tourist space, the problem providing of sustainable nature of tourism can not be solved. Hence the actuality has become clear of the use of tourism in logistics approaches (tourism logistics [6]) in various projects of its development on the basis of sustainability, in particular, in Kiev, Lviv and other cities-tourist centers of Ukraine. In particular, in Lviv at the level of Department of Management Tourism of the Lviv City Council considerable attention is paid to logistic analysis and streamlining (optimization) of tourist streams and routes so that tourists do not accumulate simultaneously in the central part of the city, in particular, in the Market Square and the adjacent streets where concentrated the main tourist attractions. For this purpose it is being developed a project of tourist decentralization of Lviv, that is, the withdrawal of tourist streams outside the center from the Market Square in the peripheral areas of the city. A similar approach is already being implemented at the reconstruction of Shevchenko Avenue, which should become the second “Market Square”, that is, the second important tourist center of Lviv. Also, new tourist locations are created in Pidzamce, Kastelivtsi, Sykhiv. This issue was discussed at the All-Ukrainian Forum of Guides and Tourists, which took place in March 2018 and was held for the first time in Lviv.

So, as see, logistical considerations give an important place in the implementation of the concept “Lviv tourist”, which has been successfully implemented in the city in recent years. So, in 2017, the number of tourists in Lviv reached 2.6 million people, while the corresponding indicator in 2014 was 1.5 million, which indicates a higher dynamics of tourism development in Lviv, compared with even Kiev, where for the specified years the tourist stream has decreased from 2.1 million people to 1.5 million, that is, 40%.

In Kiev, during the reconstruction of Podil, in particular Kontraktova Square and the street Sagaidachnyi, it is planned to create a single tourist area from the street Volodimirska and Andrew’s descent to the

street Gregory Skovoroda and the street Andriivska. The center of tourist and cultural “attraction” of Podil will become the Kontraktova Square, on the basis of which will be created the tourism space for people (tourists) of all ages and interests with the mode of priority pedestrian traffic. Virtually the whole southern part of the Podol is an area belonging to the preserve “Ancient Kyiv”, where are concentrated a large number of historical and architectural monuments, therefore, must be formed here a pedestrian, tourist and cultural zone. Accordingly, will be changed the scheme of organization of traffic movement. Many of the streets of the Podil will become one-way traffic, the number of crossings of streams of pedestrians and cars will decrease from 24 to 2-3. According to calculations of specialists, the capacity of the streets of Podil in such a transport and logistics scheme will twice exceed the existing, average speed of the car will increase from 6.5 to 22 km/h, and pedestrians will receive priority in movement through the roadway through raising the level of pedestrian transitions to the height of pavements. This attention to Podil is due to the fact that lately it is here, as well as to the “Upper City” have been moved here the main tourist streams from Khreshchatyk. Most of citizens of Kiev and guests of the city now prefer to rest not on the main street of the capital, and in other places. Podil, Kontraktova Square, Dnipro embankment, Mikhailovska and Sofievska Square in recent years have been hosting the biggest holidays, so right here people are coming here on weekends and holidays. It also takes into account the environmental situation, as experts have long warned about exceeding the level of harmful emissions, in particular, CO, CO<sub>2</sub>, NH, etc. on Khreshchatyk, Besarabska Square, street Baseyna in connection with excessive auto traffic and pointed out the danger of walks for people in this area. The Department of Transport Infrastructure of the KSCA informs that it receives appeals from the citizens of Kiev and guest of the city in order to redirect the main hiking routes to the most sought after historical and architectural monuments, in particular, to the Andriivsky Descent, the Volodymyrska Hill, Volodymyrsky Passage, St. Michael and St. Sophia Cathedral, as well Kontraktova, Poshtova Square, Dnipro embankment, street Sagaydachny. There people are most often walking, and guests of the capital are eager to go first. It is where are concentrated the interesting tourist attractions and main architectural monuments. At the same time, all these places are in the pedestrian accessibility area and are connected by funicular. Therefore, to resolve the dilemma where to abandon the traffic on weekends – on Khreshchatyk or in the “Upper

City” (namely, this problem is the most discussed now among the citizens of Kiev), it should be decided on the basis of the above considerations and, first of all, the opinions of the inhabitants of Kiev. According to the Department of Improvement and Environmental Protection, today the Kyiv State Administration does not plan to open Khreshchatyk for cars on weekends. This issue will be considered later, when the reconstruction of Poshtova Square will end and will be aligned with other hiking areas of the city’s day off, where are located the most important tourist attractions. Consequently, in Kyiv the most acute problem is not the excessive concentration of tourists in the central parts of the city, but the excessive concentration here of automobile traffic. Meanwhile, the complex logistic approach requires taking into account the peculiarities of the movement of both tourist streams and traffic of motor transport in the central parts of cities in order to prevent excessive accumulation of tourists and appropriate vehicles in order to preserve the resource base of tourism, improve the ecological situation, improve the level of tourist-excursions service and the quality of the hotel-restaurant service, etc.

The structure and components of the logistics organization the tourist space of town (LO TST) are described below. The main components of the LO TST include, firstly, the geological identification of the resource base of tourism; secondly, the logistic planning of tourism streams, thirdly, the logistic projection of tourist infrastructure, fourthly, the logistic projection of supply chains. The first component covers the geographical and logistical identification of the tourist resources of the city. Geographical identification of the resource base of tourism means geospatial localization of tourist resources (objects). The latter act in role a “tourist magnets”, which attract tourist streams to a certain territory. At the same time, a significant territorial concentration of tourist resources (objects) causes the concentration and overlap of tourist streams. These considerations should be taken into account when creating and placing new tourist objects (for example, museums, monuments), which should not be “squeezed” to overloaded tourist resources of the central parts of cities. Consequently, instead of excessive concentration of tourist objects, recommended their dispersion, that is, dispersal in a certain territory. Logistic identification of tourist resources means the definition of the logistics potential of each tourist object, that is, the maximum possible tourist stream, which will not affect the sustainable development of tourism and the condition of tourist resources. It should be distinguished simultaneously the number

of tourists at the object, their number per day (taking into account the coefficient of rotation), per month, season, finally, per year. Geological identification is performed taking into account the division of tourist resources (objects) into cultural-historical (monuments, museums, theaters, etc.), architectural (historical and contemporary), events (various measures of public-cultural-entertaining nature). The second component is based on determining the size and structure of tourist streams and the corresponding needs of tourists, which can be divided into first-order needs (benches, urns, dry closets, light food, currency exchange) and second order (souvenirs, informational materials, press and tourist goods) as well as logistical needs that are necessary to meet the needs of tourists (these are the needs of the capacity of tourist streams of logistics facilities, transport networks and supply chains) and the collection and removal of waste. The third component involves the logistic projection of tourism infrastructure to meet the needs of tourists, in particular, the needs of the first order (first-class tourist infrastructure – institutions of light food, currency exchange offices), second-order needs (second-rate tourist infrastructure – booths for the sale of souvenirs, press and informational materials, tourist goods stores, etc.) and the relevant logistics-transport infrastructure to meet the needs of the infrastructural objects of the first and second order, as well as collection and removal of waste. It takes into account the peculiarities of their placement in a certain territory. The fourth component involves the logistic projection of supply chains to provide first and second-order tourism infrastructure and logistics-transport infrastructure with the allocation of logistics and transport components in their composition, taking into account the particulars of their location and the need for collection and removal of waste.

These issues are very relevant for Kyiv, where the increased tourist load on the resource base of the city's tourism has already led to cases of physical destruction of the most visited objects. In particular, it concerns the Kyiv-Pechersk Lavra, which is included in the list of the World Heritage Site UNESCO and has on its territory 122 monuments of architecture. Due to the negative influence of a number of factors, including this uncontrolled excessive tourist stream over the past few decades, this National Historical-Cultural Reserve (now it controls the Upper part of the Lavra, while the Lower Mansion is a monastery Ukrainian Orthodox Church) has experienced several cases of self-destruction of individual objects: in 2005, a fall of soil in the Middle of the Caves, in 2007 – the gate collapsed at the entrance to the Lower

Lavra, in 2009 – part of the retaining wall was destroyed on the street Blignopecherskaya. In 2010, to monuments of Kyiv, which did not stand the growing flow of visitors, was built to the founders a monument of Kyiv on the Naberezhne highway (built in honor of the 1500th anniversary of Kyiv and opened in 1982), fountain the Samson on Kontraktova Square (building year 1749) and the foundation of the Church of the Tithes near the Historical Museum. There are also problems in the St. Sophia Cathedral, which is also the object of UNESCO: deviated from its axis to the bell tower of the cathedral by 12.5 cm, as a result of which decorative moldings disappear, were destroyed some of the wall-fences on the side of the street Streletska, collapsed the underground passages and so on. In 2016, from a house on Kontraktova Square, a piece of concrete weighed about 400 kg and fell on souvenir dealers, resulting in a victim being a man and a woman. Also this year the problems arose with the preservation of the building of the Pedagogical Museum.

As for Lviv, there are fewer such cases (apparently, due to the quality of Austrian construction), but they are also. So far, being restored the sculptural group “Savings, Arable and Industry” (in its town called “Statue of Liberty”), which adorns the facade of the build Museum of Ethnography and Artistic Craft – the former premises of the Galician Savings Bank, constructed in 1891, 25 years ago, the statue fell off hand and scored on the spot a tourist from Latvia. Restoration of specialists is subject to the right hand and rays of the statue, as well as roof windows, console and cornices of the house. Being restored the “Black stone building” (construction years 1588-1589) at the Market Square under the grant from the US Embassy Fund, which needs restoration of the Boim’s Chapel (XVII century). Finally, a unique wall painting of the church in Shevchenkivsky grove is restored: this 18 sq. m fresco was hidden under six layers of paint, was stolen from the Yaniv cemetery a bronze monument weighing 200 kg and costing \$ 5000 (and this is not the first theft in the last few months). But there are a lot of other problems in the city, the main one is the removal of waste. After the fire at Gribovitsky landfill in the summer of 2016, Lviv did not go where to removal its waste, the volume of which naturally grew with the growth of the number of tourists. No wonder the tourist record of Lviv coincided with the “waste crisis”. Meanwhile, Figure 5.8 directly indicates the need for a complex approach to logistics organization the tourist space of town, which also involves the use of “back logistics”, that is logistics of waste recycling. It is clear that the tourist leaves a lot

of waste after himself, especially in the city center. It is a direct waste. In addition to them, there is indirect waste – it is the waste of hotels, restaurants, cafes, which in the center of Lviv in recent years, there has been a lot. These wastes also require efficient technologies of collection, removal and processing – this possibility is provided by “reverse logistics”.

In Lviv, the need was taken into account to place trash near each bench in the center (at the same time, the garbage was beautiful, artistically designed and executed by local craftsmen), but no were found for ways the removal of solid waste and its subsequent processing. Meanwhile, the daily volume of waste in the city is 600 tons. It is possible to solve this problem in Lviv on the basis of two approaches: transport and logistics. Until recently, was actively used the first approach, which was to find transport intermediaries (companies), which was obliged (for a very decent payment) to find suitable landfills and to take out Lviv city waste there. But, as experience showed, when Lviv garbage got into almost all region of Ukraine, it did not solve the problem of waste. There were suggestions for pressing solid waste, but they also did not receive approval, in particular from the residents of Lviv. And only recently the city leadership turned to a logistic approach, that is to say, the use of the principles of “reverse” logistics, when are subject to analysis not only input streams to the city (including tourists, goods, raw materials, fuel, etc.), but also source streams, what are the important places for streams solid waste. Logistics science and practice have developed proposals for efficient management of these streams and their deep processing at relevant enterprises (waste processing plants). Such enterprises can be built in relatively short timeframe (as shows the example of the city of Rivne for year), and the corresponding investments can be both international and internal. Such experience is represented by Kyiv, where the volume waste is 3000 tons per day, but their storage and processing is successfully carried out, firstly, at the landfill of solid waste in Pidgirtsy village; secondly, at the Bortnica Station Aeration (BSA); thirdly, at the incinerator “Energy” in Darnitsa. Kyiv actively attracts international achievements and investments, so BSA is being modernized with the participation of Japanese companies, and in the city Fastiv was constructed with Chinese participation a plastic waste recycling plant (accordingly, in Kyiv are open several points for receiving plastic from the population).

The next idea of the new technologies of fighting street debris the Mayor of Kiev V. Klitschko brought with a business trip from Berlin.

This is the installation of underground garbage cans, which will gradually replace the usual litter containers for garbage. It is planned to install in Kyiv a 70 underground garbage tanks, the first of which has already appeared in May 2017 on the Landscape Alley. They represent a small urn from above, and underground – a nice box containing 5 cubes of waste and neutralize the smell. These containers are equipped with solar panels and sensors, which send signal to the dispatcher when filling the underground tank completely. Another example of the new Kyiv waste bins consists of two parts: the outer frame and the actual urn – a metal or plastic container, where garbage will be collected. Communards will be able to get debris, opening the back wall of the frame, replace the package with debris to clean. The first batch of new urns, which will be installed in the central part of Kiev, will number 300 units. In this way, will be replaced the old urns that are still “working” in the capital and for a long time did not meet the needs of Kyiv citizen and guests of the city. These are old, yet Soviet samples, concrete, as well as metal, which can often be found in the green areas of the city near the benches, with a small amount and quickly filled with waste. Often, this becomes the reason that around them begin to “grow” mountains of garbage, because not everyone is ready to convey the wrapper from ice cream or a bottle to a free container. Another type of urns, which has become widespread in Kiev before the Euro-2012, is a metallic ring with a plastic bag stretched out on it, – it looks completely unethical. In addition, smokers often throw their cigarette butts in bundles, they burn out and all rubbish is poured onto the ground.

Among the world’s achievements in the field of collection and recycling garbage in the cities that can be recommended for use in Ukraine are the following:

1. The French invention is the intellectual waste bucket “Eugene”, which has two sections: one for waste for further processing, and another for unprocessed waste. When the bucket is full, it uses a barcode scanner to remind the owner of the need to throw garbage. Also, this device remembers which packages are thrown out, and then puts them in the shopping list, this list can be found in the application to the smart phone. The “Reasonable” bucket is on sale since 2017, its price is \$ 299.

2. The Polish device is a street garbage tank “Bin-e”, which can identify, classify, sort waste and send a cleaning request to a serving company. In addition, the tank “know how” to pre-process garbage, for example, compressing the plastic. Also, “Bin-e” learns to recognize new objects by connecting to cloud-based databases. The introduction is

expected of “smart garbage” in the cities of Poland, in particular, in Warsaw, from 2018.

3. New unusual way of cleaning up urban streets and parks is mastering in the Netherlands: picking thrown earth cigarette butts want to teach ... raven. These birds, distinguished by high intelligence, are accustomed to exchange cigarette butts for food in special machines, which are planned to be installed in cities. The authors of the project, which are now choice additional sources of funding, consider the exploitation of the raven to be justified in terms of preserving the environment. It should be noted that according to statistics, in the world annually are burned six trillion cigarettes, which two thirds of fall into the environment, while four trillions cigarettes can fill 2,5 million Olympic swimming pools.

Consequently, the logistic approach, applied in particular in the “Concept of Tourist Decentralization of the Lviv”, should be extended to all other aspects of the tourism economy of the city, including waste management, on the base using the newest technologies and attracting national and international investments. The same applies, in our opinion, to other cities – large tourist centers of Ukraine, in particular, Kharkiv, Dnipro, Odessa, etc.

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### CURRENT STATE AND PROSPECTS OF DEVELOPMENT ECONOMIC SYSTEMS IN THE AGRARIAN MARKET

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### THE QUALITY OF LIVESTOCK PRODUCTS AS A FACTOR IN ENSURING FOOD SAFETY IN UKRAINE

In the last decades the problem of ensuring animal products quality, and their safety in particular, has become extremely acute in Ukraine. Considering that it is necessary to substantiate the need to utilize the current approaches to the animal products quality and safety assurance that are used in the European Union (EU) member countries and have proven their efficiency. Besides that, the high requirements of the EU legislation and the demands of the European consumers become a considerable barrier on the way of exporting the Ukrainian animal products, and these products have a considerable value added part. In other words, the main hindrances for the Ukrainian animal products trade with the EU are not the import rates, but specifically the technical barriers.

Generally, the mechanisms of eliminating the technical barriers in trade are based on the mutual recognition of the conformity assessment results and the condition for such recognition is the technical harmonization of standards. Such harmonization is achieved by the availability of a current technical regulation system in the country that would correspond to the generally accepted international norms and rules of international standardization organizations (particularly, the

ISO). The main components of a technical regulation system are standardization, metrology, conformity assessment (certification), accreditation of the conformity assessment agencies and testing laboratories [1].

The technical regulation system in the EU is considered the most efficient and successful example of eliminating the technical barriers in the mutual trade. The efficiency of the European approach in the area of technical regulation is supported by the presence of agreements on the mutual recognition of conformity assessment with the USA, Canada, Australia, Japan, Switzerland, Israel and other countries. The European technical model is based on the principles of the New Approach to the technical harmonization and standardization (adopted by the European Council on 07.05.1985) and the Global Approach in the area of conformity assessment (adopted by the European Council on 21.12.1989). According to those principles, the main animal products safety and quality requirements are set out in EU technical regulations and are mandatory, whereas the EU harmonized standards are voluntary. At the same time, the conformity of products to one of the EU harmonized standards (developed within the framework of technical regulations) is considered a general compliance with the basic requirements set out by this or that technical regulation. The control of compliance with the requirements set out in the technical regulations is carried out by means of market surveillance rather than the control of production processes [2].

In the EU there are three types of legislative acts that regulate the economic relations in the area of assuring animal products quality and safety: regulation, directive and decision. A regulation is a directly applicable law, the norms of which are mandatory for the EU member countries. Since the moment a regulation comes into effect, the norms of national legislation that contradict the regulation provisions become invalid (without an official cancellation). A directive, in contrast to a regulation, contains general notions and goals in the area of quality and safety assurance, and each country makes its own decision as to how it is going to implement them. A directive “is mandatory for each member-state it is addressed to as for the expected result, but it gives the national authorities the choice of the forms and ways of action” [3, p. 37]. The third way of main EU legal acts is a decision. Decisions are mandatory for those they address and concern specific states or legal persons. The analysis of the documents related to the food quality and safety from 2000 and on shows that the EU is gradually departing from

the practice of applying directives (in favour of regulations).

Until the early 2000 in the EU, legal acts (directives, regulations) that determined the processes of assuring animal products quality and safety were vertical or product-oriented. Similar to the local legislation, they contained the detailed description of norms and quality indicators for certain types of animal products, yet they did not provide for the feed control and the analysis of the feed dangerous factors. This resulted in multiple product safety issues (bovine spongiform encephalopathy, presence of hormones in pork, antibiotics in honey, dioxin in eggs and poultry meat, etc.), which caused the European consumers to lose faith in the proper quality of agricultural and food industry products [4].

