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"Educator" Wydawnictwo Akademii Polonijnej  
ul. Pułaskiego 4/6 42-200 Częstochowa  
tel: +48 34 368 42 15, fax +48 34 324 96 62  
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## Wprowadzenie

W europejskim doświadczeniu kulturowym, opierającym się na spotkaniu różnych cywilizacji i kultur – konsolidują się fundamentalne ogólnoludzkie wartości, takie jak: wolność, demokracja, odpowiedzialność, uczestnictwo, solidarność, wyobrażenia twórcze leżąca u podstaw rozwoju naukowego, niezbywalna wartość sumienia, uznanie praw indywidualnych i zbiorowych, przedsiębiorczość, innowacje oraz zmysł wyrozumiałości.

Ich priorytetowość pozwala na dostrzeganie roli środowisk akademickich, których zadaniem jest wyrobienie, zwłaszcza u młodego pokolenia, krytycznej i planowej świadomości. Świadomość ta opiera się na przekonaniu, iż świat to miejsce dialogu, miejsce ubogacania i rozwoju badań naukowych.

W tę problematykę wpisuje się PNAP - Periodyk Naukowy Akademii Polonijnej, skupiający ludzi nauki z różnych kontynentów, gdzie artykuły naukowe podejmują problematykę o charakterze historyczno-kulturowym, polityczno-prawnym, ekonomiczno-społecznym, edukacyjno-zdrowotną. W PNAP występuje także dział recenzji i omówieni oraz sprawozdań.

Zapraszam do współpracy przedstawicieli ośrodków naukowych, których brak w Radzie Naukowej, praktyków, nauczycieli naukowo-dydaktycznych, doktorantów, studentów, których publikacje w PNAP, dzięki punktacji Czasopism Naukowych MNiSW oraz posiadaniu prefiksu DOI, będą czytane i staną się przedmiotem dyskusji, debat i poznania innowacji naukowych poszukiwań.

Dziękuję autorom, którzy podjęli i podejmą współpracę, zamieszczania swoich publikacji oraz szczególnie rodzaj podziękowania kieruję do członków Rady Naukowej, którzy życzliwie przyjęli zaproszenie do współpracy do współtworzenia PNAP.

ks. prof. dr hab. Andrzej Kryński  
Rektor Akademii Polonijnej

## Introduction

The European culture experience based on the meeting of different civilizations and cultures is the area for consolidation of such fundamental universal human values as freedom, democracy, responsibility, participation, solidarity, creative imagination underlying scientific development, inalienable value of conscience, recognition of individual and collective rights, entrepreneurship, innovations and a sense of understanding.

Their priority allows to perceive the role of academic environment whose task is to develop, especially among the younger generation, critical and elective awareness. This awareness is based on the belief that the world is a place of dialogue, place of enrichment and development of scientific research.

PNAP - the Scientific Journal of Polonia University fits in these issues bringing together scientists from different continents, whose scientific articles address the issues from the following fields: history and culture, politics and law, economics and social science, education and health. PNAP also includes the review and discussion sections as well as a report section.

I invite You to cooperate with the representatives of research centers, whom the Scientific Council lacks in, practitioners, teachers, academics, Ph.D. candidates, students, whose publications in PNAP, thanks to the scoring system of the Ministry of Science and Higher Education and having the prefix DOI, will be read and will become the subject of discussions, debates and exploration of scientific innovations.

I thank the authors who have already established cooperation and those who will do so in terms of submission of their publications. I would also like to express particular gratitude to the members of the Scientific Council, who kindly accepted the invitation to work together and to contribute to the creation of PNAP.