As a reaction to a series of scandals with the foods and the changes in the minds of the consumers, a new concept of animal products hygiene was substantiated in the EU. According to this concept, the notion of hygiene concerns not only the final product (milk, meat, eggs, honey), but spreads to the whole chain of production, particularly the primary production of feeds. As a result, dominant now in the EU is the horizontal approach to products quality and safety: a series of fundamental documents is developed that cover all types of foods and all the processes related to their production and trade.

The main legal act that regulates the animal products safety in the EU is the Regulation (EC) No. 178/2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety. It is also called the EC General Food Law. The regulation contains such provisions [5]:

- food supply chain is viewed as integrated according to the “farm-to-table” principle;
- the prerequisite of the successful policy of increasing the animal foods quality is the traceability of feeds and foods, their components at all stages of the food supply chain. Traceability should guarantee that in case a risk for consumer safety arises, it is possible to take steps and withdraw the corresponding feed and food products from the circulation;
- the feed manufacturers, farmers and food businesses have the primary legal responsibility for animal foods safety;
- consumer has the right to receive exact and reliable information about the food product. The consumer is responsible for proper storage, usage and preparation of animal food products;
- risk analysis is a fundamental component of the animal foods safety policy. It is the foundation that underlies the foods safety policy

as a whole;

- during the adoption of the decisions related to risk management, the methods used are usually preventive.

Based on this regulation European Food Safety Authority (EFSA) was established. The scope of activity of the Authority includes a wide range of areas related to food safety, public health, as well as feeding and health safety and animals and plants health and protection (feed sources). The Authority also evaluates the possible impact of the feed and food chain on the biodiversity of animal environment, ecological risks of using genetically modified organisms. Generally, the EFSA is the main source of scientific recommendations for making efficient decisions on risk management along the whole food chain by European Commission, European Parliament and EU member-countries.

Besides that, in 2004 the EU adopted the so-called hygiene package, i.e. laws on animal products hygiene. Special requirements to the production, processing and trade of animal products are set out in (EC) Regulations No. 852/2004 “On the hygiene of foodstuffs”, No. 853/2004 “On laying down specific hygiene rules for on the hygiene of foodstuffs”, No. 854/2004 “On laying down specific rules for the organisation of official controls on products of animal origin intended for human consumption”, No. 882/2004 “On official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules”, No. 2073/2005 “On microbiological criteria for foodstuffs”. The main provisions and the application area of the said regulations are visualized in Table 6.1.

The following key components are characteristic for all the legal documents mentioned: firstly, the principle of Hazard Analysis and Critical Control Point (HACCP), which allows for ensuring the manufacturing of safe animal produce by means of identifying and controlling the hazardous factors; secondly, the strictly regulated sanitary and hygiene conditions – measures and conditions that are necessary to perform the control of hazardous factors and ensure the suitability of foods for human consumption in consideration of its target usage; thirdly, the competences of the management and personnel – the level of their qualification that makes it possible to solve the task of increasing the products quality and, correspondingly, the competitive ability.

Table 6.1

**EU regulations on animal products safety and their main characteristics**

Regulation	Application area
No. 852/2004	Established general rules of food hygiene at all stages of production, processing and trade, particularly: the necessity to guarantee animal food safety at all food chain stages, starting from the raw materials production; the responsibility for foodstuffs safety is on the manufacturing businesses; as for the animal foods that cannot be safely stored at the ambient temperature (especially the refrigerated and frozen products), it is mandatory to keep the same storage temperature at all food chain stages; the general rules of applying the procedures that are based on the Hazard Analysis and Critical Control Point (HACCP) principles, along with the usage of responsible sanitary and hygiene practices.
No. 853/2004	For business operators (goods manufacturers, butcheries, food companies) it established special rules that are applied to animal foodstuffs, in which microbiological and chemical risks had been detected. These rules act as an addition to the rules established by the Regulation (EC) No. 852/2004. They regulate processed and non-processed animal foods.
No. 854/2004	It established specific rules for the organisation of official controls on products of animal origin. The provisions of this Regulation are applied in addition to the EC Regulation 882/2004. The Regulation contains certain articles: permission for performing the activities by the companies; general principles of official control on all animal foods that is subject to the Regulation; fresh meat; live shellfish; fish products; raw milk and dairy. The Regulation also contains procedures related to import.
No. 882/2004	It establishes general rules for performing official control in order to confirm compliance to rules, particularly related to prevention, elimination or reduction of risks for humans and animals to an acceptable level, whether directly or via the natural environment; ensuring the fair practices in the trade of feeds and foods and consumer protection, including the labelling of feeds and foods and other forms of consumer-oriented information.
No. 2073/2005	It established microbiological criteria applicable to certain microorganisms and the rules that are mandatory for the market participants who take general and specific hygiene measures stated in article 4 of Regulation (EC) 852/2004.

*Source: drawn up by the author based on [4; 5; 6].*

In the EU, the norms related to the animal product microbiological criteria (Regulation EC No. 2073/2005) add to and are based on the detailed norms on animal health protection (Directive EC No. 99/2002 “Animal health rules”). Corresponding EC Regulations No. 1829/2003 (foods and feeds) and No. 1830/2003 (traceability and labelling) regulate the production and trade of genetically modified animal foods and feeds.

EC Directives and Regulations adopted in 2005-2006 contain a wide range of requirements for feed hygiene (Regulation No. 183/2005 “Feed Hygiene”), as well as labelling and informing the consumers on the product properties. In particular, it concerns animal food labels that must contain the full list of ingredients and indicate the presence of potential allergens. A list of ingredients and substances that are forbidden to be used in processing and reprocessing an animal food is established (Directive (EC) No. 26/2005). The laws also set out the maximum permissible level of traces of veterinary products and hormones in animal foods and establish the rules for classifying the products as “organic” and using the regional names of foods.

In accordance with the European Union legislation there are the following schemes for manufacturing the animal and food products of guaranteed quality [7]:

1. Protected designations of origin (PDO) and Protected Geographic Indication (PGI). The main difference between the PDO and PGI is that the whole production process for the products with the “protected designations of origin” (PDO) has to be carried out in the certain geographic region, whereas for the products with the “protected geographic indication” (PGI) only one of the three production stages (production, processing or preparation) has to be carried out in the certain geographic region.

2. Traditional Speciality Guaranteed (TSG). The guarantee of the traditional specifics for the animal products and foods of animal origin is the TSG quality scheme, according to which the foods have to be produced using traditional ingredients or have to be characteristic of their traditional composition, production or processing process that reflects the traditional type of manufacturing. In order to receive the “traditional product” status, the product has to be present on the market for no less than 30 years.

3. Organic farming. According to the Regulation (EC) No. 834/2007 on the organic production and the labelling of organic products, and product can only be called organic, if its manufacturing is

carried out in accordance with the approved organic production rules (standards), which envisage the minimization of using toxic chemicals, synthetic mineral fertilizers for feeding the soil and plants, the usage of organic fertilizers (the list of approved preparations and organic fertilizers can be found in the organic production standards), hormones, antibiotics and growth stimulators, as well as the ban on using the GMO. The products may be labelled and identified as “organic”, if at least 95 % of their ingredients is organic [8].

#### 4. The remotest EU regions.

The functioning of such quality schemes is carried out in accordance with the legal acts that set out the requirements for the registration, trading, certification and labelling (the usage of quality conformance logos) that the animal products have to comply with. All the registered and application pending PDO, PGI, TSG quality certification logos are entered in the European Commission DOOR-Datenbank (“Database of Origin and Registration”).

According to researchers, as of 2014 out of the 1199 registered quality conformance logos 706 (59%) relate to the animal products, 56% of which are PDO, 41% – PGI, and 3% – TSG. Out of the 565 registered PDOs almost 70% are the names of animal product origins [6, c. 85].

As for the organic animal products manufacturing, the following should be mentioned. Intensification in the animal husbandry is often accompanied by the degradation of hygienic and veterinary sanitation production conditions, which along with the concentration of animals on limited areas and the limitation of their nutritional elements negatively affects the health of animals, increases morbidity risks and reduces the product quality. High concentration of animals calls for the usage of preventive veterinary drugs of chemical origin, which considerably affects the animal product safety. Stall maintenance shows the degradation of reproductive functions in cows, which calls for the usage of various stimulants, hormones, which partially get to the bodies of humans with the products. Besides that, multiple studies show that the quality of products manufactured at intensive livestock units is 3-6 times lower in respect to the content of microelements and other useful nutritional ingredients compared to the products manufactured from domestic animals, and 5-12 times lower compared to wild animals [9, p. 166].

Thus, the intensification of animal husbandry systems in many respects called for the uniform quality of the products, worsening of the organoleptic, and quite often, technological characteristics. Besides that

the animal product safety is threatened. The growing risks of bovine spongiform encephalopathy (mad cow disease), the content of dioxin in the products promoted the active manifestations and acceleration of ensuring the food safety in the EU. The said tendencies strengthened with the better knowledge of the impact of certain substances and ingredients in the food that affect human health (related to the occurrence of various pathologies).

Specialization and intensification of animal production also caused the reduction of the number of animal breeds. Several genetically selected breeds (Friesian and Brown among the dairy cow breeds, Large White and Landrace among pigs; up to ten poultry species) dominate in the current production. The spread of intensive systems caused the extinction of breeds in many areas. According to the FAO, in the 20th century around 1000 breeds have disappeared and now 1300 others are endangered [10]. Therefore in the EU organizational-economic measures are taken aimed at stimulating the biodiversity protection, organic production development, animal rights protection initiatives, that should under certain circumstances help restore the breeds, zones and methods of production that seemed to be doomed.

It is important to point out that in the present Ukraine only some elements of the national technical regulation system are being formed in the area of animal products manufacture and trade, which ensure the implementation of a horizontal or complex approach (to replace the product-oriented ones) to the quality and safety assurance. Within the last 5 years one can see the more active efforts towards the functional approximation of the Ukrainian technical regulation system to the EU and WTO requirements. Still, these efforts mostly concern the TRS formation as a whole and have no specific relation to the animal husbandry industry.

According to the current agenda of the Ukraine-EU agreement within the framework of the common trade promotion by way of eliminating the trade barriers between the EU and Ukraine the transition is being made from the obligatory certification towards the conformity assessment, gradual adoption of technical regulation is ensured that are harmonized with the EU New Approach Directives, the previous standards (GOST, DSTU) are reviewed and replaces with the ISO and EN standards, market surveillance system is being established, etc. [2] In particular, new (or newly amended) Laws of Ukraine are adopted “On Metrology and Metrological Activity” dated 05.06.2014 No. 1314; “On Standardization” dated 05.06.2014 No. 1315; “On Technical

Regulations and Conformity Assessment” dated 15.01.2015 No. 124; “On Accreditation of Conformity Assessment Bodies” (amended on 11.02.2015); “On Consumer rights Protection” (amended on 01.01.2016); ISO 9000 and 14000 series standards are adopted as national basic ones. The Strategy of developing the technical regulation system until 2020 is adopted (by the regulation of the Cabinet of Ministers of Ukraine dated 19.08.2015 No. 844-p).

Thus, the main focus is on the application of European principles of New Approach and Global Approach, which are implemented in Ukraine as technical regulations. In Ukraine a technical regulation is a law of Ukraine or a normative-legal act adopted by the Cabinet of Ministers of Ukraine, which can directly contain the mandatory technical requirements or determine them by means of references to standards of by way of using interconnected standards. During 2005-2017 over 40 technical regulations were adopted.

The Global Approach principles are implemented in Ukraine through the technical regulation “Conformity Assessment Modules and the Requirements for Labelling with the National Conformity Sign”. With the purpose of implementing its provisions the Cabinet of Ministers of Ukraine (CMU) adopted the regulation «On Approval of Conformity Assessment Modules Used for the Development of Conformity Assessment Procedures and Rules of Using the Conformity Assessment Modules” No. 95 dated 13.01.2016. Also on 13.09.2017 the government approved the draft Law of Ukraine “On Introducing Changes into Certain Legal Acts of Ukraine Related to the Adoption of the Law of Ukraine “On Standardization”, which provides for introducing changes into 127 legal acts (8 Codes and 119 Laws) with the purpose of harmonizing them with the current requirements. The draft law provisions establish the voluntary usage of national standards (as required by the European standardization principles), and, correspondingly, the necessity to harmonize the drafts of national standards, technical conditions (TU) of the manufacturers with the state agencies is cancelled along with the industry standardization. The reason for that is that the previously active product or industry oriented approach towards product quality assurance and the control system caused by it that was based on nothing but the testing of the final product were reactionary, inefficient and non-compliant with the international tendencies. They caused great problems with the supervision of quality requirements compliance along the whole chain of product manufacturing and trade. At the same time, European

complex approach ensures efficient combination and enhancement of product control with the control of all the processes related to the production and trade.

The said measures promoted harmonization of the national technical regulation system with the European system along the main criteria and generally corresponded with the content of the agreement on eliminating the technical barriers in trade. At the same time, the European practice of implementing the principle of traceable product at all its production and trade stages requires considerable improvement of the product safety assurance system (primarily animal products system). This causes the necessity to form an efficient system of sanitary and phytosanitary measures in the area of production and trade of animal products and feeds as envisioned by the Ukraine–EU Association Agreement (section 4 chapter 4) effective since 01.09.2017. According to the Agreement, to safeguard human, animal and plant life or health, Ukraine has to present and implement a comprehensive strategy of harmonising its sanitary and phytosanitary measures legislation with that of the EU in priority sectors (as defined in Annex V to section 4).

It is necessary to mention that the Cabinet of Ministers of Ukraine adopted Resolution No. 228 dated 24.02.2016 “On the Adoption of the Comprehensive Strategy for the Implementation of Chapter 4 (Sanitary and Phytosanitary Measures), Title IV Trade and Trade-related Matters of the Association Agreement between the European Union and the European Atomic Energy Community and their Member States, on the one part, and Ukraine, on the other part”. The Strategy envisages the implementation in Ukraine in 2016 of measures on regulation of the general principles and legal requirements on animal product and feed safety (analogous to the Regulation (EC) No. 178/2002), the requirements for the animal products hygiene (Regulation (EC) No. 853/2004); and in 2018 – the requirements for the traceability of foods of animal origin (Executive regulation of the Commission (EC) No. 931/2011).

Besides that, there is a need to approve over ten technical regulations in Ukraine, which would determine the responsibilities related to the processes of production, storage, transportation, trade of the main types animal products: milk, meat (veal, pork, mutton, goat meat, poultry meat, etc.), eggs, fish, as well as feed. Developed at present are only drafts of some of them, including the drafts of technical regulations “Raw Milk Production and Quality and Safety Management”, “Confirmation of Requirements for Fish Meal Feed Safety and Quality”,

etc.

Insufficiently detailed are veterinary rules regulating the production, processing, trade and import of animal products (analogous to Council Directive 2002/99/EC); no hygiene rules are set up for most of the animal origin foods – fresh meat of domestic cattle, industrial animals and game, including the internal organs, chopped meat, semi-finished products, mechanically dissected meat, meat products, live clams, fishery products, raw milk, colostral milk, dairy and first-milk-based products, eggs and egg products, frog legs and snails, rendered fat of animals and lard, gelatin, raw materials for gelatin for human consumption, processed stomachs, bladders and guts, collagen (Regulation (EC) No. 853/2004); special hygiene rules for honey and horticultural products (Council Directive 2001/110/EC); no measures are prepared to implement the rapid notification system for animal food stuffs and feeds (Regulation (EC) No. 16/2011), measures for appropriate labelling of products (Regulation (EC) No. 1169/2011), measures for food additives, colorants (Regulations (EC) No. 1331/2008 and No. 1333/2008), flavouring agents, including the smoke flavor (Regulations (EC) No. 2065/2003 and No. 1334/2008); measures for the genetically modified organisms (GMO) (Regulations (EC) No. 1829/2003 and No. 1830/2003).

It is necessary to mention that in the EU the standardization is developing predominantly at the expense of active participation of great agricultural unions, cooperative unions, associations, large exporters, transnational corporations, conformity authorities, etc. Yet, in Ukraine the financing of the standardization is based mainly on the state budget. For lack of necessary amounts of funds the state is unable to solve all standardization issues, so there is a constant lagging of the national legal base and the inconsistency with the current requirements. Civil bodies, movements and consumer associations have almost no authority and possibility to influence the processes of assuring and controlling the quality.

Now the safety of many animal products is controlled by the outdated standards and requirements developed still in the Soviet Union times. As a result, national standards contain no detailed requirements for the content in the animal products of certain antibiotics, hormones, current veterinary drugs, traces of chemicals (incl. dioxin), insecticides, as are implemented in the EU-countries. For instance, in several EU countries (Germany, Belgium, the Netherlands, France, Spain) in the second half of 2017 there was the “egg scandal”, as eggs and chicken

meat were found to contain traces of fipronil – and insecticide chemical used at the facilities to fight ticks, fleas, cockroaches, etc. Standards acting in Ukraine have no provisions for controlling the content of this chemical in animal products (as well as the the chemicals similar to it).

Low quality and lack of safety of certain foods of animal origin in Ukraine is, to a large extent, caused by the low standard of living of the population and low income of most local families, which forces the demand for low-quality products that the people are forced to consume. When choosing between quality and poor quality products, a Ukrainian consumer quite often chooses the latter, this, may, among other things, be produced in non-sanitary conditions at people's homes. The consumer often substitutes the somewhat more expensive animal products with the cheaper vegetable-based ones. Thus, raising the quality of animal products, which would, consequently, make it somewhat more expensive, will cause the replacement phenomenon to become even more extensive.

Throughout the last decades in Ukraine, the monotonous fat and carbs food intake is characteristic of the majority of the population. 60-80% of the energy value of the rations of both adults and children is provided by the carbohydrates based on bread, potatoes, oil and sugar. In 2016, the consumption of all main types of animal foods was considerably lower: milk and dairy – 55% of the rational consumption rate, fish and fish products – 48%, meat and meat products – 64%, eggs – 92% (Table 6.2).

*Table 6.2*

**Consumption of the main animal foods by the population of  
Ukraine per day per person (kg per year)**

Food types	Rational consumption rate	1990	1995	2000	2005	2010	2015	2016	2016 as % of the rational rate
Meat and meat products	80	68.2	38.9	32.5	39.1	52.0	50.9	51.4	64
Milk and dairy	380	373.2	243.6	197.7	225.6	206.4	209.9	209.5	55
Eggs, pcs.	290	272	171	164	238	290	280	267	92
Fish and fish products	20	17.5	3.6	8.3	14.4	14.5	8.6	9.6	48

*Source: data from the State Statistics Service of Ukraine [11].*

In 2016 only 28.8% of the daily average consumption in Ukraine was ensured by consuming foods of animal origin (with the threshold of 55%). Daily average calory value of animal foods consumed per person comprised 790 kilocalories (kcal) [11, p. 11]. Yet the lowest threshold of their consumption (minimum physiological norm) in Ukraine is considered 1375 kcal. In the developed countries the consumption norm for foods of animal origin, below which hunger starts along with irreversible processes in the body, comprises 1650 kcal. And in Ukraine the actual consumption indicators are more than twice lower. They are a proof of an actual catastrophic condition of the national health. Yet, without animal proteins, a human body cannot function properly. Unlike vegetable proteins, animal proteins contain all the nonessential and essential aminoacids, also in the exact proportions that the human body requires.