Prof. Andrzej Kryński, PhD  
Rector of Polonia University

## THE ECONOMIC PARADIGM OF EDUCATIONAL GLOBALIZATION

### Andrzej Krynski

Prof., PhD, Polonia University in Czestochowa,  
e-mail: a.krynski@pnap.ap.edu.pl, Poland

### Juan Campechano Covarrubias

Prof., SNTE Sindicato Nacional de Trabajadores de la Educacion,  
e-mail: deduc.jcc@snte.org.mx, Mexico

### Abdukhakim Mamanazarov

PhD, Tashkent Branch of M. V. Lomonosov Moscow State University,  
e-mail: abduhakim\_bazarovich@mail.ru, Uzbekistan

### Volodymyr Kulishov

prof. DSc, Kryvyi Rih Economic Institute  
SHEI "Kyiv National Economic University named after Vadym Hetman",  
e-mail: kaf\_me@kneu.dp.ua, Ukraine

**Abstract.** The article investigates and analyzes the challenges which face the national higher education as a sector of economic activity and management, reveals the contents of system of educational managers' competences and its further development in view of national traditions and achievements and modern aspects of economic culture formation as an important socio-economic problem. The authors attempt to determine the place and importance of economic culture in the structure of the general culture of a person in the context of educational globalization. They propose to consider categorical matrix of economic culture and a theoretical model of a cluster component of economic culture.

**Keywords:** paradigm, education globalization, economy, cluster, management, innovations, socium, technologies, economic culture.

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### Introduction

At the present stage of the world economy development, national economic models are affected by a complex set of endogenous and exogenous factors. The determination of the latest theoretical and methodological foundations of modern transformations involves, first of all, taking into account their global aspects and the development of organic adaptation mechanisms and interaction of key components of national economic models and global development institutions – politics, economy, ideology and education.

European and world educational space formation is the process of combining the historically disparate and distinguishing between national educational markets in one big educational space, the operation of which is ensured by using of such resources and sources such as information, knowledge, education.

Modern processes of globalization which provide free market laws and mechanisms to determine the path of educational modernization on a global scale make up new requirements for educational services highlighting the relationship of human capital, training of high-class professionals, its full self-realization in the chosen activity. It is closely related with large-

scale social transformations, internationalization of humanitarian space, the release of the person in the open world educational environment which requires the development of new theoretical concepts of education, formation and approval of the modern paradigm of educational globalization (Krynski, Gushko, Kulishov, 2015).

In the article authors have studied and analyzed certain questions of educational functioning in some countries in particular A. Krynski and V. Kulishov conducted a systematic analysis to identify trends and contradictions of development of higher education in Poland and Ukraine; J. Campechano Covarrubias described the general theoretical and practical positions of the educational model by mexican teachers, methods and processes of learning and teaching; A. Mamanazarov researched innovative decisions of economic university education in Uzbekistan and offered to view education from the perspective of the subject of economic activity, the economy and educational management and an important component of education - the economic culture formation while maintaining the national traditions of the educational system in view of modern socio-economic features. These issues are considered in this article.

### **Education as a subject of economic activity, management and culture**

Modern philosophy and strategy of restart of a new educational paradigm of development must be linked with economic conditions of formation of higher education as a sector of the economy and with the development of market of educational services namely the transition of that from so-called "nonproductive sphere" to the subject of economic activity.

Education is an integral component of system of national accounts on the macroeconomic level and included to the set of indicators of consistent and interconnected descriptions of the most important processes and phenomena of the economy - production, income, consumption, capital formation and finance. This no alternative fact should be managed during the development of measures to reform economic mechanism of education (Vitrenko, 2011).

Consequently education as a specific sphere of activity has interest for economic analysis in two aspects. Firstly the realization of its purpose in society requires setting up an appropriate mechanism for financial and economic unity of production and supply. Subjects of educational activities are educational institutions which function based on covering expenses by their income and the necessity of development causes the need in additional funds that do not excluding profit for further investment. The mechanism of operation could be varied depending on their income that could be formed from budget assignments or own revenues or mixed resources.

Secondly considerable interest has the economic nature of the results of educational activities. Expenditures on education of the population have productive nature in sense that its results are increasing in equipping people with the knowledge and information and find in active growth of indicators of economic activity on the micro and macro levels in the short and especially in the long term. Due to this public spending on higher education acquired specific value of investments especially highly profitable ones. Study of the economic effects of education became the subject of considerable attention and interest of worldwide scientists. In this direction the global economic opinion has gained thorough working hours: methodologies and calculations of the impact of education on economic growth and personal income.