This means that the problem of animal product quality and safety assurance has deep beginnings caused by a series of factors, including social and economic ones, so resolving the situation would require a systemic (complex) approach, which is not limited to mere increase in state supervision (control) efficiency and successful harmonization of the domestic technical regulation system with the European one.

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### **COMMON AGRARIAN MARKET POLICY, ITS TRANSFORMATION OVER TIME**

The policy of common agrarian market is one of the oldest politic activities of the European Community. The commitment to build such Community system of support for agriculture as a sector, and protection of all stakeholders, such as producers, consumers and rural residents and farmers, was included in the 1957 treaty. At the same time, agrarian market has been one of the most sensitive areas for the entire duration of the EC / EU. The main reason for the creation of the CAP was to increase the production of agricultural production in the Member States of the European Community, ensure a certain standard of living for the agricultural population and stabilize the agricultural market. This is the

most important policy for the whole history of integration, whose share in Community resources ranged between 80% in the 1970s, and has decreased to 33.7% currently, as seen in Figure 6.1. The policy itself has had a significant influence on the Europeans; however, it is considered as the main obstacle to greater EU competitiveness in global competition. (Wallace, H. and Wallace, W., 2005).

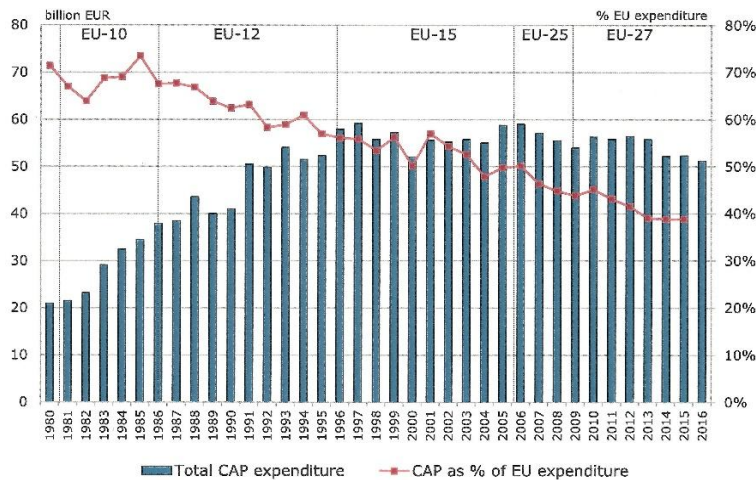


Figure 6.1 CAP expenditure in the total EU expenditure

Source: OECD – FADN, adjusted

In 1960, a list of commodities under the CAP was adopted by all six founding members. During the 1960s, the first common organization of the market, based on common prices for agricultural products, and the introduction of market support to maintain these prices, including the advantages of the internal market, by the introduction of import barriers for goods from third countries, were gradually established. The whole system of the Common Agricultural Policy in the following years was mainly based on instruments of Community preference, i.e. on instruments to support agricultural product prices and other measures affecting the development of the agrarian market. The principle of Community preference has been based on protection of national farmers from the Member States, receiving subsidies linked to the quantity of production. Exports beyond the common market were supported by high subsidies. On the other hand, agricultural imports from non-member countries were subjected to high duties, depending on the “sensitivity”

of the commodity.

This system is classified into four groups. The first group is related to prize support, and derived direct payment. It applies to more than 70% of agricultural production in the European Union. It means support to producers through higher, state-guaranteed prices that are used in case of decrease in market prices in the European Union's internal market. The second group of instruments is aimed at protecting against imports. It accounts for about 25% of EU production, less affecting the functioning of the internal market. The most important measure is to protect the internal market from low-priced imports from third countries. The third group of tools is known as supplement support. It is a small group of products comprising about 2.5% of the EU agricultural production. It is based on low prices for consumers and ensuring adequate income for farmers. The last group is flat-rate support of about 1% of EU production, based on flat-rate support derived either from the number of hectares or production volume (Bečvářová, 2011).

There were three types of price as defined artificially by market rules: the target price (the price at which the commodity is marketed in the EC internal market), the minimum and intervention price (the price guaranteed by the farmer, and in the case of low demand, the Community guarantees that the production is purchased for that price) and the threshold price (the minimum price at which the competing product can be imported from outside of the EC due to high import duties on agricultural products). The regulated system was originally (in the post-war years) designed to ensure the food self-sufficiency of the EC in the production of basic agricultural commodities (such as sugar, grain, dairy products, livestock production, fruit, vegetables, wine, etc.).

However, in the 1980s, this system was brought to a crisis. There was a surplus of almost all commodities throughout the Community; and prices for these commodities have risen disproportionately, which burdened the EC budget (for example, price of sugar exceeded world market price multiple times, see Table 6.3).

European Agricultural Guidance and Guarantee Fund (EAGGF) was used to fund the CAP until 2007, from which both subsidies for production and export subsidies were paid to farmers, and possibly also intervention payments for the purchase of surplus stock. At the turn of the 1970s and 1980s, it used up to 70% of the European budget (Cunha, A. and Swinbank, A., 2011)

Table 6.3

**Food self-sufficiency of the EC / EU for selected agricultural commodities in%**

<b>Product</b>	<b>1973</b>	<b>1981</b>	<b>1985</b>
Wheat	111	117	122
Rye	105	103	112
Barley	113	114	133
Maize	67	66	84
Potatoes	102	101	102
Sugar	116	135	125
Vegetables	97	97	107
Fresh fruit	82	83	86
Citrus fruit	41	43	74
Wine	101	102	104
Cheese	102	107	108
Butter	118	120	129
Milk powder	191	411	348
Beef	85	105	106
Veal	104	101	112
Pork	99	101	102
Poultry	100	109	105

*Source: OECD – FADN, adjusted*

The first major reforms of the CAP were made due to the massive criticism during the Uruguay Round, where the US, in particular, urged the emerging European Union to bring its agricultural policy into line with the processes of general trade liberalization, also known as the **Agreement on Agriculture**. The subject of the Agreement is to increase the level of trade and its flow, and to create market policy. These goals should lead to increased predictability and security of export and import. WTO members committed themselves to reduce barriers to market access progressively, reducing domestic support and eliminating export subsidies. Under the Framework Arrangement in 2004, agriculture negotiations are based on three pillars. The first one – Market Access – refers to measures that affect cross-border access to the market of the Member States, i.e. customs duties, non-tariff barriers and direct restrictions. Domestic support measures are allowed for agriculture only. For the purpose of liberalizing agribusiness, a list of arrangements that might impede or weaken trade was drawn up within the framework of an agreement, setting a schedule for the liberalization. Support types are classified by their impact on production into different sections, domestic

support is classified into boxes of different colours (Table 6.4). The classification is similar to traffic lights and categorized by the degree of "bad" effect on trade. Green = allowed, yellow = slow down, red = stop. Export subsidies deal with the removal of export subsidies and other similar measures. Developed countries had to reduce the amount of subsidies in exports by 21% and export subsidies by 36% by the year 2000. Developing countries reduced the value of export support by 24% in ten years and reduced the amount of export subsidies by 14%. The least developed countries were exempt from all reductions (UNCTAD, 2003).

*Table 6.4*

**Structure of domestic support provided in the EU**

EU domestic support in (EUR million)	Period 2011/2012		Period 2012/2013		Period 2011/2012	
green box	70 976.80	87.8%	710 140.00	89.1%	68 697.80	88.8%
blue box	2981.1	3.7 %	2754.2	3.5%	2663.6	3.4 %
amber box	6858.9	8.5 %	5899.1	7.4%	5971.7	7.8 %
<b>Total support</b>	<b>80816.8</b>	100 %	<b>79793.3</b>	100%	<b>77333.1</b>	100%
EU domestic support in (EUR million)	Period 2011/2012		Period 2012/2013		Period 2011/2012	
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<b>Total support</b>	<b>80816.8</b>	100 %	<b>79793.3</b>	100%	<b>77333.1</b>	100%

*Source: OECD – FADN, adjusted*

After **the Uruguay Round**, taking place from 1986 to 1994, a distinction was made between supports distorting and non-distorting the trade. The support was classified into different boxes. The support included in the green box focuses on two areas. Primarily there are support programs such as science and research support, training, counselling, building and maintaining public warehouses, infrastructure, and so on. The second area includes direct payments to farmers, providing the producers with income (income guarantees, insurance contributions, etc.), programmes for farm structure change and for environmental purposes. These are always payments that do not affect the volume of production. They might be area payments and other types, such as related to historical data. Blue Box support is intended for programmes to control production, not directly affecting its quantity

(such as payments for fallow land). The last group is known as the amber box, depending on production and which directly leads to the production increase (Swinbank, A. and Carolyn C., 1996).

**The MacSharry reform** introduced reduction in direct support for agricultural commodity prices. Strictly, however, it persisted in the some of the “sensitive sectors” such as sugar, wine, fruit and vegetables. Its remains can be found, for example, in cereals, milk and dairy products, eggs and meat, as the existence of intervention prices, quantitative quotas, premium payments, export subsidies. At the same time, however, other instruments were applied to eliminate farmers' lower incomes. This was a reduction in intervention prices, which led to a reduction in market prices and their approach to world prices. Direct payments were made, which were paid on the basis of the commodity structure and the area of cultivated land, the number of livestock, and so on. Another tool was the support of organic farming and its certification, and several accompanying measures (agri-environmental measures to promote environmental protection, forestation of agricultural land, support for early retirement of farmers, the launch of the LEADER1 pilot rural development programme) to support the diversification of activities and the use of alternative forms of income in rural areas to reduce the population's dependence on agriculture (Garzon I., 2006).

The new regulation introduces consumer-motivated legislation (requirements for compliance with veterinary and phyto-sanitary regulations, strict animal transport regulations, attempts to determine the exact qualitative characteristics of goods that can be marketed in the EU, packaging and labelling rules, etc.). In these years, special support for the cultivation and production of certain commodities for environmental reasons (such as bio-fuel production from oil plants, cereals and forage crops) is introduced (Cunha, A. and Swinbank, A. 2011).

Despite the success of the 1992 reform of the Common Agricultural Policy (it reduced overproduction of food, excess commodity stocks were decreased), in the long run, further agricultural reforms have to be pursued in order to prepare the CAP for the enlargement of the European Union and create conditions to meet the requirements of the next round of WTO talks.

After **Agenda 2000**, started in 1999, support is mostly paid to farmers, not related to the volume of agricultural production and therefore less disturbing the market because they do not encourage farmers to produce more, unlike previous payments linked to the volume of production.

The effort of Brussels aimed to make the quantity of production more responsive to market demand not based on the calculation of the advantages and disadvantages of the support. The situation where farmers produced irrespective of market needs and did not react to market signals led to overproduction and the common agricultural policy created appropriate subsidy policies to produce more products than the market really needed (Lowe, P. et al., 2002)

In 2004, the EU expanded to the East. It changed the situation between the beneficiaries and the payers of the European Structural Funds. New nations, with different historical traditions, and especially traditions in agricultural policy, joined the European Union, where the agricultural sector employs less than 4% of the labour force.

In addition, in the 1990s, this sector went through significant restructuring. Both the sectoral and ownership structure changed. In this specific area of problems, which the older EU Member States and many new members did not have to deal with (the Polish or Hungarian collectivization of agriculture were not as huge as the Czechoslovak collectivisation), there are still several unsolved issues. In spite of these difficulties, farming in some of the newcomer countries in many sectors has been highly efficient. As illustrated by the fact, that the Czech Republic before joining the EU ranks second place in the tens of new members in the production of a number of commodities, behind Poland and also outpaced a number of producers within the EU-15 (sugar, oil crops), even though over 20% of the population were employed directly in the agriculture and related sectors in Poland at the time of accession to the EU. A similar situation was also found in some Baltic countries (Latvia, Lithuania) (Gorton M. et al., 2008).

Entering the EU brought new innovations to the new states in the agricultural area. The new Member States had to adapt gradually to the market regulation system in the EU. There were also unusual access agreement regulations (such as prohibition of the introduction of new vineyards after the accession to the EU and their restructuring beyond the permitted limit; legumes, milk production, dehydrated fodder, potato starch and processed fruit and vegetables quotas and premiums for growing subsidized cattle, etc.). All these changes in the 1990s and early 2000s caused changes in the commodity structure of the agricultural economy. New members had to adapt to the development of European legislation, the global globalization process, the liberalization of trade in agricultural products within the World Trade Organization (WTO).

The accession of the new Member States to the EU meant the need

for further reform (**Fischer's reform**) (Swinnen, J. F. M., 2008), responding to the new conditions of all members of the agricultural policy. Its aim was to increase competition of the EU within and outside the EU market, to guarantee a certain level of income, to pay subsidies, irrespective of the volume of production, to emphasize the need for organic production, animal welfare and the production of quality products. The reform also had to strengthen the negotiating position of the European Union in the World Trade Organization.

The amount of support was newly coupled to the area under cultivation, the number of animals and historical records of payments. An agricultural producer also got one payment, regardless of production (decoupling). There was also a hybrid model combining several approaches. The single farm payment model was mainly applied in the old Member States. The amount of direct payments varied greatly, both within different countries, regions, and in different farms. Such differences are still noticeable (Daugbjerg, C., 2012). To the contrary, the non-hybrid Single Area Payment Scheme (SAPS) was mostly applied in the new Member States. In case of SAPS, support was granted to the following: arable land, grassland, other grasslands, vineyards, hop gardens, fruit orchards and "other cultures" specified in the implementing rules, conditioned by farming in accordance with good agricultural and environmental conditions. The purpose of LFA payments was to provide financial compensation for less favourable farming conditions in their respective territories, those areas are usually sub-mountain and mountain areas where it is not possible to achieve yields comparable with production areas (Vannini L. et al., 2008).

Also, the farms could ask for setting the land aside. Non-food crops were allowed on rotational set-aside. The revolutionary step was an attempt to anchor previously established cross-compliance conditions, i.e. rules based on requirements for good agricultural and environmental status and mandatory farming requirements. The effort to integrate basic environmental standards into agricultural production became a major pillar of the reform of the EU Common Agricultural Policy over the last decade. Cross-compliance includes individual environmental and other standards that farmers had to follow in order to receive subsidies. Within Good agricultural and environmental conditions of land, there were seven requirements applied: 1. Buffer strips along watercourses; 2. Abstraction of water for irrigation; 3. Protection of groundwater against pollution; 4. Minimum soil coverage; 5. Minimum land management to limit erosion; 6. Maintenance of soil organic matter including the

prohibition of burning out arable stubbles; and 7. Retention of landscape features and measures for avoiding invasive plant species (Sorrentino, A., Henke, R., 2016). When the grant applicant failed to meet these conditions, the support might have been reduced or, in the most extreme case, no payment might have been granted. The fulfilment of the standards and requirements were verified by checking compliance with the controlled requirements. Their form and method of control was determined by the EU country according to its national specifics. Furthermore, efforts were made to limit payments to significant recipients. In the case of payment to farmers above €5.000, a partial digressive reduction by 5% of the payment entitlement was newly introduced, subsequently used under the pillar for rural development (Lovec, M. and Erjavec, E., 2013). These transfers between pillars in favour of the Rural Development Program are called modulation. In addition to previous efforts for the sustainability of agriculture, the idea of multi-functionality of agriculture emerged, that is, not only to be limited to the production function, and to see the farmers as being the administrators of the countryside and the managers of the country. The role of the model of multifunctional agriculture, as proposed by the new enlarged community, was to create a productive, modern and competitive agriculture and food industry (de Groot R., 2006).

In 2007, a plan to modernize the Common Agricultural Policy, known as the “**Health Check**”, was introduced (Borchard, K.D., 2008, Daugbjerg, C. and Swinbank, A., 2011). The plan was intended to improve, modernize, simplify and streamline the Union’s agricultural policy on the basis of the experience gained from previous years and to adapt it to a larger number of Member States of the Union. The issue of quotas, in particular milk quotas, was discussed the most exhaustively during this reform. In 2015, the milk quota was abolished. Until then, each country increased its quota by 1% until the quota year 2013/2014. A single payment, called decoupling, was supported in particular in the old fifteen. A major novelty of the amendment to the Directive was the Article 68 which allowed states to use up to 10% of the volume of funds for purposes other than direct payments. However, only 3.5% of the amount could be used to support sensitive sectors of agriculture defined by the Member State, the remainder being the possible reimbursement of different types of risks such as natural disasters or various animal diseases. The new Member States did not have to convert their system of flat-rate payments into farm payments until 2013 (Bureau J.C. and Mahé L.P., 2009). The Member States were provided more space to

adapt the targeting of modulated funding to measures related to the new challenges, i.e. “adapting to climate change, renewable resources, water resource management, biodiversity, the milk sector and innovative approaches” (Europien commision, 2008b). It also allowed the transfer of funds from direct support to rural development. Farmers receiving more than 5 thousand Euros were by 5% and this money was transferred to the country's rural development programme. Investment aid for young farmers was increased by 15 thousand Euros. Despite the efforts of some states to maintain the protectionism of European farmers, an agreement was made and a long-term trend was set, which had clearly manifested itself in the Health Check negotiations. This trend moved agriculture towards normal business and subsidies towards payment for goods not bought on the market (Europien commision, 2008a).

Based on the long-standing debates ongoing since the previous CAP Health Check, culminating in a series of public debates in 2010, the Commission presented a legislative package on the future direction of **the CAP 2014-2020** and its budgetary framework on 12 October 2011. Past reforms responded to internal problems, from huge surpluses to the food security crisis. The new reform should have reflected factors outside agriculture, requiring a wider political response (Swinbank, A. and Daugbjerg, C., 2011). Over the period of its existence, EU agricultural policy has always been subject to strong criticism because of the large amount of money spent compared to the contribution that has been generated (the share of agriculture in EU GDP). The focus of the new policy on extra-terrestrial areas, which are not primarily addressed in other community policies, should contribute to at least partially offsetting these disputes. These include sociological, environmental, and territorial balance issues and many others, which are, among other things, influenced by agricultural activities. So far, within the CAP, the old Member States used Single Farm Payments (SPS) on the basis of historical criteria and newly acceding countries used the Single Area Payment Scheme (SAPS). To address these differences, the concept of the basic payment scheme, which is the same for all entities, was introduced. As the other EU policies, the CAP should respect the principle of solidarity. However, in the past, this was not the case for the CAP, so the reform proposed adjusting the allocations to different countries for direct payments so that states receiving less than 90% of the EU average per hectare would be allocated more funds. The difference between currently allocated amounts and 90% of the EU-27 average would thus be reduced by one

third. Gradually, there should be a complete convergence. A new instrument linked to direct payments is a payment for climate-friendly and *greening* farming practices. (Erjavec, E., Lovec, M. and Erjavec, K., 2015). This tool sets out the conditions for compliance with the environmental, animal welfare and other rules. The aim is to maintain existing permanent pastures for grazing on the farms, and to promote diversification of crops. The farmers must plant at least three different crops on their arable land, none of which may be cultivated on an area of less than 5% of arable land and the main crop must not exceed 70% of the arable land) and maintain the area under ecological interest of at least 7% soils – i.e. boundaries of fields, hedges, trees, fallow land, landscape elements, habitats, protection belts, woodland areas (European Commission, 2011). The farmers wholly or partly located in areas with natural constraints payments are also provided for areas with significant natural conditions requiring special, in addition to the basic payment. Payments to young farmers up to 40 years of age would be increased by 25% under the payment instrument for young farmers in the first 5 years after the establishment of the enterprise. The following figure shows a percentage of farms, according to the age of the farmer. (Matthews, A., 2013).

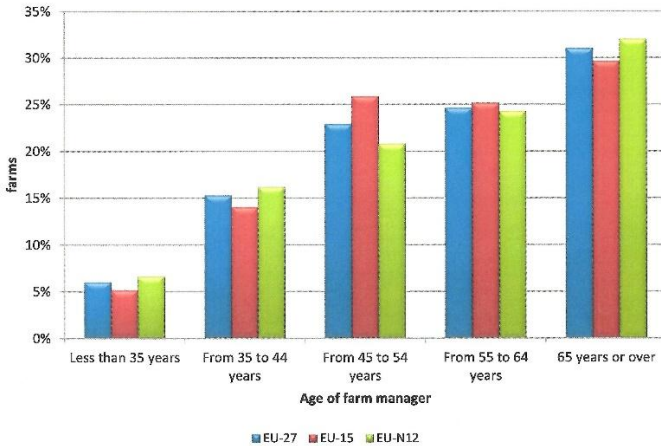


Figure 6.2 Share of farms by age group of managers

Source: OECD – FADN, adjusted

For several decades, there has been a criticism both within the European Community, and by the WTO organization, aimed at

decoupling direct payments. Within this infrastructure, *voluntary coupled support* has been set up, which is linked to production, as a partial link between the payment of resources in some sectors and products for production. Such special tool should only be used in sectors and regions where specific types of farming and specific agricultural sectors face certain difficulties, while being important for the region for economic, social and / or environmental reasons.

The second tool of the first pillar is the *Common Organization of Markets*. This Regulation contains measures concerning the internal market. There are market interventions and rules, marketing, producer organizations, trade with the third countries, competition rules and other general and specific provisions. The new regulation on rural development aims to strengthen the strategic approach by setting common priorities at EU level and by making the necessary adjustments on the basis of previous experience. The reform cancelled the current EAFRD system, proposing six main rural development policy priorities contributing to the Europe 2020 strategy. The most important premises of the CAP include competitiveness of all types of farming and improving the viability of farms, promoting knowledge and innovation in agriculture, forestry and rural areas, supporting the organization of the food chain and risk management in agriculture, restoring, preserving and improving ecosystems, of agriculture and forestry, promoting resource efficiency and switching to a climate-proof, low-carbon economy, agriculture, food and forestry, promoting social inclusion, poverty reduction and economic development in rural areas.

The *cross-compliance rule system was simplified*. Some management measures not primarily targeted at agriculture were deleted. The provision of direct payments should be fully transparent, but with an emphasis on enhanced data protection for natural persons. (European Commission, 2011) The reform also includes the introduction of a single monitoring and evaluation framework.

### **Reform after 2020**

The reform of 2013 significantly increased flexibility available to the Member States related to the way in which the direct payments scheme is implemented. The principle of external convergence has brought a limited but yet unprecedented redistribution of the first pillar of the CAP among the Member States. However, the relative ranking of countries and the direct payments per hectare did not change significantly, in particular in the old Member States and between the old and the new

Member States. Twelve of the eighteen countries applying the basic payment scheme are still going to use the partial convergence model in 2020. The area of eligible land after the 2013 reform is likely to increase. The production-based support introduced by all countries, except Germany, is the most popular of the measures that Member States choose on a voluntary basis. Fifteen Member States decided to apply the scheme for small farmers, currently covering 41% of EU farmers and 5% of the farmland. The Member States have also made extensive use of the space they have been given to use different possibilities of the ecological payment. The Member States are basically offered three options for the reform of direct payments:

1. The decision-makers might maintain the current structure of direct payments in the next programming period;
2. The decoupled direct payments might not be paid and the savings are spent on a set of instruments to stabilize income;
3. Returning to conditionality of greening commitments; with the possibility of choosing from multiple options at national / regional level; the adoption of conditional greening, with the assumption that the basic payment (public support) would be conditional upon inclusion in the basic agri-environment-climate program established by the Member State.

In the previous programming period, a crisis reserve was created. Support was provided to insurance and mutual funds. However, these tools are used unevenly by the Member States. In spite of the new risk management instruments mentioned above, the development in recent years has gone through sharp boom changing into crisis of the agricultural sector to the extent that doubts arise as to whether the new CAP is able to cope with such market disturbances. Therefore, it is now proposed to change the structure of existing pillars so that all the policy instruments that either directly or indirectly affect price and income instability are gathered into a common framework such as the third pillar. It is necessary to introduce a reorganization of direct payments with the emphasis on strengthening the role of the crisis reserve, introducing the conditionality of crisis prevention. Entitlement to basic payments and financial assistance from the crisis reserve should be conditional on the introduction of a revenue stabilization instrument and adherence to policy rules aimed at suppressing and preventing market crises, such as supply constraints during price rises (European Court of Auditors, 2018).

The new reform is also very specific to rural development policy. The analysis of the development of European rural development policy shows that it was created almost three decades ago. Based on the Agenda 2000 decision on the creation of the second pillar, rural development became a separate unit of general Common Agricultural Policy (CAP).

The following development of the rural development policy has shown a gradual increase of its political significance. Given the widespread impact of non-agricultural policies on rural areas, issues relating to the contradictions between sectoral and territorial measures are crucial during all programming periods. It is also important for the CAP policy to be coherent with cohesion policy. This has led to repeated discussions on the objectives, priorities, dimensions and organizational issues of rural development policy and calls for a more strategic and unified approach to sustainable and balanced territorial development (Matthews, A. 2017).

The challenge of the future reform is first and foremost to adapt and set the rural development framework to more effectively support the implementation. Further, it is necessary to ensure regional use of territorial capital and opportunities and provide incentives for strategies that enhance innovation and affect rural amenities. To better use of the program, especially in regions that do not participate fully, special attention should be given to capacity building, knowledge development and participatory local development actions. These “soft” support measures should be applied in some regions, with increased emphasis on stopping the “downward spiral” and the tendency to depopulation.

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**DIAGNOSTICS OF  
STRUCTURAL  
TRANSFORMATIONS  
THE ENTITIES OF  
ECONOMIC  
PRODUCTION IN THE  
AGRICULTURAL SECTOR  
OF THE NATIONAL  
ECONOMY**

The ineffectiveness and excessive complexity of structural transformations the entities of agricultural production indicate that is not able the process modernizing the agrarian sector of the Ukrainian economy. Consequently, there are risks in preserving the structure of the entities agricultural production, which are primarily loss of competitiveness, the growth of social problems, etc. In the context of overcoming the specified riskiness, the urgent need for structural transformation is the flow of economic and financial resources, without the proper vector orientation to avoid financial risks it would be impossible.

We believe that the achievement of high efficiency of structural transformations the entities of agricultural production is possible due to such financial-economic factors of influence:

- improvement of the mechanism of state subsidization of agricultural production in order to maximally overcome the impact of a number of unexpected and weakly managed factors [10, 14];
- provision of agricultural enterprises with additional financing (attraction of investment resources, cheapening of loans, etc.), which is especially important for ensuring the conditions of proper competitiveness. For example, consider PJSC “Agrarian Fund” in accordance with the high-wholesale requirements of forward contracts for the purchase of grain crops, which the vast majority of small the entities of agricultural producers will not be able to work. The reason for this is the requirements of the specified PJSC “Agrarian Fund” to the minimum volume of procurement of the crop. Thus, the one-time purchase for one buyer’s holding can not be less than 10 tons (for the

purchase of buckwheat and oats), 30 tons (for purchases of yellow peas and rye), 50 tons (for barley) and 100 tons (for the purchase of wheat and corn) [3]. Undoubtedly, additional sources of financing for small businesses, as well as investments against the background of land legislation and a program of cooperation at the level of banking institutions – agricultural enterprises – would provide additional guarantees to the entities of agricultural production;

- the development of a high insurance culture the entities of agricultural production with an emphasis on programs of the state compensation mechanism of insurance costs, which is especially relevant in the difficult conditions of ensuring the competitiveness of the vast majority of small agricultural enterprises;

- achievement of a balance between the intensification of exports (entry into the international arena) and the presence on the domestic market. This factor is especially relevant in the present, when the desire of agricultural producers to enter the international market is so powerful that they are ready to “sacrifice” other large markets. However, the realization of this goal is constrained through declared quota by the EU’s for imported goods, and therefore the sale of all commodity stocks on such an international market becomes legally impossible. As a result, we find it impossible to compensate losses from the inappropriate distribution between the domestic and international markets. That is why the achievement of the balance is a determining factor in the profitability of the entities of agricultural production;

- use of a basic set of tools for goal to minimize financial-economic risks in the agrarian sector of the national economy, namely: risk-management, budgeting, strategic management, hedging instruments. The most popular among the latter are commodity futures and forward contracts [10].

The high dynamics of the processes of implementing structural transformations the entities of economic market in the agrarian sector of the Ukrainian economy determines the peculiarities of the participation and role of economic interest’s performers, which are carried out at the different levels: local, region, national.

Consider as outlined above the three levels of economic behavior of producers of economic products in the agrarian sector of the Ukrainian economy.

The behavior of economic interests performers at the local level is oriented to the direct execution of programs of state support of economic enterprises of the agrarian sector of the economy in Ukraine,

as well as the identification of strategic competencies, the provision of develop and partnership for realization the programs of local development, promotes the development of initiative the agricultural producers on the locally and ensures the formation of social responsibility [9, pp. 25-30].

Therefore, only the integration and cooperation of the roles and actions of all the above-mentioned performers is a key to successful achievement of the high efficiency of structural transformations the entities of economic production in the agrarian sector of the national economy.

Considering the economic behavior of the performers of economic interests of the region level, note that it is oriented towards the development and implementation of regional development programs in the agricultural sector of the national economy of Ukraine. For example, such programs include the current Rivne Regional Program for Supporting the Development the Farmers, the Cherkasy Regional Program for Supporting the Development of Agricultural Service Cooperatives [12] and a number of others, most of which were approved in the pages of the provisions of the Strategy Sustainable Development “Ukraine – 2020” [2].

Thus, the economic behavior of national executors of enterprises in the agrarian sector is manifested in the organization of a generalized concept of structural transformation. In particular, their competence includes the Concept of Development of Farmers and Agricultural Cooperatives for 2018-2020 [1].

One of the most important accents of this Concept is the representation of the directions and mechanisms of its practical implementation. Therefore, from among the directions it is worth emphasizing the need to stimulate not only the processes of ensuring high competitiveness of existing and new farms, but also the development of service cooperatives, technical-technological updating, promotion of livestock development, horticulture, etc.

Among the main mechanisms for the implementation of the above-mentioned Concept are, first of all, the state financial support to farms, utility service cooperatives, support for the implementation of projects in the field of financial leasing and the possibility of cheaper insurance, etc. Significant emphasis is placed on state compensatory mechanisms [2; 7, pp. 87-88].

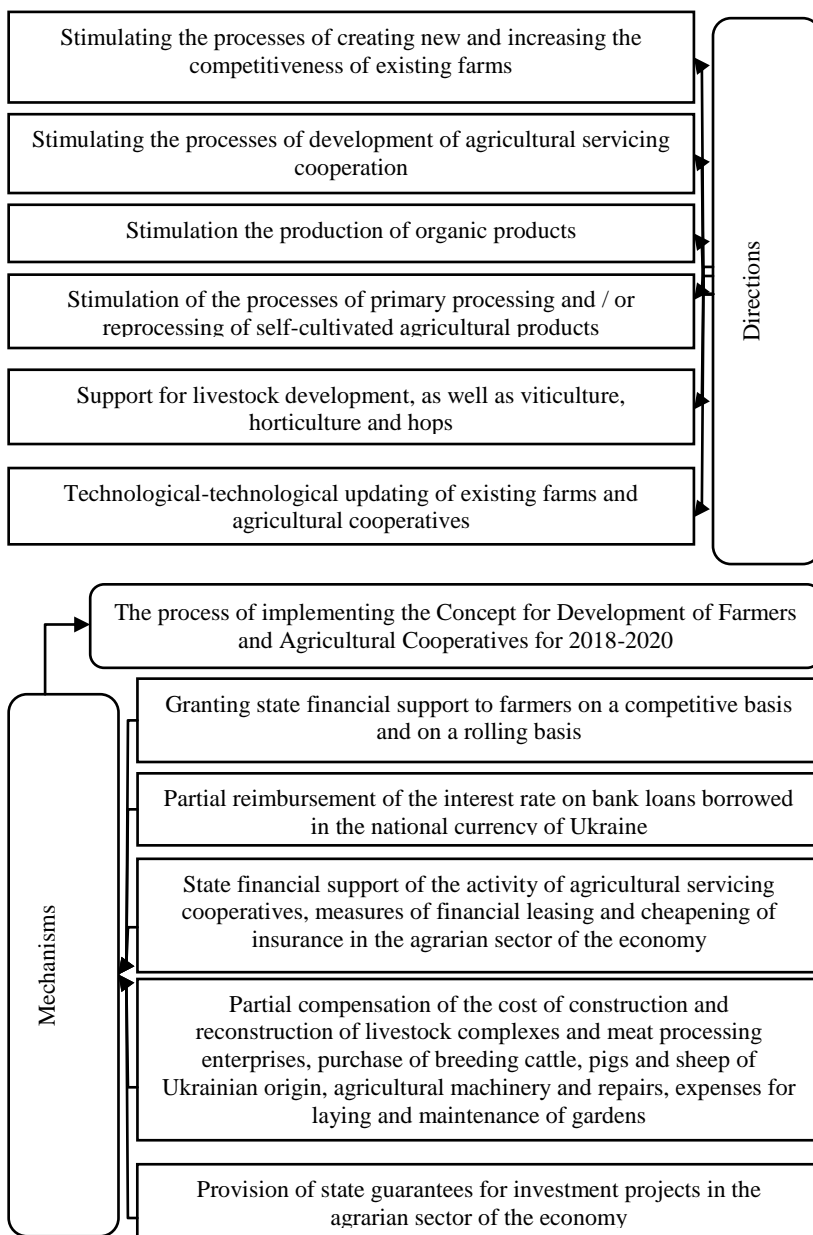


Figure 6.3 Directions and mechanisms for the implementation the Concept of Development of Farmers and Agricultural Cooperatives for 2018-2020 [1]

At the same time, in scientific literature [11; 13; 15] often refers to the so-called bimodal structure the entities of economic production in the agrarian sector, which covers two models of economic behavior: industrial (corporate oriented) and traditional (individually oriented) models. If for the first is more accentuate the large commodity production of agricultural products and expansion of sales channels, provision of consumer needs not only on the domestic but also on the external market, attempts to take a monopoly share of the market of financial resources, etc., the other, – represents the small-scale production the products of agricultural produce, and its economic behavior can be characterized primarily as follows: the distribution of goods of peasant and farm enterprises to ensure the consumer's needs on the domestic market; use of the opportunities of the wholesale-market network as a channel for the sale of its products; the complexity of obtaining means of state financial assistance to the development of agrarian producers, as well as the difficulties of attracting debt capital.

Despite the differences in these models, in practice we observe either a traditionally-industrial or a bimodal model of economic behavior. Business associations take the leading position in terms of the size of the land bank, whereas, at the same time, rural and farming farms are underperforming, as already noted, due to lack or difficulties in obtaining financial assistance from the state. At the same time, it should be noted, that cooperation (apart from its classical forms) as a way of partner interaction is difficult to perceive because of its direct associativity with the shortcomings of the communist collective model of organization the agricultural enterprises.

Consequently, in general we note the effectiveness of the transformational processes of agricultural forms of organizing agricultural-producers and their positive impact on the development of the agrarian sector of the Ukrainian economy. In this context, it is worth emphasizing the promising success of the development of agricultural entrepreneurship, which directly depends on the ways of mutually beneficial cooperation of agricultural producers.

It should be noted that the level of production the agricultural products, the presence of cooperative and integration interactions between small and large enterprises of the agrarian sector of the Ukrainian economy, – determine and shape the possibility of sustainable development of small business enterprises.

All classical forms of cooperation in Ukraine, of course, can be realized. The implementation of state regulation in this area is

conditioned not only by the state support of business-structures in the agrarian sector, but also the advantages of preferential taxation and debt lending on preferential terms. In addition to the identified benefits of state support, difficulties also arise and manifest through of the lack of certainty of ownership rights to income, as well as the lack of management by the agricultural cooperative [16, p. 88].

The processes of integration are an effective motive for the present in the field of the organization of entrepreneurial agricultural structures. The nascence of agricultural producers holding type refers to the practice of the emergence of organizational forms. Therefore, in the course of integration processes, the association of entities of economic production of the agrarian sector of Ukraine's economy in holdings, observed is an introduction of the process of absorption of economic commodity producers by investors, instead of the declared creation of proper conditions for equal cooperation the entities of economic production in the agricultural sector [5, p. 220].

The organization of economic production in the agrarian sector of the economy is the key not only to the development of cooperative and integration interconnections of economic enterprises in a holistic agro-food complex, but also the development of regional clusters. It should be noted that participation in cooperative, integration and cluster associations of agricultural enterprises can take only large and medium business-structures. Instead, participation in cooperative and cluster associations can take the small enterprises of agricultural production [5, p. 223].

Integration and cluster organization, as well as state regulation of entrepreneurial structures in the agrarian sector of the Ukrainian economy are an important part of their structural transformation.

Thus, considering state regulation in the context of the integration organization the entities of economic production in the agrarian sector, it is worth emphasizing on a few specific lines, namely:

- positive investment fund;
- introduction of technical-technological innovations in the production process;
- expansion of the channels sale the agricultural products.

A cooperative organization of business-structures in the agrarian sector of the economy can take place by increasing its efficiency from separate vectors of activities, in conditions of the fullest possible state support.

The cluster system of interaction of business-structures in the

agrarian sector of the economy is oriented to state regulation and provides the creation of a proper legislative environment for the purpose of ensuring the effective transition of the entities of economic production of the agrarian sector of the economy to the above form of organization.

It should be noted that the establishment and stability of industrial relations between the business-structures of the region is evidence of the successful practice of clustering the entities of economic production in the agrarian sector of the national economy; and the level of concentration of enterprises is the reason for the functioning of clusters. However, the main conditions of the phenomenon of clusterization of the economy are not only the atmosphere of cooperation, but also the favorable environment of competition between agricultural enterprises. In the belief, it is worth noting the positive experience of countries in the field of good competitiveness, such as Austria, Germany, USA, Finland, France, as well as India, China, Mexico, Slovenia, Hungary, etc. Thus, according to experts, clustering processes cover roughly 50% of all economies in the world community [6, p. 74].