In recent years European countries have had complicated demographic situation and uneven development of regions. It forces governments to look for ways to optimize the educational sector especially in the financing of higher educational sphere so it is logically justified and meets the needs of the time.

The fundamental financial problems of higher education exist everywhere. Even rich Western-style educational institutions feel the need of austerity due to expenses increase and donor receipts decrease both in public and private ways. However as the researchers assert the rationalization by saving costs, raising the technical level and reducing of unnecessary jobs must be carried out in areas associated with the production of goods and services. And the industry engaged in "production of human" such as education, science should grow by the volume of production, and employment (Heyets, Gritsenko, 2013).

In the context of the economic independence of university education autonomy should acquire the real nature. However we must recognize that public universities in Ukraine and Uzbekistan have insufficient autonomy today because they are controlled by many institutions.

Universities entangled in numerous limitations cannot even freely dispose the funds received from the provision of educational services over public order and other activities. Financial management will be effective only when the leadership who makes decisions on the use of financial resources will have a possibility to maneuver. Decisions laid down in the budget of the last year not always enough effective. The situation can change and management of university should be able to channel funds to effectively dispose them in terms of economy and development of the institution. Currently universities receive almost no funding from the Ministry for development. Therefore it is necessary to expand their opportunities to earn money and use them with the prospect.

Objective need for the growth of public spending on education faces with limited financial resources of the state. It applies including those financing costs on training specialists with higher education.

An indicator of domestic economic efficiency of education on the macro level performs cost of education that express total costs of state on maintaining educational establishments on different levels. The value of expenditures per student is an important indicator that shows how much costs the state (or other) training of one person for a certain period of a time usually a year. At the same time, it should be clearly defined the role of this indicator in the financial management education (Padalka, 2012).

The mission of the institution of a certain degree of education is to meet the needs of the people in the educational services of a particular type. The production of educational services requires funds to ensure the process with material resources and human resources for the educational process.

Exactly therefore an essential part of educational institutions activity regardless of its type, degree, subordination and form of ownership has the problem of economic nature it means to become an equal subject of the economic activity in the country.

A new vision of national education in ensuring social progress becomes the basis for transformational changes of its overall concept and content. These changes concern the fundamental aspects of education as a strategy of reform, the role of the state, structure of the educational system and management.

Management of the educational institution is systematic process of management activities of the institution in order to effectively satisfy the needs of society in education. Implementation of the important functions of management such as organization, planning,

coordination, supervision, motivation, creates conditions for productive and efficient work of all staff of the institution and achieving results in accordance with the goals set by the educational institution.

Requirements to the professional competence of education managers can be divided into three groups. The first are the knowledge and skills to perform management functions: the ability to ground and make decisions; the ability to manage resources, to plan and forecast the work of the institution; possess the means of improving the management; ability to use modern informational technology, communications and so on. This knowledge and skills should be acquired in the process of studying the management science, its laws, principles, methods and means of information.

The second group of requirements that are necessary for educational manager include profound knowledge of the operation and development of the institution, the understanding of the nature and content of educational work. This knowledge acquired during the practical work in educational institution.

The third group of requirements for professional competence of education managers related to their ability to work with people and manage themselves. In the course of their duties managers interact with a wide range of people - colleagues, senior managers, teachers, subordinates, representatives of other educational institutions and so on. The basic structure of employees of educational institutions has intellectuals and highly qualified specialists with higher levels of education. Managing of such collective requires from manager some special skills of communication and influence.

The problem of competence in the management of higher education remains insufficiently explored and the most complicated. Actual issues becomenot only enrichment the cultural and professional competence of head by basic knowledge of management, but also justification and practical feasibility of using scientific knowledge of management in educational activities in the sphere of management of educational institutions. So the major criterion of professionalism of education manager will be just its management competence.

In the scientific studies clearly articulated definition of "managerial competence" of education manager does not exist. Currently there are no studies that have comprehensively studied the problem and therefore among scientists were certain contradictions in the definitions of "management activities" and "managerial competence".

In our opinion management competence is multifactorial phenomenon and it should be regarded as a form of management activities. Thus under the economic competence of an educational manager should understand the ownership of the system of economic categories and the formation of economic thinking to ensure the efficient functioning of the institution.

So the economic component of management competence of an educational manager determines the knowledge and skills of conducting economical and analytical studies in the sphere of educational activities; simulations of economic relations in educational activities; ability to analyze the crisis and conflicts in economic relations and their impact on higher education; election of the ways and methods of regulation and resolution of conflicts; a proposal about ways and behaviors in specific situations; detection of problem situations; setting goals and criteria of optimization of educational institution; generating alternative solutions for effective functioning of the educational institution; possession of elements of economic research; using the methods of collective decision-making and others.

Among the plurality of multifactorial components of management competence in modern conditions raises the urgent question of the application of marketing tools in activity of manager of education. Marketing competence of the manager of education is the ability to

identify relationships between buyers and sellers of educational services, implementation of diagnostic processes (for example supply and alteration of real demand of educational services dependence on professional career and education, etc.). Therefore manager of educational institutions should build a marketing strategy, carry out marketing analysis to conduct educational institution (its competitors, customers, services), analyze the most appropriate forms and methods of marketing for the institution and evaluate the effectiveness of this strategy.

Using marketing in the educational institution acquires relevance because it promotes "winning" of consumer (future students) by providing differentiated educational services, growth of professional skills of teachers motivated by the quality of the educational environment, improvement of this environment serviced by an educational institution.

So, economics and management of education require professional training of competent managers of the educational sector, the formation of a new generation of managers which are able to think and act in terms of systemic crisis of society, to make management decisions in all areas and efficient using of available resources of the educational institution.

At the present stage of the society development the most important task is upbringing of an individual for whom the highest ideal is a community of personal and corporate national interests. Bringing up, educating and forming the culture of generations are objectives and priorities of educational institutions such as school, college, university, etc. Today however the problems of culture, cultural technology and cultural support of social development remain understudied at the level of applied education, whereas upbringing and education are an important part of culture and culture itself is its main precondition, being taken unfortunately for a left-over principle of social policy.

That is why education even today bears the traces of a culture deficit that can be eliminated only under the conditions of a consistent and purposeful development of renovated culture in general. Therefore the economic culture formation of the personality on the universal principles under the action of the new trends of social and cultural development of the countries is one of the most important global problems of modern society (Campechano Covarrubias, 2014).

The economic culture formation of modern economic thinking in educational establishments is achieved in two interrelated ways: through its own structure of economic education, its cognitive and practical functions and with the help of the most effective forms (technologies) of educational process organization. Only dialectical community of the contents and form of education provides its high efficiency and effectiveness. The use of information technologies stipulates the need and opportunity to develop new methods for the economy study, the use of which provides an increase in the level of economic training in the system of lifelong education under the conditions of an educational and scientific complex "school – vocational school – college – university" and their information literacy and culture (Burunova, Gushko, Kulishov, 2016).

The process of economic culture formation is subjective-objective. People, one way or another, evaluate themselves, produce their own opinion about economic realities in the search for knowledge and assessment of phenomena, and assess current economic relations and development opportunities of these realities. Economic culture formation is a complex and multidimensional process. Its definition can be approached from different angles seen in different aspects: economic, philosophical, national, social, political, psychological, pedagogical, etc.

The first basics of economic culture formation should be laid at schools – primary and secondary.

Economic education of school students, their economic upbringing and culture with advanced study of economic disciplines in the future is a paradigm of new pedagogical techniques of an educational process. The basic idea of the new system of economic education is the unification of study and elements of entrepreneurship and innovation in pedagogical, individual, collective and work activity using the basic principles of economic component that will help the formation of professional competencies of each young man and lay the foundation for the study of the industry economy in which they will form their professional competence in the future.

The knowledge that school students receive should have a strong applied focus as the study of economics foundations must end with the tried-and-tested ways of putting into practice effective models, the development of hypotheses and problem-solving techniques (training or real), the formation of certain skills and knowledge that make up the operational component economic culture.