The results of the European Cluster Observatory in Ukraine show that clusterization of the agrarian sector of the national economy takes place with the purpose of not only social partnership but also social-economic development (Vinnitsa, Kyiv, Kirovograd, Mykolaiv, Ternopil, Kherson and Cherkasy regions) [8]. At the same time, has been formed the Global Innovation Index (Global Competitiveness Rating), which is compiled by the World Economic Forum and takes into account the levels of cluster development. It should be noted that the value of this index for Ukraine varies within the range of 2.7-3.1 points (Figure 6.4).

Focusing attention just at the high level of cluster development in Ukraine, according to Figure 6.4, it is necessary to demonstrate 2017-2018 (3.1 points), along with other countries of the world (Albania and Montenegro, Algeria, Burundi and Congo, Ecuador and Paraguay).

The key to the successful functioning of agglomerations in the Ukraine is the creation and guarantee of an effective cluster policy and its proper state support; the use of political-economic levers of influence on the growth of agricultural clusters, and hence the development of regional economic benefits and opportunities; the absence of industrial agglomeration as a pledge to forming a cluster system of interaction between business-structures in the agrarian sector of the national economy.

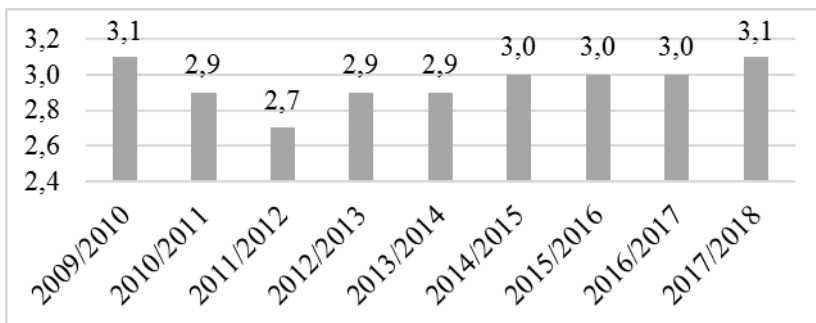


Figure 6.4 Dynamics of changes the level of development of the phenomenon of clusterization in the national economy of Ukraine, 2009-2018, points [4]

## Conclusions

The imperfection of the structural transformations the entities of economic production in the agrarian sector of the national economy testifies to their modernization incapacity. In this regard, the proposed select and justify the impact of certain financial-economic factors to achieve high performance structural transformation the entities of agricultural production, where subsidies, direct additional straight the financial support as well as a high level development of insurance culture the entities of agricultural production are key.

Further development the entities of economic production in the agrarian sector of Ukraine covers not only the structuring of agricultural markets in the region, but also the improvement of economic relations between them through cooperation and integration process as the basis for the development of concentration the economic production of agricultural products and deepen its specialization.

Given the promising conditions for the creation of agglomerations in Ukraine should focus on state efficient cluster policies in agrarian sector of the national economy, which stimulates the processes growth of agricultural clusters, promotes the development the regional economic benefits. Along with this, the possibility of constructing a cluster system for the interaction of business-structures in the agrarian sector of the national economy should be determined by the absence of industrial agglomeration.

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## Chapter 7

### MODERNIZATION AND UNIVERSITY EDUCATION: FUNDAMENTAL AND PRACTICAL-ORIENTED LEARNING

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**INTRODUCING SOFT  
SKILLS IN BUSINESS-  
ORIENTED  
EDUCATION WITH  
SPECIAL FOCUS ON  
INSURANCE  
INDUSTRY**

Contemporary world means a huge challenge in the employability patterns and skills, needed for the future professionals. Language skills, intercultural and digital competences are important employability skills in the current situation. This also requires new innovative ways for developing professional business people's employability qualities to be competitive in the challenging labour market and be able to contribute to cohesive society.

Insurance industry is one of very dynamic and fast-developing branches of modern economies. It is a highly demanding, professional specialization that involves also insurance mediation that has recently developed into a highly specialized regulated form of mediating activity due to the fast-growing insurance market world-wide. Thus, it is more than obvious that expectations regarding the new generations of university graduates and their (professional) knowledge and (soft) skills are ever increasing. This is the reason why we consider involvement of soft skills in university syllabi as an inevitable new step for achieving higher progress and competitiveness for future business-oriented study graduates.

Globalized world of business activities has been much diversified,

modified, where well-established rules and patterns of certain cultures may or may not be applied. If we focus on the phenomenon of globalization, we can admit that it has been defined as the *“increase of trade around the world, especially by large companies producing and trading goods in many different countries”* (Cambridge Dictionary, 2008).

It is acceleration and intensification of economic interaction among people, companies, and governments of different nations that results in situation when available goods and services, or social and cultural influences gradually become similar in all parts of the world (Ferraro, 2005).

Communication is one of key factor in the process and many times economic transactions are re-interpreted as acts of communication. The economic transactions which flow from reciprocity are socially cohesive but it is also a mode of communication. It not only does something, it says something. If we get a present, for example, we will feel morally bound to give something back. In economic terms we can feel indebted to the donor, but in communicative terms the sense of reciprocal obligation is an expression of mutual feeling that we both belong to the same social system. If we are friends, there is exact equivalent, i.e. equity of status. A completely different situation appears if we provide our labour effort to somebody and we get back wages – this presents inequity of status and occurs on the employer vs. employee level.

Communication in business is one of essential elements for being successful on contemporary global market places world-wide. It should be quite seriously underlined that it comprises essence of fruitful and profit-creating part of business negotiations both on domestic and even more on international markets (Friedman, 2005).

Insurance industry has its specific role where communication has its important role, thus the focus should be on following adequate communication channels between insurers and their target audience that would lead to the mutually most advantageous results. The modern globalized world of business requires well-qualified professionals. However, to be able to compete on global markets it is inevitable to develop and constantly improve negotiation communication and intercultural skills (Majtánová, 2005).

Communication skills are important in almost every job, however for doing business (insurance business) these skills acquire a new dimension. It is highly probable that it will be necessary to communicate with people, whether they are clients, partners, customers,

colleagues, employers, or vendors – to be able to clearly and politely speak with people in person, over the phone, and in writing.

When considering domestic partners, where all of the participants belong to the same culture, cultural threats and traps can be relatively easily foreseen or avoided. On the other side, international business scene (with special focus on insurance market) is profoundly a much more complicated place to achieve one's goals and become successful. Thus we must admit that not only proper communication – using adequate words, tone or pitch of one's voice are important. It also involves awareness of considering and distinguishing differences in cultures where business partners may come from, and consider their cultural patterns of behaviour properly.

Hofstede's (2000) classical definition claims that *“culture is the collective programming of the mind which distinguishes the members of one group or category from another, which is passed from generation to generation, it is changing all the time because each generation adds something of its own before passing it on.”*

If we accept this clarification, we admit that culturally driven behaviour is learned behaviour, but not all learned behaviour is of cultural origin. It is usual that one's culture is taken for granted and assumed to be correct because it is the only one, or at least the first, to be learned.

So, if we suggest that there are different ways of doing business around the world, we could try to make some cultural generalizations. However, a question should be raised whether it is possible at all. There is a “yes- but” answer – it is possible to a certain degree only, because we cannot expect that all people (involved in business) belonging to one culture would do business in a way that fits this generalization. People have their own personal qualities – either inherited or acquired – that are involved in creating certain behaviour patterns. Moreover, age, gender, social status, historical, religious background, etc., are responsible for shaping individuals' characteristic features of their behaviour patterns.

Individuals and cultures are linked because either alone, or in groups, people influence culture by changing their private understandings into new public objects and actions. In spite of cultural diversity, humans share certain universal or nearly universal experiences – birth itself, stages of psychological development, experiences with light and dark, heat and cold or wet and dry objects.

Cultural generalization tends to describe standard business practices in certain culture. And generalization is then based on observation, not

prejudice or stereotypes. It tends to explain the accepted standardized practices of certain culture but it, not at all, tends to determine how every person in that particular culture should (or does) behave.

The models and channels of communication are different. Human communication is achieved by means of expressive actions which operate as signals, signs and symbols – they can be interpreted either directly (speaker vs. listener), or indirectly (e.g. writing a letter where decoding of a message comes later after receiving and reading it).

## **Intercultural Communication and Language Tuition**

Accurate intercultural communication is built on fluency in the target language, insight into what people are imagining when they speak, certain knowledge of historical heritage, traditions and customs (Morain, 2001). And as she continues, it also involves the ability to decipher non-linguistic symbols, such as:

**body language** (gestures, posture, facial expression, gaze, touch, etc.),

**object language** (using of signs, designs artifacts, clothing, etc.),

**environmental language** (colour, lighting, architecture, space, etc.)

Defining culture means not only commenting on behaviour but also how individuals feel, think and act. Culture is learnt – it is a process that begins when the persons who bring us up directly and indirectly pass on us their own culture. Another consequence of learning is that most elements of one's own culture is unconscious: we are unaware of them until we meet someone with different set of cultural elements, thus some problems may arise when two cultures meet. People usually have former cultural experience prior to their international business activities through exchange holidays, educational visits, family holidays, etc.

Cultural embarrassment, and lack of language subtlety, can easily cause misunderstandings. If we mean English, as the language of international business communication, there are a number of obstacles and traps that may lead to fatal misunderstandings. English is a tonal language and large part of a message is encoded in the way utterance has been delivered (Crystal, 2003).

Another potential threat is the idiomatic character of English. It may be a serious barrier in proper message delivery. Here, culture-specific world views are reflected and as we master (English) words, we often fail to distinguish between verbal symbols and the reality for which they stand. Once acquired, words have the power to mediate what we think,

say, and do. Through language (English), we have the power to recreate events experienced, but also to talk of things we know only indirectly through symbols (Brown, 2001).

Communicative competence has been widely recognized as an important and inevitable goal. Therefore, we only can suggest that there are a number of good reasons to include culture, communication and intercultural communication in business-oriented studies (especially in insurance industry). Another major task in the teaching of culture is to become aware that the target culture may have a system of values that differs from our own. Therefore it is inevitable to understand other culture's system of values and respect it.

As it is clearly obvious, communication has been carried out through language (native or acquired one). To follow the goal, the following factors should be taken in consideration:

- languages cannot be translated word-for-word – this is good to be aware of not only when learning a foreign language (English) but also when communicating in one's native language
- the tone of a speaker's voice carries meaning – a competent manager or businessman is able to read a lot from the tone the message has been delivered and adjust his/her own forms of formulation
- each language (culture) includes gestures and body movements which convey messages – most frequently the culture representatives are not really aware of a number of body language demonstrations, as people tend to express them more or less automatically and intuitively
- all cultures have taboo topics – this area is extremely sensitive, and thus it is very important to have relevant information on what could cause unexpected shocks in business negotiations or even in small talk activities
- in personal relationships, the terms for addressing people vary considerably among culture (languages) – forms of greetings vary a lot – including hand-shakes, hugs, bow, kissing, etc. (Dunnett, et al. 2001)

The relationship between language and culture expresses the necessity to teach both in an integrated way. The language needs to be taught as an object of study, but also used as a medium for teaching and learning about people (potential business partners) and culture

(environment for one's business activities-to-be) associated with it. If these aims fail to be achieved, the concept to apprehend the cultural "otherness" fails, too. It may result in becoming a "fluent fool" (Bennett, 1997).

A fluent fool is someone who speaks a foreign language (it means he/she is able to communicate in it quite well) and can hold conversation with native speakers without major problems. At the same time he/she is, and may be an expert in his/her branch but does not understand the social and philosophical content of that language. And that is exactly the point where the culture becomes significant.

Eventually, fluent fools may develop negative opinions of the native speakers whose language they understand but whose basic beliefs and values continue to elude them. To avoid becoming a fluent fool, we should tend to understand more completely the cultural dimensions of particular languages (Bennett, *ibid.*).

Every language has its special expressions, idioms, common phrases and sayings which have their roots in the culture of the country. The way people understand us and react to what we say depends on their culture. So if we do not care about the country's culture because we think it is not important at all, if we are unaware of the usage of words (how and why in this but not in that situation), it is more than obvious that we are predicted to say something irrelevant and make a fool of ourselves without even noticing. We believe we impress the people around with our fluent speaking, but we only make ourselves ridiculous.

## **Nonverbal Communication**

Body language is frequently responsible for the first impression – and there is never a second chance to make a first impression! Body language is to large extent culture-bound – a number of signs have different meanings in various cultures.

As it has already been mentioned, nonverbal communication (body language) is another important component of soft skills that would lead to professionalism in business negotiations. It affects reactions and flow of conversation and people get annoyed if there is not enough awareness of its nuances. As the Austrian-born British philosopher Ludwig Wittgenstein (1889 – 1951) declared: *"The human body is the best picture of the human soul."*

Generally, we should be very careful with decoding nonverbal signs – in most cases they only provide cues and not fixed messages.

Nonverbal barriers to intercultural communication can frequently pose greater problems than language barriers. Many nonverbal cues carry different meanings across cultures – in some of them their meanings may be strong, while in others they may mean very little or indeed nothing at all (Bláhová, 2018).

There are some other forms of non-verbal communication denoting certain messages, too. Nonverbal behaviours are used to regulate human interaction, and in order to really understand, we should be able to “hear” the silent message and read the invisible word. That is the reason why it plays a crucial role for achieving positive results in business negotiations and in all business activities including insurance business (Guy, et al. 1995).

There are also paralinguistic features of speech that should be considered as crucial, too. Volume, tone, intonation and pitch of the voice greatly affect oral communication, thus adding a new message to the whole utterance.

### **Ethics in Business – Soft Skill of Great Importance**

Considering ethics in business has acquired its firm position in spite of the fact that there are trends to underestimate or totally neglect its importance. Even though concepts of ethical behaviour vary from country to country (from culture to culture) and it is, not at all, easy to settle a certain universal ethical code or behaviour patterns, it is inevitable to consider this aspect in business-oriented study areas.

Throughout history there have been ethical lapses in business and some businesses (insurance companies) that have been shining examples of integrity. In recent years we can witness an increasing focus on business ethics. However, it might be a bit alarming how business schools tend to put ethics almost into a ghetto (Plender, 2006). As he continues in commenting – the way they handle ethics in (some) business schools is to make sure that if people are, for example, doing a course on marketing, ethics are part of that. Plender also confirms that there should be a need to bring ethics into business reality rather than treat it as some kind of special subject of its own.

Some Business Academies require their students to sign an “*oath of honour*” promising ethical behaviour in the future. It may follow the Hippocratic oath (from medicine), and in principle it can be considered potentially useful in business. But, of course, it very much depends on what the real intention is on the part of the company or the university or

the business school – whether the students in a business school are rewarded for complying with the oath or whether people forget about it after they have gone through this ritual at the beginning (Vallance, 1995).

And, here again, culture competence should not be neglected at all, as concepts of ethical behaviour differ from country to country, from culture to culture. Offering or accepting a gift to (or from) a business partner has been interpreted in very different ways and there are problems with definition – when a gift becomes a bribe – all across the world. There is no *good* or *bad* answer, and there is no absolute answer either. It depends partly on the culture and the morality of the country (culture) concerned. We all have to decide what is ethical about gift giving in the circumstances at the time, and in the particular place, and reach our judgement.

It is also extremely hard to define whether there are certain ethical principles that are universal to all cultures. The similar answer as once used above, could be *yes – but*. Things like human rights, justice, personal freedom and some other factors of that kind are universally applicable. Every situation, activity, event can be unique – from the point of view of place, time, circumstance, participants – therefore it might be a problem to apply the definition at the time in different circumstances and in different cultures (Keysar, 2012).

## **Conclusion**

All areas of business studies involving international trade, insurance industry, management, marketing, etc. focus on acquiring hard skills that are tangible or technical skills that are easily demonstrated by future candidates' qualifications and specific professional experiences.

Soft skills are sometimes referred to as transferable (professional) skills – they are less specialized, less rooted in specific vocations and they refer to more intangible and non-technical abilities of university graduates – business professionals-to-be in various fields of business activities. There is a number of important soft skills that should be involved in business-oriented university syllabi.

Soft skills relate to one's attitudes and intuitions. As soft skills are less referable to people's qualifications and more personality-driven, it is important to consider what the soft skills are and how potential candidates might show evidence of them in their future professional environments. This is particularly true of the recruitment process for

graduate programmes, where transferable skills and potential often take precedence over professional experience. Being able to demonstrate one's soft skills equates to demonstrating great potential to succeed and progress in the career of their choice.

We focused on some of important soft skills, namely, communication, language for specific purposes training (especially English), intercultural communication (closely connected with language study), nonverbal communication and business ethics. Other examples of important soft skills are, e.g. teamwork or problem solving (these have not been given detailed clarification).

We consider important to focus on the inevitability of involving these skills as integral part of study branches for future business-oriented study graduates.

At the same time we would like to stress that in the globalized business world it is hardly possible to survive without having good (or excellent) communication and intercultural competences. Being bilingual or multilingual underlines the high professional level of business people who want to be successful in the ever increasing competitive business (insurance) market world-wide.

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**MODELLING  
DOMAIN AREA  
FOR ADAPTIVE IT  
MASTER  
PROGRAM**

## I. Introduction

Improvement of quality of IT education demands very rapid changes in education programs in response to drastic changes in information technologies, their tools and instruments, in landscape of IT market, in areas of application of IT products, and consequently, in employers' needs. Any changes in education program should also follow the requirements of national and international education standards and legislation. Education standards describe comparatively constant competencies and program results (learning outcomes) required from graduates, while real tools and instruments of achievement of these competencies change in response to the changes of the environment.

For example, learning outcomes that require "to analyze", "to design", "to organize", "to implement" and so on, imply utilization of certain information technologies, software, methodologies etc. Even if learning outcomes do not change, the technologies applied to achieve the outcome are subject of continuous change. This postulates changes to the content of university disciplines, their list, especially in variable part of academic program.

In addition, the necessity to use adaptive education program at master level is conditioned by differences in characteristics of students as many of them have experience of practical work and possess certain set of additional competencies, in most cases, applied ones. The issue of offering adaptive programs becomes even more urgent as new forms of education appear, usage of information technologies and technologies

of e-learning widens, and necessity to build individual trajectories of learning for master students strengthens.

## II. Analysis of research and publications

Numerous domestic and foreign researchers study the issue of adapting education program. In particular, V. Morozov [1], V. Snytiuk [2] and others authors analyzed requirements to academic programs that reflect necessity of development of professional competencies. P. Brusilovsky [3], A. Kardan [4], F. Modrietscher [5], O. Ilarionov [6] focused their studies on adaptation of educational environment. The issues of competence-based curricula are subjects of study of both international organizations and scientists. International professional associations focus on reflection of advancements in information technologies and associated changes in labor market in curricula of education programs in computer and IT areas.