The educational experience at school shows that students' inner motivation to get profound socio-economic knowledge forms the cognitive component of economic culture since cognitive core competencies can be effectively formed only on the assumption of pupils' involvement into an independent and active learning activity.

Thus working in conditions of educational, scientific or information student-centered space, at the initial stage of the educational process pupils appear to be information consumers taking the first steps of transition into the category of researchers and inverters of economic process models. As the eventual result it provides the best working conditions in the process of the development of their economic culture competences and contributes to the development of their person creative potential.

The next stage of economic culture formation in the authors' view is the transition to the level of junior specialists' training, which allows expanding the scope of tasks and information both in economic and non-economic disciplines.

Taking into account the existence of a competent approach it is important to form a college (technical school) students' adequate understanding of the concept of "entrepreneurial competence" that should be complemented with an emotionally-positive desire to develop and implement economically justified master plans, business plans, strategic and marketing plans. Implementing these tasks it is effective to use a project and technology-oriented approach through the search and economic feasibility of the best (optimal) variant of resource use, that is, getting the maximum result at minimum cost. Particular attention during the period of economic culture formation of younger professionals should be paid to management issues that provides a high degree of cultural relations between the leader and his mid-level subordinates. Under conditions of the situation uncertainty, management culture is the basis of management decisions.

Thus the importance of economic culture formation in the structure of college graduates' professional training is determined by several factors: firstly the specifics of their professional duties in the future that are closely connected with economic problem solution and the administrative decision making; secondly the requirements of market relations with their difficulties to the specialists' economic competence; thirdly the need to develop a system of economic knowledge and junior specialists' training quality, and finally the students' involvement in the real economy and economic process that strengthens their economic culture, broadens the range of their economic interests, forms constructive and critical features



of economic thinking and strict analysis of phenomena, which occur in the economic process as a whole.

In the period of globalization there is a tendency of cultural rapprochement of peoples and development of economic relations between states. The task of the university at this to prepare, in these circumstances, a new generation of specialists for national and international economy, that is “to form a person” with an innovative type of thinking and innovative type of culture, ready for an innovative and uncertain type of activity. That would be an adequate response to the transition of society into an innovative type of development since innovative economy is impossible without innovative education.

Innovative technologies in education are not just information and communication technologies, which are inextricably intertwined with the use of modern learning environment in which the pedagogical discourse is developing, but, above all, with increasing information literacy and culture of opponents.

Taking into account the specificity of continuous development of information technologies nowadays and requirements for the development of new curricula based on their application, the need to raise information literacy, which in the information society is complicated and increased to the stage of information culture, becomes clear.

Despite a certain amount of research in this area, the problem of information culture in the preparation of international level specialists remains under-investigated. Accordingly there is a need to strengthen the information culture in the formation of a new concept of educational result.

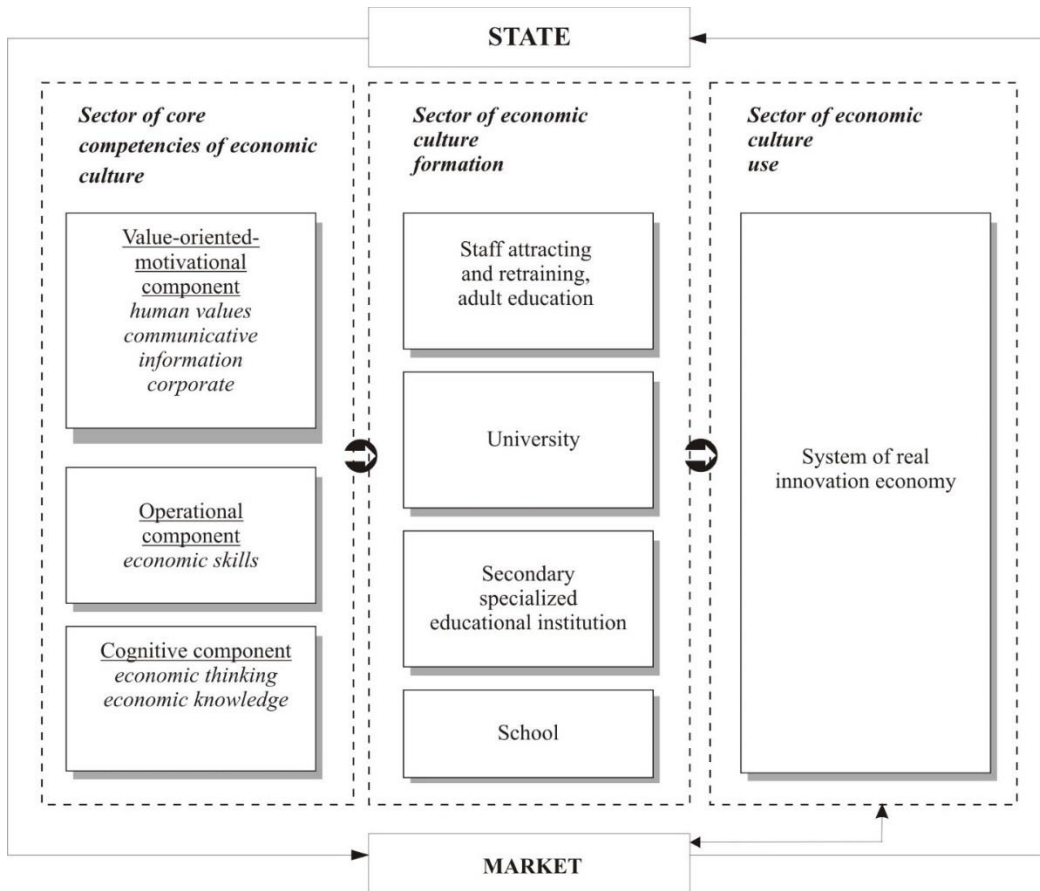
There is not a definitely formulated definition of “information culture” in education. At present, there is not a study, which has investigated this problem as a whole, and therefore there have been some contradictions in the definition of “information literacy” and “information culture” among scientists.

In our opinion, the latter must be regarded as a kind of general human culture. The authors propose to consider the basics of personal information culture on two levels: the first level is associated with the disclosure of the structure of knowledge, skill and ability community - that corresponds directly to human activity in information sphere, the second level of understanding is related to the characteristics of the required changes of person culture particles.

In general, “information culture” is, above all, a profound essence understanding of the process of receiving, processing and analyzing information. Thus, the updated education model should be based on the information technology industry and information culture as the part of economic culture.

Based on the analysis of scientific and educational literature, own research and experience we have developed and offered for discussion the theoretical model of a cluster system of economic culture formation in the conditions of continuous economic education (Figure 1) (Mamanazarov, Gushko, Kulishov, 2016).

As you can see in the figure, there are some interrelated components of economic culture, namely: the system of continuous education (school, secondary specialized college, university, retraining and adult education); the sector of core competencies of economic culture; the effective innovation system of the real economy, which combines and provides information to all market subjects at the country level. Accordingly, the economy should influence the education system through requirements for the quality of its training, the necessary range of specialties and, consequently, the economic culture formation in the conditions of continuous economic training.



**Fig. 1. The theoretical model of a cluster system of economic culture**

The cornerstone of the structural matrix of economic culture formedness at the society level is a well-organized social medium, which determines behavior norms of both individuals and society as a whole, legal and moral standards of the work of economic mechanisms, etc. Taken together, all the standards of a particular society underlie the lifestyle, that is, the way people live will depend on regulatory factors, economic development of a society and social medium. That is what we see in the analysis of a lifestyle in different economic systems. Therefore, the level of economic development of a society will usually depend on the maturity of a society, standards and a lifestyle. At the same time the living standard of people from a certain society influence the formation of social medium – the circle is closed. Consequently, all the components of the economic culture matrix are interconnected.

### Conclusion

Transformation of modern models of economic development, strengthening the role and capacity of influence of mechanisms of international and national regulation on the

development of national economies, the internationalization of innovative progress, informational society formation provide a significant influence in shaping and approval of modern paradigm of educational globalization and strengthening its competitiveness in the educational market.