Still, the question of development of a model for the process of adaptation of domain of an education program as well as design of a specialized software based on such a model is open. The model and software should ensure for fast, effective, and efficient way to change education program in response to changes in needs of major stakeholders. Effectiveness and efficiency means that designers of education program spend little time on formalization of necessary changes; new educational program satisfies the requirements of all normative requirements; there are instruments for visualization of information for all stakeholders – university's staff and managers, students and their parents, as well as employers and partners.

## III. Elaboration of the model

We used master program in Data Science as an example for elaboration of the model for domain area. Data Science represents group of processes of development of new knowledge based on qualitative and content processing of documental information. The main tasks are: qualitative transformation of information (information folding – bibliography, annotation, abstracting, consolidation of big arrays of information in a form of databases and databanks); structural sequencing of information (systematization, subject cataloguing); and qualitative and content transformation of information (creation of new knowledge based on analysis and interpretation of existing theories,

description of facts by means of information modelling of reality instead of based on experimental approach).

Let us examine the elements of the model in more details on the example of education-scientific program Data Science (EPDS) that is under implementation in Taras Shevchenko National University of Kyiv at Faculty of information technologies (FIT). EPDS belongs to subject area 122 Computer science, qualification Master of Computer science. It consists of 120 ECTS credits; duration of study is 1.9 years.

The goal of EPDS is the result of consultation with the leading companies of IT market – EPAM, Global Logic, and IT association of Ukraine. It is defined as “training of data analysts, that are capable to conduct analytical research, design and develop algorithms, elaborate mathematical models, design and develop computer information technologies for data processing and research, receive prognosis estimates of development of economic, political, social, and information areas of society development, and adapt easily to requirements of new professions, types and forms of employment in different fields of economy”.

Hence, the employers define their needs in specific learning outcomes accomplished on higher levels of educational objectives. Active dialogue with employers accompanied with applied orientation of EPDS allow implementing necessary changes to the content of disciplines in time range of 2-3 months (Figure 7.1). At the same time, standards also include the needs of the labor market, but with the time lag of at least 1-2 years. The model of education program, its structure, major participants and areas of their direct impact are shown on Figure 7.1.

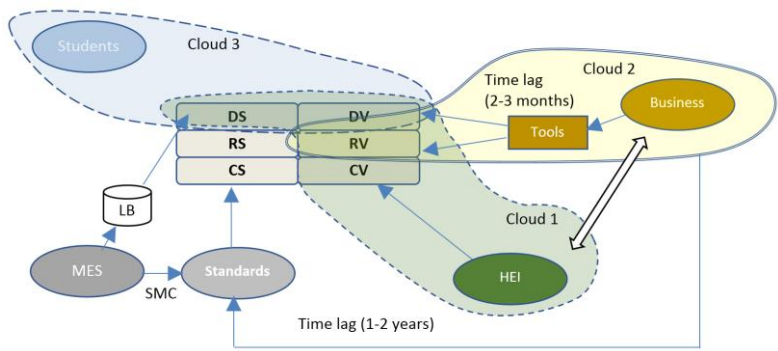


Figure 7.1 Design of education program for Data Science Master Degree

DS – disciplines that cover  
requirement of the standard  
(standard disciplines),

RS – program results of the  
standard,

CS – competencies of the  
standard,

LB – legal base,

MES – Ministry of education and  
science,

DV – elective disciplines,

RV – elective program results,

CV – elective competencies,

Clouds – areas of direct  
impact,

SMC – scientific-  
methodological  
commission,

HEI – higher educational  
institution.

#### IV. Modelling process

There is a need for exclusion of old disciplines to introduce new ones. It should be done almost annually at master programs, as such programs usually have very narrow domain area (highly specialized) or cover adjacent (or even opposite) areas, where technological and social changes occur very fast. Replacement of old disciplines with the new ones requires clear understanding of connection between disciplines and certain competencies and program results. The relationship between elements of education program (disciplines, program results (learning outcomes), and competencies) can be presented by means of graph  $G(X,R)$ , where vertices are disciplines, program results, and competencies, and edges represent their relationships (Figure 7.2). Vertex set includes nonintersecting subsets (equation (1)):

$$\begin{aligned}
 &DS \cup DV \cup RS \cup RV \cup CS \cup CV; \\
 &DS \cap DV = \emptyset; DS \cap RS = \emptyset; DS \cap RV = \emptyset; \\
 &DS \cap CS = \emptyset; DS \cap CV = \emptyset; DV \cap RS = \emptyset; \\
 &DV \cap RV = \emptyset; DV \cap CS = \emptyset; DV \cap CV = \emptyset; \\
 &RS \cap RV = \emptyset; RS \cap CS = \emptyset; RS \cap CV = \emptyset; \\
 &RV \cap CS = \emptyset; RV \cap CV = \emptyset; CS \cap CV = \emptyset.
 \end{aligned} \tag{1}$$

where

$$\begin{aligned}
 &DS = \{ds_i\}, i = \overline{1, n_1}; \quad DV = \{dv_i\}, i = \overline{1, n_2}; \\
 &RS = \{rs_i\}, i = \overline{1, m_1}; \quad RV = \{rv_i\}, i = \overline{1, m_2}; \\
 &CS = \{cs_i\}, i = \overline{1, k_1}; \quad CV = \{cv_i\}, i = \overline{1, k_2};
 \end{aligned}$$

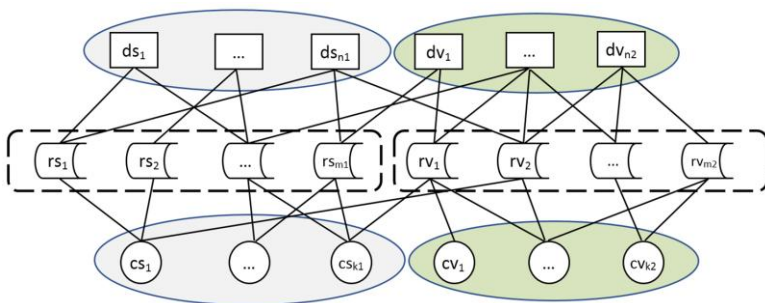


Figure 7.2 Coverage and interrelation graph for the elements of educational program

Usually, a correspondence (or coverage) matrix describes these relationships (Table 7.1). Presentation of the matrix in the form of a graph allows visualizing the relationships and avoiding inconsistencies between matrices. Here we have a bipartite graph from Table 7.1, where edges have weights and define importance of a certain discipline for a certain program result. At this stage the problem of curriculum development represents assignment problem in bipartite graph that requires finding a solution of optimum coverage of the given program results.

Table 7.1

**An example of a set of disciplines in curriculum of education program (fragment)**

		Compulsory academic disciplines														Discipline of the choice of university			
		OK 1.1	OK 1.2	OK 1.3	OK 1.4	OK 1.5	OK 1.6	OK 1.7	OK 1.8	OK 1.9	OK 1.10	OK 1.11	OK 1.12	OK 1.13	OK 1.14	OK 2.1	OK 2.2	OK 2.3	OK 2.4
		PR 1	PR 2	PR 3	PR 4	PR 5	PR 6	PR 7	PR 8	PR 9	PR 10	PR 11	PR 12	PR 13	PR 14	PR 15	PR 16	PR 17	PR 18
Program results	PR 1	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	PR 2		+	+			+		+		+	+	+	+	+	+	+	+	+
	PR 3				+		+								+				
	PR 4	+		+		+	+	+	+		+	+		+	+				
	PR 5		+		+									+	+				+
	PR 6																+		
	PR 7			+				+			+				+		+	+	+
	PR 8				+		+						+		+		+	+	
	PR 9		+	+		+	+	+					+		+			+	+
	PR 10				+														
	PR 11												+	+					

The model should also take into consideration the following requirements:

- characteristics of certain disciplines (content, ECTS credits, extent of coverage of competencies and program results),
- student characteristics (personal, professional, preferences in achievement of certain program results),
- relationships between disciplines.

An example of  $D=DS \cup DV$  set is shown in Table 7.2.

Table 7.2

**An example of a set of disciplines in curriculum of education program (fragment)**

	Components of the educational program
Code	<i>Required components of OP</i>
OK 1.1.	Introduction to specialty
OK 1.2.	Technology of statistical analysis
OK 1.4.	Intellectual data analysis
.....	.....
OK 1.11.	Methods of searching and processing information
	<i>Discipline of University choice</i>
OK 2.1.	Data Science Methodology
OK 2.2.	Programming languages R and Python
OK 2.3.	Machine learning
OK 2.4.	Organization of databases and knowledge
OK 2.5.	Cloudy technology
OK 2.6.	Visualization of data
OK 2.7.	Basics of Big Data
OK 2.8.	Neural networks and in-depth training
.....	.....
	<i>Selective components</i>
	<i>Specialization: analytical work management</i>
BB 1.1.	Information management
BB 1.2.	Organization of analytical work
BB 1.3.	Development of data products
BB 1.4.	Decision making technologies

More formalized relationship between disciplines is defined based on coverage coefficients (an example is shown in Table 7.3). The matrix indicates the measure of influence of one discipline on another one, with 3 – terminal, very important impact, 2 – ordinal, important impact, and 1 – mediated, weak impact.

The same table, but presented as a directed graph (Figure 7.3), allows for more efficient analysis and visualization. Analysis of the degree of the directed graph vertices helps to determine the sequence of disciplines in curriculum. Figure 7.3 depicts just a fragment, as full model is too big.

Table 7.3

**Matrix of interrelationship and impact of disciplines**

	Disciplines													
	ds1	ds2	ds3	ds4	ds5	...	ds <sub>n1</sub>	dv1	dv2	dv3	dv4	dv5	...	dv <sub>n2</sub>
ds1		1		1	2					1				
ds2								2		2		1		
ds3	1			1					1		1			
ds4		2			1					1				
ds5	3		1								1	2		
...														
ds <sub>n1</sub>														
dv1		1		2					1					
dv2	1		1		2					3	1			
dv3		1		2				1				1		
dv4	2		1						1					
dv5		1			1			3			2			
...														
dv <sub>n2</sub>														

The above-mentioned matrices serve as a basis for creation of curricula and modelling educational tracks for students, based on preliminary assessment of their initial level of competencies. The algorithm is based on determination of changes that arise in external environment (market and employers) and require changes in the list of competencies that program graduates should possess, in learning outcomes and, as the consequence, require reformation of curricula disciplines.

Coverage matrices for competencies and program results, as well as their reflection in disciplines of the curriculum are analyzed in the process of execution of the algorithm. First, mandatory disciplines that cover requirements of the standards and normative acts of the Ministry of Education and Science (Figure 7.1) are included in the curriculum. Then the algorithm moves to creation of a list of variable part of curriculum, electives and so on.

Structural-logical scheme of curriculum is received in the result such a development. It can be presented as a graph, where vertices are disciplines of a D set and edges indicate the sequence of disciplines in time. A fragment of such a scheme is shown on Figure 7.4. It depicts only major (basic) relationships between disciplines D, and their sequence creates reflection of D in time that has four-semester division.

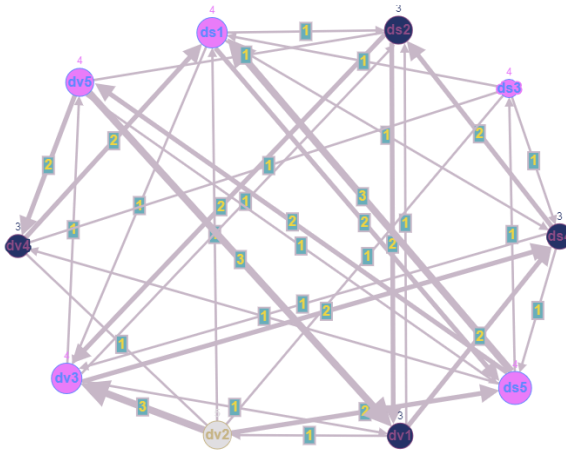


Figure 7.3 Orgraph of interrelationship and impact of disciplines

The developed model, process of modelling and algorithm of changing the elements of education programs together with preliminary assessment of existing competencies of master program applicants, create individual trajectories of studying disciplines, with focus on learning through practice [2]. The extended experience of teaching students on master programs shows that there are still problems with development of applied skills so much demanded by labor market today. Besides, there is a lack of instruments of creativity development and assistance in realization of IT projects.

The Faculty of Information Technologies of Taras Shevchenko National University of Kyiv has developed and deployed a system of e-learning that reflects this model and methods of adaptation to changes in educational components of curriculum and is aimed on solution of the above-mentioned problems. This system is designed as a system and professional amendment to the existing education, not as its substitute. Every module of the system uses modern IT for definition of results, modelling and interactive study of the models.

## V. Conclusion

The offered model and algorithm of design of domain area and formation of curriculum for the education program allows for the fast reaction to the changes in conditions and requirements of employers

conditioned by rapid changes in information technologies, take into consideration internal and external restrictions, as well as preferences and characteristics of the students wherein completeness of coverage of competencies and program results is provided.

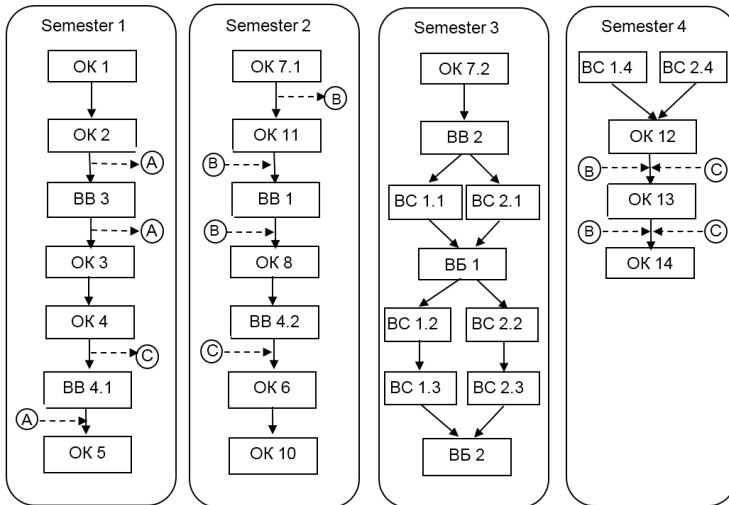


Figure 7.4 An example of structural-logical scheme of curriculum

Further research should focus on development of specialized software based on the offered model and algorithm that will provide the possibility of fast formalization of necessary changes together with compliance with requirements of external and internal stakeholders, data visualization, and increased effectiveness of educational and decision-making process.

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### **INNOVATIVE CHANGES IN THE EDUCATIONAL PROCESS**

With weakening of traditional ties and structures, individualization and with increasing plurality and heterogeneity up to atomization of society, demands and burdens on each person in society are increasing. Changes in economic and political life and cancelling feudal restrictions changed placement of society and also character of settlement. Formation of new industrial centres strengthened difference of each region. In demographic development there are changes in age composition of population thanks to extension of life expectancy and to

reduced birth rates. Countries of Western Europe are facing effects of increased immigration which according to Blížkovský a kol. (2000) brought ethnic cultural and social issues many European countries for example burden on educational system of special groups has increased. Fast growth of the amount of new technologies, sub-sectors and key areas is still increasing and developing in line with innovative changes in quantum, atomic and molecular physics, biochemistry, social psychology and in propositional logic.

The change which shifts character of labour, demands on manpower and education is knowledge which is the key source of economy of society and whose transformation leads to democratization of education. The key roles have systems of primary and secondary education whose essential roles are to mediate wide range of knowledge to students and to acquire skills which are necessary for adaptation when working with modern and newly developed 21 century technologies. Important role of primary and secondary educational systems is motivating students for thinking, creativity and commitment, speaking of talented students for development of their scientific careers in natural sciences, technical fields, social and human sciences. Development of leisure time activities, stimulation of children to be interested in science and technologies with help of traditional Olympiads, studying voluntary subjects, visitation of hobby groups, secondary vocational activities or another team out of school activities for elementary school, high school and university students could support already existing projects of universities, for example of Czech Academy of Science and other partner subjects which are Otevřená věda, Kids and Science, Nebojte se vědy, Festival Vědy – Česká hlava which make the effort to increase prestige of domestic technical and science workers who operate in educational institutions and at concept Science Café which documents cycle of discussion sessions of scientists and other people interested in science and research from general public, for example Noc Vědců, Veletrh Vědy, MayDay, Career Day. The new opportunity to increase attractiveness of science and technologies for children and young people is offered by science-learning centres within educational programmes but also by youth centres, clubs and other centres.

The first phase of change is to widen the access to education, to increase high school and university education and to prolong its duration. The increase needs changes in structure of educational system, degree of interconnection of general and vocational education influenced by diversification of educational efforts, diversity of

aspiration, traditional possibilities to use potential of the whole population across all educational levels. Fastening of technological changes has serious impact on vocation of schools which have to cope with obtaining more knowledge and with qualification, they have to lead students to understand these changes, to examine critically its consequences and to question thing they are sure about (Goleman, 1997). Schools get under serious pressure to increase their effectivity and to diminish social inequalities at the same time because the rage of changes in economic and social environment does not enable them to extend current status. They have to adapt, but also to lay bases for future, and to create critical and active citizens.

With the increase of economy labour world is changing which has a huge impact on society; it leads to polarization of situation and growth of inequalities. Due to demographic development, decreasing amount of children and increasing immigration, consequences of total economic and social changes with accent to equity and lifelong education strengthen. Proposals of precaution realized within educational policy cannot remove reasons of inequalities however they can ease their results to the point. Equity, quality and efficiency of educational systems are necessary for development of educational system and educational policy with regard to requirements of equal approach, creation of opportunities in educational sector and regardless of social origin and inclusion for example in form of decrease or elimination economic obstacles by extending free of charge possibility of education for individually disadvantaged social and ethnic groups (Pasternáková, 2015).

Changes in organization and character of labour brought alternation of demand on manpower, level of education and preparation for education. In turbulent environment of global changes is necessary a high level of adaptability, creativity, individual initiative and mutual cooperation between all participants. Demands on efficiency, work motivation, managing critic situations and ways of solving partial tasks of main and supportive activities are increasing. Students learn to examine reality from different angles of understanding, acceptance of alternatives and imaginary possibilities. Education is focused on judgements and interpretation of obtained results, not on information transfer. We have to perceive the whole as process consisting of partial sub-processes, which are influences by mutual relationships and links in wider context, to be able to explore new possibilities.

According to Blaško (2013), length of education belongs to critical

factors which influence reached level of education and experience. Except effects, which education has for society as a whole, position of each person on labour market is getting better. Achieved level of education influences wages and level of employment, but also to level of solidarity, decrease of criminality better health condition and awareness. People who have higher education have better position on labour market; have wider potential for choosing the right job. They are more flexible and they retrain better and easily.

Exploration of existing trends according to Kruger, Helspera (1995) will not expose the most important changes of technologies and economy which come suddenly. It is tried to predict future development and find rational solution with accent of immediate demand of labour market. It is possible to use indirect directives in conditions of economy market and of free choice of educational course. Solution is a continuous implementation of new and innovative precautions at different levels, for example monitoring and forecasting development of market at national and regional level, close co-operation and integration of advisory systems at school and at the labour office, systematic access to information, expansion of curriculum for elementary and secondary education which contains elements facilitating career choice, for example studying material about labour world, supporting development of manual skills and more. Stimulating for further deepening of education at all levels is assumption for prerequisite of acquiring highly qualified human resources which are able to effectively fulfil the socioeconomic role in line with the demand.

The important instrument of transformation of educational system is innovative financing in the form of voluntary participation on renown program, usually by introducing own project conception, based on friendly financing principle when certain part of implementation costs is financed by educational institution from its own funds. Innovative financing through program called Socrates and Leonardo da Vinci is the element of European programs functioning. Wider applying of innovative financing has significant consequences on managing schools and fulfilling autonomy and also on the whole development of education system, from a long-term point of view related to vision and mission of educational institution and also to school development plan. According to Eger (2002), school development plan is a logic process which is based on analysis of previous condition. Strategic planning processes are very challenging, for fulfilling realization of each activity is necessary an open communication from school management, co-operation of

managing authorities, advisory body and other partner subjects, primarily the ones existing in school environment. Awareness of situation, that educational costs cannot be concern of only one department, as stated by Zemanová (2012), but it has to be shared in common in the sense of willingness to finance development and science from public budget, is increasing due to interconnection of education and employment, social policy, criminality prevention, industrial and regional development.

School autonomy range is different in each European country in area of financial, pedagogical and also in personal activity. These differences consist in partial regulations and directives on the use of assigned funds by each category of costs – private, operating and capital, but also in rate of private sources utilization, for example property income, economic activity and donations (Hanuliaková, 2010).

Realization of innovation inside institution, building effective teams, developing appropriate mechanisms for monitoring and success rating, inclusion of all teachers into problem solving, application of basic methods and principles of quality scoring, providing education to teachers and team building tutors, directing changes and communication are necessary steps to realize and fulfil expected changes (Hewitt-Taylor, 2012). Practical lessons outside of school are limited, mainly within ongoing practice in chosen business organization. Dual model of education, mainly the vocational one, responding to needs of labour market acquires itself well.

Flexible learning is relatively new educational alternative, which includes concepts as distance education, open learning, blended learning and other less used educational forms, which are primarily oriented towards student and his needs or limitations, prevent classical education, but also enable him to look into study materials through e-courses (Petlák, Fenyvesiová, 2009). Flexible learning assumes student to be more responsible because of self-education and teacher to communicate better if necessary (Juszczuk, 2003). It is inevitable for student to be equipped by technical instruments, for example by computer with access to the Internet or by software programs (Barešová, 2011). Flexible learning enables flexible access to available source information and its use, eliminates limitation associated with time and place for education (Freitas, Paredes, 2018).

Student within continuous education is not a passive member of educational process as opposed to traditional education. In most cases his study materials are available or created by teacher himself, but his

responsibility is to search other more information to clarify and deepen curriculum by him. He has to cope with curriculum on his own, because it is not presented by teacher, so active approach to education is needed.

Blended learning might be effective within education at university (McDonald, Boulton, Davis, 20018). Blended learning enables combination of education from professional books, study books, internal and external sources and documents which are free available. Teacher is at the same time able to create study materials which are created especially for needs of certain group of students (Zounek, Sudický, 2012). Teaching might take place so that in the first phase student learns alone, tries to acquire certain theoretical knowledge with help of e-learning and after to get ready for lessons with teacher (Trujillo Maza, Gómez Lozano, Cordozo Alarcón et al., 2016). In the second phase there took place educating itself during which tutor took a position thanks to the fact that student has already acquired certain knowledge to given topic and because of it he might pay more attention to given issues or to practical obtaining of knowledge. When the course is done, student might strengthen and train achieved knowledge via electronic education which influences better preparedness for exam in a form of exercises, e-learning tests without participation of teacher or of direct oral exam (Bednaříková, 2013).

At universities is used a form of distance education which means education at the distance without face to face contact of teacher and students (Juszczuk, 2003). This kind of education is defined as multimedia form of controlled independent study (Černák, Mareš, 2007) which should be differed from correspondent course. Within distance education the main role has tutor who mediates help, motivation and support of students. Tutor does not teach or lecture but he directs educational process of learning, communicates with students, provides feedback and connects each person with group of others all at the distance (Harvey, Walkerden, Semple et al., 2016). Explosion of information requires students to adapt flexibly new social conditions. It is necessary for students to concentrate on development of competences which are needed for job performance with respect to creativity and ways of critical thinking, for strategic planning and deciding, communicativeness, mutual cooperation, sharing of moral and social values and for presentation of results in the sense of self-realization of their own personality development.

Digital technologies enable students maximal workload within education through communicated and shared information, acquired data

and other supporting, didactic and innovative aids. Informational and communication technologies have significant role during transfer, changing, innovating and keeping top level of education (Gregori, Zhang, Galván-Fernandéz, Fernández-Navarro, 2018). Innovative methods which belong to modern didactic method, take a significant position between other teaching methods because they ensure attendance of student in education, incite independence of student, develop co-operation but also competition, support creating new relationships in class group. Critical situations and problematic examples, didactic games and collective competitions, inscenation but also managing conflict situations stimulate environment of school to authenticity of common, real life of individual in society in which the pedagogical goal is to develop complex thinking of students. Innovative and activating methods are approaches, which support initiative and activity of students, put the emphasis on creation of concept thinking and solving problematic situations, contribute to effective education and fulfilling key competences. Innovative methods ameliorate level of up-to-date education which is enriched with innovative features, approaches and processes but they cannot be used unilaterally, separately or self-purpose (Tang Chaw, 2016). Personality of teacher is more demanded to do preparation and own realization of lessons according to time and content intensity which significantly affect development of personality of student. Roles of teacher and student change in contrast with traditional methods because work order in innovative education is created by student who solves problems, applies obtained knowledge to practice, thinks independently and creatively, is creative, expresses his own opinions and attitudes. Teacher is student's partner within interaction teacher-student. Educating in active way is motivating, entertaining; students themselves participate to pedagogical educational process. They rehearse different roles, explain, argue, discuss, clarify and presume certain standard situations of common life. Innovative methods use inner motivation which is individual inducement to educate resulting from own interest in certain curriculum (Maslin-Ostrowski, Drago-Severson, Furguson, Marsick, Hallet, 2018). According to Maňák (2003) five basic kinds of innovative methods are distinguished – discussion methods, inscenation methods, didactic games, situation methods and heuristic methods.

Discussion method follows up method of conversation which is communication of teacher and students, during which both partner sides exchange their opinions on predefined topics, argue and find conclusion

within solving of created issue. With higher amount of members in group controlled discussion and processing of partial opinions are more demanding, for example through panel discussion which is used during symposiums and science conferences. Process of discussion has formal order and predefined phases (Määttä, Uusiautti, 2017). The first phase is defining topic of discussion, after comes its presentation and exchange of opinions among all participants of discussion. In the final part of discussion process of argumentation, reasoning of hypothesis and claims including final summary of results are activated. From a discussion point of view preparation is necessary for students which mean active inclusion of eye contact, listening to classmates, and transfer of thoughts all in nice environment where opinions and positions among participants are tolerated. Suitably controlled discussion leads to outline goal accepting elements of dialogue and conversation, not monologue or series of questions which influence changes of attitude and behaviour. Benefit of discussion is opportunity to enforce thoughts, own opinions and judgements which might be applied in praxis with accent of positive social positions in group. Students are motivated to train, repeat and strengthen their knowledge in small groups, teacher, within interpretation of new curriculum, prove knowledge of stated topic. If attention of students declines it is possible to add discussion in teaching to increase attention and through which teacher proves their understanding of curriculum (Tejedor, Segalàs, Rosas-Casals, 2018). Within searching new solutions is attested so call stock exchange of ideas or brainstorming. Ideas are written on class board to provoke creation of deliberations and thoughts but also of incorrect solutions which can lead to rational opinions. After this each idea is summarized, selected and evaluated in favour of choosing suitable variants.

Inscenation games are related to didactic games with respect to playing chosen or assigned roles (Bočková, Slavíková, Porubčanová, 2016). They are often marked as situational methods, dramatic education and interaction methods. Inscenation represents real situation in which students play certain roles which they represent. They find contradictions and suitable solutions of identified problems, through negotiation they perceive feelings and motives of another student, and they adopt adequate ways of behaviour and manners. Within insenation different human types and positions are interpreted. Teacher familiarizes students with ins enations, chooses 2-4 participants, mainly volunteers and he continuously changes roles of students which are structured which means that scenario is prepared to each role, or unstructured

which means that scenario is easy without schedule of each role. The insensation demands coherent methodical and organizational preparation and specific skills of teacher. The inscenation methods enable students to experience feelings and relationships which are from intensity point of view crucial for students to create friendly environment in class in which is free space to express own feeling or opinion. Teacher has to get attention of students for incenation because playing of roles would not be effective if it was only for fun.

Didactic game is included to group of innovative methods because it enables students their own realization. From didactic games are distinguished competitions whose goal is to set order of participants according to obtained results to achieve good position (Shaw, 2009). For game is typical activity and for competition is typical organization of activities. Each activity can be understood as game and at the same time it is possible to organize it as competition for benefit of competition games. While using didactic games teacher has to make sure that education does not loose pedagogical and educational goal and character which means that student still takes it as a game. Game used during education stimulates social impulses and emotional links of students which are activated during educational process, increase interest in education, achieved abilities, experience and knowledge are more sustainable. Games support creative activity, develop thinking because they are often based on managing of problematic situation. The most appropriate models are competitive games because they support flow of activities and division of labour of interested groups in sense of gaining given result with achievement of extraordinary performance. The base of the game is an idea which creates basis for formulation of easy and comprehensible rules for participants of the game. At the ends of each game there are proclaimed results, games are evaluated and discussion is open.

Situation methods are based on specific situation which has to be managed because no appropriate information for certain solutions is available or partial information is added continuously. Between situation methods belong case methods, methods of solving problematic cases and examples, solving of model problematic and conflict situation, method of project and more. These methods are appropriate for students from real life point of view because they familiarize with problematic circumstances through which they can go in common life. Students learn how to look at situations from many points of view when results of solutions and often ambiguous for example the result of case is numeric

data of variant solution of qualitative character. Situation methods can be applied within education in the beginning of interpretation of new curriculum with accent of motivating moment, during interpretation of curriculum or even during repeating and training of curriculum. With using of situation methods activity of students increases, creative thinking, discussion, argumentation and defence of own opinions develop for example during solving conflict situation which is part of field of social communication or of training of directing strategies. Appropriate use of situation methods helps with solving inappropriate behaviour of student, managing interpersonal relationships between classmates or managing problems in class. Use of project method enables transformation of real facts of certain problematics with defined goal which is planned by students with teachers' help and activity coordination to gain knowledge and skills which are necessary while solving problems of common praxis and while supporting personality of student.

Heuristics is a science which examines creative thinking; heuristic activity is a way of solving problems (Maňák, 2003). Heuristics points out state of cognition, revealing and exploring facts and phenomena important for human life. Teacher do not tell students his knowledge directly but he prompts them to be independent, streamlines their exploring, appeals to creativity, creates hypothesis, for example gives and contradicts problematic question, acquaints students with interesting situations. The most used heuristic method in education is method of solving problems. It means problematic education which is typical of kind of learning called trial and error (individual learns from his own faults/successes and failures are setbacks). This method is mostly used in younger school age while solving problems caused by unknown phenomenon's new explorations and comprehension of essences of human being (Dyment, Downing, Hill, Smith, 2018). Students learn to distinguish real problems from unreal, they often ask themselves question, why" and search answers to solve certain problem. In environment of Czech school method of solving problems is, used occasionally because of missing long term conception of focusing education on way of work and also because of insufficient readiness of students for independent, creative activities. Emphasis is, more often put on observing, development of fantasy, creativity and imagination, ability to search, classify, select and evaluate important data and information from unimportant ones due to parameter of quality and all relationships. For fulfilment of pedagogical and educational processes is not sufficient

to creative and analytic thinking but to creativity of new values is needed. Creative teacher is prerequisite for development of creativity of students which is shown by curiosity, asking questions and range of partial ideas. Basic signs of creative thinking have many ways, for example finding something new, distinguishing important and unimportant things, analysing and systematizing of issues and phenomenon's, revealing contexts, finding out regularities of similar phenomenon's, creating original hypothesis, applying general theories to solving of specific case, choosing appropriate methods of problem solving, abstraction during creating solvable models which enable to solve unsolvable tasks, formulation of key problems, searching and choosing solution variant and so on.

According to Barajas, and Frossard (2018) is creative thinking very specific in sense of abilities of high motivation, endurance, responsibility for self-education, refusing traditional ways of education and workflow, independency on authorities, sense for originality, exploring new issues, searching for bigger amount of alternative solutions (Topcic, Baum, Kabst, 2016). Creation and development of creative thinking, aptitudes, talents and abilities to sense emotionally, comprehension of interpersonal relationships and developments of personality are ones of the main goals of framework educational programmes.

Gender equity and gender diversity belong to important aspects of development of human resources (Caha, Urban, 2017). Use of potential of human resources is closely connected with a need to remove gender stereotypes in society and with a creation of fair and equivalent conditions for development of professional careers in accordance with so called gender mainstreaming which supports monitoring of private and work lives.

The trend, in developed countries in the context of development of new technologies, is increasing interest in intensification of communicating socioeconomic and social impacts of science, which has potential to form public and political opinion and widens knowledge base for adapting new political decisions through analysis of preconditions and impacts of implementing new technologies. From popularization's point of view it creates space for public discussion of impact of some results of science, research and innovation in functioning society in system of forming values.

Universities in the Czech Republic should still strengthen position of attractive employer, research organizations should offer internationally

comparable and highly competitive conditions for developing professional careers of researchers and pedagogical workers should provide institutional black ground and support of long-term conceptual development supported by cooperation relationships with respect to development of knowledge society and Czech economy.

Knowledge economy, human capital but also relationships and ties of institutional educational system with application, scientific and research sphere which is influenced by changes and innovation are basis of development, stability and long-term sustainability on global and regional competitive market with added value and they are synergistic effect of given investment in field of upbringing and education.

The procedure of gaining “HR Award” means settings of inner rules, processes and mechanisms for research organizations so that environment works in accordance with principles of European Chart for research works and of Code of conduct for accepting of researchers in sense of flexible working conditions and working forms through part-time work, work from home, flexible working hours or system of career growth and development for example by providing career counselling (creation of individual career plans, regular feedback) and other educating in manager, professional and personally developing skills especially soft skills. For now technology assessment is faintly developed in the Czech Republic as evidenced by low interest of society in interpretation of gained results.

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**PEDAGOGICAL  
MANAGEMENTS  
AS A ROAD TO  
SUCCESSFUL  
INTERNATIONAL  
TEACHING AND  
LEARNING****1. Introduction**

Innovation has been an essential tool and method of solving problems, making improvements and leading to further progress during the last 200 years. Especially we have seen many technological innovations and pedagogical innovations as well. Innovation and creativity are the essential trends in the new formations of the professional and pedagogical cultures; it is especially pertinent for the teachers to introduce and include new activities inside and outside their classrooms, develop and implement pedagogical innovations in the practice of training and education and establish a positive, innovative and hands on learning environment for their students. It is vital as teaching and learning styles change from generation to generation and due to academic reforms that occur frequently as well. These lead to a strong motivation for innovation-oriented pedagogical activities of the teacher in the current development of education system and culture; in particular, the recent social and economic changes, the emergence of new educational institutions (including private universities) and international influences from the European and American educational systems not only create competition among the universities but also among the professors as well. We will discuss the competition in

academics in Section 3 (International Pedagogical Competition). In addition, the increasing humanization in higher education, continuous changes in the volume and composition of academic disciplines, entry of new professions and specializations that require necessary restructure of organizational forms, learning technologies, changes in the attitude of teachers towards the development and applications of innovation and creativity in their classrooms.

Creative trends in the development of professional and pedagogical cultures of teachers, including the development and use of pedagogical innovations are the means of reforming the educational systems' policies in the sphere of training highly qualified personnel. The development of pedagogical creativity and innovation is therefore a pertinent tool for providing a positive and successful educational working atmosphere.

In fact, according to the leading educational concept, creativity affects the changes of an intellectual and morally complete person; in particular, allowing this person to understand his or her personality and talents and also apply them to help and benefit other people (especially helping his or her students learn and grasp challenging concepts easier).

First of all, various sciences including philosophy, psychology and pedagogy have been engaged in the study of the essence of creativity and the possibilities for its development and other aspects quite some time ago. The Greek philosopher Plato (who was Socrates' student and Aristotle's teacher) referred to the man-made creations as: "Anything that causes a transition from nothingness into being is creativity". Second of all, in ancient philosophy and pedagogy creativity is interpreted as discovering the new with novelty present in all human creations. "Novelty" in the interpretation by the German philosopher Emanuel Kant as something rare and impressive. "The novelty is a source of and a means for revitalizing attention. All creativity becomes subjective and universally transforms itself into a particular ability of the person."

In this article, we will consider pedagogical innovation as a special form of pedagogical creativity, hands on participation and hands on thinking. Providing students hands on teaching and learning style with practice problems and analyzing real life situations; this is primarily focused towards the organization of innovations in the educational atmosphere. In addition, pedagogical innovations can be comprehended as the process of creation, implementation and dissemination; new ideas to implement in the process of knowledge exchange.

## **2. International Teaching & Learning Innovations and Methodology:**

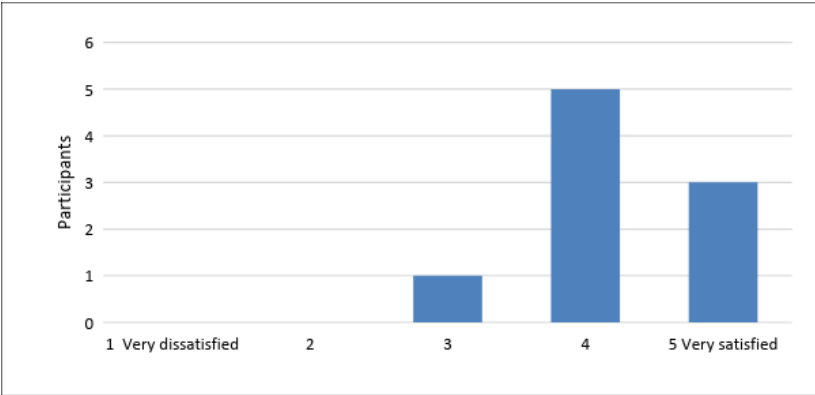
The first vital question to address regarding pedagogical innovations and creativity: How do we measure the success of a new pedagogical idea? In the American educational system, success or failure of a new pedagogical idea or innovation is measured by a series of statistical analyses. Especially, the administration in American universities likes to see the reduction in the D's, W's and F's (these are unsatisfactory grades in the American universities) and likes to see increased student enrollment. For example, Michael Radin introduced the idea of "hands on workshops" in his freshman calculus courses that he regularly teaches at RIT. Shortly after he introduced this idea the percentage D's, W's and F's diminished by 15% and the percent of class absences dropped by 20%. In addition, the class participation with students asking questions and answering questions and office hour's visits significantly increased as well. On the student evaluations, 90% of the students recommend other students to take Michael's courses.

Furthermore, Michael introduced the "hands on workshops" in his SAT (Scholastic Aptitude Test) and GRE (Graduate Record Examination) preparatory courses that he has been teaching at RIT during the last 12 years; these are preparatory courses for the admission exams to the American universities. Five years ago, Michael tried a new pilot idea by digitizing the notes with the guided examples and the worksheets and suggested his students to bring their electronic equipment to class to follow the guided examples and then practice doing real exam questions. This saved students' time from copying the guided examples and copying the problems as well. In addition, this allowed more time to practice more exam problems; Michael timed his students how long they took to solve each problem versus how much should have taken to solve each problem. Students also kept a dialog on whether or not they answered each question correctly, how much time they spent on each problem versus how much time they should have spent on each problem. This particular innovation turned was very successful. First of all, about 85% of the students recommend these courses to other students. Second of all, the student enrollment escalated by 20%, the student participation also increased by 20% and the percentage of students who scored well on these entrance exams increased by 20% too.

The second question of paramount interest to ask relative to

international innovative teaching and learning: How successfully will a new pedagogical idea work in the classrooms of Latvian universities that have been successfully implemented in the classrooms of American universities? To answer such a question we will provide several examples. First we would like to start with Michael's international experience teaching hands on Introduction to Discrete Mathematics at T.S.I. (Transportation and Telecommunications Institute) during the spring 2016 semester during his sabbatical in Riga. This was the first time that Michael taught a semester long course in the Latvian educational system. To design hands on interactive course, Michael assigned weekly homework assignments, asked students questions during class and kept the students engaged, gave students opportunities to solve problems during class, provided weekly office hours, and emphasized the frequent mistakes that students made on the homework assignments. In addition, Michael encouraged students to learn from their mistakes, from his mistakes and from each others' mistakes as well. This style of teaching has been working extremely well in Michael's courses that he has been teaching at RIT. However, as Michael was implementing his American pedagogical ideas while teaching his course at T.S.I., the first reaction for the students: "We barely learned anything yet and we have to work on a problem in class? You are the professor, you should be teaching us and we should not be working on the problem". The second reaction from the students: "I cannot believe we have homework assignments in a university course; this is not high school anymore". Michael did manage to convince his students that unless they work on the homework assignments and try to solve the problems in class they will not effectively learn by watching him solving the problems. In addition, as the course progressed, these cultural barriers swiftly diminished and more and more students started coming to Michael's office hours to ask questions and the class participation significantly increased as well; students felt very comfortable asking questions during office hours and class and even suggested alternate solutions to solve particular problems. Furthermore, students even asked questions on skype and cellular phones outside the class; this has never happened with his American students and this certainly enhanced the communication with his students outside the classroom too. Moreover, Igors Graurs (the former Rektor of T.S.I.) told Michael: "Michael, these are the best and highest student evaluations that I have seen in 10 years". As we can see, Michael's innovative hands on pedagogical ideas were certainly successful.

Not only did Michael have the opportunities to teach semester long courses at T.S.I. and Liepaja University but also to conduct a seminar on “Establishing and Developing International and Interdisciplinary Research Coalitions” for the graduate students in Riga Technical University in June 2017; this was supported by the Riga Technical University Doctorate School. This was a two day hands on seminar that consisted of two parts; the first part dealt with how to start establishing international and interdisciplinary research coalitions by using the available resources; the second part dealt with how to implement ideas. The students gave Michael very positive evaluations. In fact, 83% of the students found the seminar very interesting, engaging and definitely useful as well. In fact, here are some of the graphical representations of the students’ evaluations:

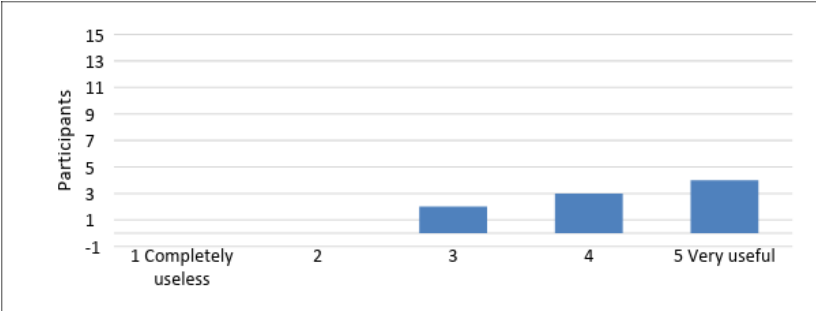


The graph above shows the students’ satisfaction averaging 4.22 out of 5.

This was the first time that Michael conducted such a seminar and this will be the first time that he will implement this idea at RIT during the spring 2018 semester.

Now we will share Viktoriia’s successful innovative teaching experiences. In fact, Viktoriia uses story telling as one of her teaching methods: using real stories of about the lives of organizations to teach students the working rules in the organization. In addition, Viktoriia successfully applied the business game strategy in her classrooms as well. Training objects is based on the real situations and material that model various aspects of the professional activity. This was a vital part of her success as business games are a method of teaching that is very

accurate and precise to the actual professional activity of students. The advantages of business games is that they not only serve as an accurate model of a real organization but simultaneously enable to significantly reduce the operational cycle and hence demonstrate to the participants to what consequences their decisions will lead to.



This graph above shows the usefulness of the seminar averaging 4.22 out of 5.

In the game there is a rapid replenishment of knowledge that supplements the students to the required minimum, practical mastering of the calculation skills and making decisions relative to the conditions of real interactions with partners. Furthermore, the game occurs in three stages: preparation, direct conduct and analysis of the game progress and summing up the results.

Furthermore, Viktoriia applied the Metaphorical game method in her classrooms. This is a form of organizing the active participants' work aimed at developing new forms of activities and changing attitudes in behavior. In fact, the main task of the metaphorical game is to discover new methods of solving problems. This method is unique as a metaphor is applied to solve a business problem. For example: we need to find new approaches to counteract with the competitors. For this task, we can apply the metaphorical game "Redemption of the Bride". Participants are immersed in a situation where the bride needs to make a choice between several suitors. In order for each groom to win, he is prepared by the "support group". On one hand, the tasks of the "support group" include studying competitors and developing an optimal strategy for the conquest of the bride. On the other hand, the task of the suitors is to successfully apply the developed strategy in order to attract the bride's attention. At the end of the game, an analysis of the effective behavior and transfer to the working situation is conducted. After the classes

students' survey is also conducted too. In fact, the students indicated that the use of such forms of training really helped them enhance the participants' creativity abilities, gave opportunities to take an alternate fresh look at the situation and change the existing stereotypes of teaching as well.

Moreover, Viktoriia had the opportunity to try these new teaching innovations in Klaipeda and they were really successful. This was the first time that Viktoriia had the opportunity to test her new pedagogical innovations outside of Latvia and the students and the administration were really pleased and would like her to come and conduct more of such applied seminars on management.

### **3. International Pedagogical Competition and Methodology:**

Now we will address two very interesting questions. Does pedagogical competition exist? Does international pedagogical competition exist? The answer to both questions is certainly yes. For example, in the American educational system universities compete with each other; shall a student choose University of Michigan or University of Wisconsin? Not only universities compete with each other but departments within a university also compete with each other; shall a student choose Electrical Engineering program or Mechanical Engineering program? In addition, professors in a particular department also compete with each other; shall a student take a freshman calculus class with professor X, professor Y, or professor Z? What professor shall a student choose to do his or her undergraduate thesis advisor? What professor shall a student choose as his or her master's thesis advisor? This is very similar to deciding whether to buy Subaru vs. Mazda or Nikon vs. Cannon. In order for professors to stay ahead of the competition, it is essential to be creative and innovative inside and outside the classroom. Students will strongly focus on what is unique about the professor, what particular innovations did the professor implement recently, very recent student evaluations, and professor's research activities and his or her research connections.

For instance, why should a student take Michael's calculus class instead of taking the course with professor X, professor Y, or professor Z? Michael offers a very flexible grading system, offers pdf files of his course notes with many guided examples, allows his students to make corrections on their homework assignments and resubmit them and drops the lowest test out of the four tests throughout the semester.

When conducting an international seminar, especially in a different educational system, it is vital to be very creative and innovative to portray a new and innovative idea and to persuade the students and participants how they will benefit from the seminar. It is pertinent to get feedback from the sponsor(s) that will host the seminar; discuss and get additional ideas before conducting the seminar. Moreover, most important of all, get feedback from the students and the participants too; in fact, the students' and the participants' feedback will provide feedback for future ideas how to improve the seminar next time. A seminar or a course can be taught or conducted well but never perfect; there is always room for improvement.

#### **4. Teaching & Learning Innovations in ISMA:**

First of all, innovative process in education is a set of consistent, purposeful actions aimed at updating, modifying the purpose, content, organization, forms and methods of teaching, and adapting the educational process to new socio-historical conditions. Second of all, innovative behavior does not involve adaptation; in fact, it implies the formation of one's own individuality (self-development). It is pertinent for the teacher to understand that innovative education is a method of educating a harmonious personality. It is impossible to create ready-made templates, however, it is important to perpetually improve your own intellectual level and motivation for creativity. A teacher who successfully gets over the psychological barriers and develops his or her own creative potential is ready to become a leader in innovative transformations.

Now we will study and analyze a very concrete example. In fact, the analysis of research results shows that on the average of 44.27% of first-year students has a broad interest towards specializing in a certain field, yet this interest is not connected to the practical activity. Moreover, the highest percentage by this indicator was recorded in the course "Business Administration" (47.5%). We explain this by the fact that most of the students enrolled in this particular program are high-school graduates who wish to establish their own businesses. Contrary to what we have discovered a drop in professional interest among the fourth year students; from 40.27% in the first year to 8.6% in the final year. Such results are likely to be related to first-year students' idealistic ideas about the profession contrasted by the fourth-year students' realistic attitude towards entrepreneurship, together with risks and necessity for

self-financing your enterprise. Such results naturally request a more stimulative approach towards learning through the use of pedagogical creativity.

We define the pedagogical creativity of a teacher as interaction between subjects of the educational process (teachers and students), due to the specificity of psycho-pedagogical relationship between them, the way of building student's creative personality and improving creative pedagogical work of a teacher.

## **5. Problems and Challenges with Teaching Innovation Implementations:**

Innovative pedagogical technologies fail to be implemented and are “broken” for various reasons. First of all, the **Barrier of Creativity**. Teachers who work under the old programs do not want to change anything, learn, develop. They do not perceive innovations in the educational system. Second of all, **Conformism**. The lack of an enthusiasm to develop, the fear of appearing ridiculous, and teachers refusing to accept unusual pedagogical decisions. Examples of Personal Anxiety include insecurities, abilities, forces, low self-esteem, and fear of expressing one's judgments openly, which prevent the introduction of innovations in the process of knowledge transfer.

Now we will discuss the problems with the rigidity of thinking. In fact, some teachers are very authoritative and consider their opinion to be the only, final, which is not subject to revisions or any discussions. In particular, the problem is that they do not seek to acquire new knowledge and skills and they have a very negative attitude towards any new ideas and innovations. Also, the traditional education involves overloading educational disciplines with redundant information. On the other hand, with innovative education, the learning process is organized in such a way that the teacher acts as a mentor and as a tutor. In addition to the classical training option, the student can choose distance learning which saves time and money. More and more students are choosing the non-traditional types of knowledge in the form of games, puzzles, solving situational problems, and active discussions. The priority task of innovative education is the mastering of analytical thinking, self-development, and self-improvement.

To assess the effectiveness of innovation we will consider the following blocks: educational, methodological, organizational and technical. Experts are involved in the work and specialists who can

evaluate innovative programs. Most educational enterprises now have come to the conclusion that it is necessary to actively introduce innovative teaching methods using all available technical capabilities. The most important features of the current stage of development of business education in Latvia can be presented as follows:

1. **Transfer of emphasis on new knowledge and competences acquired by the student;** the priority of knowledge and competences is increased in comparison with a formal diploma or degree. To form the necessary skills and competencies, it is not always necessary to have formal, licensed and accredited (by the state or professional associations) educational institutions that issue appropriate diplomas of the “state sample”. It is enough to have teachers (“trainers”), whose knowledge and skills are demanded by the audience.
2. **Demand for shorter and more condensed and intense education.** This trend first manifested itself in Europe, where the acceleration of integration processes constantly demanded the involvement of new managerial personnel into the market. The answer to this challenge was a reduction in the terms of training in business schools, and in some of them they were initially 1 year (in most Western European schools, including LBS and INSEAD).
3. **Choice of the form of training.** The complete separation of the students from the business for the purpose of obtaining additional education, as a rule, is inconvenient and deprives the student of the opportunity to immediately test the received knowledge in practice. This leads to ubiquitous reorientation, to modular formats and part-time education. This offers students several flexibilities in case of financial difficulties to study the program in blocks. In other words, students can pause at a time convenient for them and either continue their education after a while, or limit themselves to the knowledge gained. This process has seriously changed the structure of client bases of business schools and increased their volume.
4. **Strengthening the role of global online education.** Until 2010, it represented mainly distance learning systems and video lectures on the Internet. However, in September 2011, a revolution in this area is attributed to the emergence of so-called mass open online courses (MEP). For the first time, free

courses for students worldwide were offered by many universities, which are included in the top 10 international ratings; compared to what was previously available only to a very limited number of student and was very expensive; 2011, was the first year when it was available for everybody. These are the courses of Harvard, Stanford, Princeton and other leading universities in the U.S. and worldwide. One of the first such online or distance courses on artificial intelligence was offered by Stanford; about 150,000 students registered for it in a short time. This was the beginning of the second generation of online education. Today there is a boom in the development of the MEP, there are several international online platforms. The most famous is Coursera.

5. **Segmentation of consumers of business education.** The ineffectiveness of joint training on MBA programs of students with different experience, official position, with different levels of tasks is obvious. Thus, the Executive MBA program has emerged and become widespread.
6. **The emergence of functional specializations.** MBA management has began to operate in healthcare, education, culture. Moreover, specialized programs have began to appear in the MBA format.
7. **Increased internationalization of MBA programs.** This is reflected in an increase in the number of foreign students in the programs, as well as in the organization of joint educational projects of Latvian business schools with other European colleagues.
8. **Marketing of business education.** Business schools have to constantly adapt, change and adapt to the “attitude” of students. As in any other market, its players – business schools – usually use a whole set of indicators to assess the effectiveness of their activities; here an important indicator is the degree of customer satisfaction. This implies that satisfaction with the duration and mode of training, the forms of information, the quality of knowledge obtained during the training and even the reputation of the chosen business school.

## 6. Conclusions, Recommendations and Future Works

It is of paramount of importance to keep trying new pedagogical

innovations in order to improve the levels of teaching and learning; in fact as Chuck Norris frequently says “It is better to have tried and failed than to not have tried at all”. If an idea fails then it is vital to understand the sources of mistakes and problems, correct the mistakes and problems, learn from mistakes or try a completely different idea. This is a pertinent learning process of its own right. Learning and teaching innovations are especially vital since the start of the digital age and the start of international education as well; the teaching and learning process also changes from generation to generation and therefore needs to be revised quite frequently to keep up successfully with these changes and demands.

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## CONCLUSION

The decisive feature of modernity is complexity of the structure economic systems, acceleration of scientific and technological changes and perturbation of globalization the economic life of society. These processes mark the formation of the so-called “epoch of bifurcation”, in which high-quality in-depth transformations cover the economy of virtually all countries of the world, opening up new opportunities and generating unprecedented threats and risks for their further development. As instability and unpredictability of development becomes the most stable feature of the present time, the need for a deep economic and philosophical understanding of the essence, structural dynamics and mechanisms of the transformation of economic systems in the conditions of globalization is exacerbated. Of particular importance is the analysis of economic development as a nonlinear, multivariate and intrinsically contradictory process.

New urgent aspects of the study are due to the global financial-economic crisis, which has shown inconsistency of endogenous and exogenous factors of post communist transformations, exacerbation of contradictions between the global nature of modern world economic processes and the existing institutional-organizational mechanisms for their settlement. For transitional economies of a new type, functioning in the unfavorable conditions of deepening the instability of the world economic system and accelerating entry into the structures of already established economic ties, the issue of self-determination in the global environment and the creation of mechanisms for effective international integration are priority areas for scientific research and practical activities.

The problems of transformation economic systems in the conditions of globalization acquire a special scientific-theoretical and practical significance, taking into account the current realities of the development of national economies of the world.

The main feature of modern world economic development is the global interdependence, which covers and modifies its political, economic, social and environmental conditions. Globalization contributes to overall economic progress through the spread of innovations in technology and management, active exchange of goods, services and investments. At the same time, the unevenness, asynchrony and disproportional of the development of scientific-technological, production, trade, financial-investment relations in the functional as well

as in the inter-national aspects are intensified. At the same level of today's world economy, countries are concentrated – global leaders, whose key determinants of success in the third millennium are intellectualization, socialization, ecologization of production and the environment of life. At the other level of the world economy, most of the countries for which economic globalization is manifested, first of all, as qualitatively new developmental conditions that are virtually impossible to influence, but must always be taken into account. Countries that do not have time for the dynamics of a new era will not only not receive preferences from globalization, but can also become its hostages, to be on the verge of global, general civilization processes. The internationalization of economic life, interpenetration of various types of activities – scientific and technical, investment, financial and commercial, etc. – is becoming apparent, which leads to institutional changes.

The manifestations of this kind of globalization develop the traditional boundaries of economic analysis, inducing nontrivial generalizations. It is important to understand that even the inherited global problems of the development of human civilization (environmental pollution, the depletion of vital natural resources, poverty and the growing gap between countries as a life, etc.), new actors can not resolve, as could not be done by multinational corporations.

Global processes exacerbate competition, lead to changes in the redistribution of financial and investment resources, which often goes hand in hand with low and middle-income countries, causing their marginalization in the global economy. Under these conditions, an important means of competitive struggle in the modern world, as well as a form of protecting its own economies from adverse changes in the world economic situation, is the fragmentation of the world economy by forming groups and blocs of states conducting a coordinated economic policy. This is a compulsory step and a response to increasing global competition. At the same time as globalization processes, each state implements its own policies to protect national interests.

The main tendency of modern global development is the transition of the majority of countries from the raw material industry to the postindustrial information economy, which is based on the development of the intellectual resource, technology-intensive technologies and involves the achievement of a qualitatively new innovation and technological level in all spheres and branches of the economy, the

material basis of society, including productive forces of society. In a context of globalization, national economies are becoming increasingly interdependent, and the processes of integration and internationalization are intensifying.

**Transformational processes the development of  
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