It is impossible in one article to disclose topical issues of educational globalization formation. However, our latest research review of scientific approaches allows drawing some conclusions about the modern paradigm of economic culture formation should be connected with the position of formation and consolidation of market mechanisms, formation and development of service market in the educational system taking into account global processes. Knowledge, at that, becomes the “fundamental social factor” that is the basis of economic development of a country while educational institutions refer to the subject of economic activity and hence to the center of the society economic culture formation.

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## ANALYSIS OF THE DIFFERENT SCALING RULES FOR VALUE AT RISK ANALIZA RÓŻNYCH ZASAD SKALOWANIA VAR

**Bohdan Kyshakevych**

Prof. DSc, Polonia University in Czestochowa, e-mail: innovatyka@gmail.com, Poland

**Roman Kubaj**

Associate Professor PhD, Drohobych state pedagogical university named after Ivan Franko,  
e-mail: innovatyka@gmail.com, Ukraine

**Oleh Yuzvyak**

PhD, Drohobych state pedagogical university named after Ivan Franko,  
e-mail: innovatyka@gmail.com, Ukraine

**Abstract.** Analysis of the recent research concerning the performance of SRTR rule for VaR scaling as well as other methods such as bootstrap, dependent resampling, non-overlapping periods, independent resampling and different empirical scaling factors were conducted. An importance of the choosing the appropriate method of VaR scaling for solving different financial task, risk analysis and derivatives pricing was stressed in article.

**Keywords:** VaR, scaling rule, bootstrap, dependent resampling, square-root-of-time rule, economic capital.

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### Introduction

Value-at-Risk (VaR) became dominating approach of measuring risk, spite it has taken serious criticism from researchers. In fact the main reason for its popularity within financial institutions is recommendations of Basel Committee that the capital reserves of portfolios should be proportional to the 10-day Value-at-Risk at the 99% confidence level. As result banks that were approved by the Supervisors to compute regulatory capital via Internal Model Methods (IMM) usually use 99% Value-at-Risk (VaR) models for the calculation of capital requirements. One of the problems in estimating VaR is the lack of sufficient 10-day return data. Besides regulatory capital, banks very often have to provide, according to Basel II, an estimation of the capital (e.g. economic capital) needed to cover losses for a longer time horizon and for higher percentiles. The approach around this recommended by Basel II is scaling 1-day Value-at-Risk with the square-root-of-time rule. The usage of 10-day horizon is depicted by several authors. However, the effect of using the square-root-of-time rule for longer time horizons, for example when calculating Economic Capital with one year horizon is less investigated.

### Problem of economic capital aggregation

Economic Capital (EC) for market risk is usually aggregated to the other types of bank risks (credit, operational) in order to estimate an internal capital requirements. Calculation of economic capital for banks is mainly based on the bank's own risk profile and IRB approach. In other words economic capital can be interpreted as a 1-year bank's VaR [3].

The problem of VaR scaling have to do with an extension of some VaR measure to VaR with different confidence level or time horizon. Value at risk can be defined as

$$1 - \alpha = \int_{-\infty}^{VaR} p(x(T)) dx(T) \quad (1)$$

where  $1 - \alpha$  confidence level;

$T$  time horizon;

$x(T)$  Profit & Loss variable;

$p$  probability density function (PDF).

The main task of VaR scaling is an estimation of parameter  $h$  such that:

$$VaR(\alpha^1, T^1) = h \cdot (VaR(\alpha, T))$$

In practice, two approaches can be examined to compute losses and correspondingly Value at Risk at a 1-year time horizon:

- On the base of scenario generation and subsequent obtaining a 1-year Profit and Loss P&L distribution;
- Scaling of short-term market risk measures to a longer time horizon and probably higher percentiles.

The first approach is spread all around spite it has some well-known problems and drawbacks. First of all, when we use simulation approach or Monte-Carlo methods, the correct evaluation of a 1-year P&L distribution is quite complicated task because of the limited length of available time series of risk-factor shocks and because of the doubtful assumptions regarding necessity of MC simulations for risk-factors dynamics. In addition, the direct calculation of such a long-term, high-percentile Value at Risk is very sophisticated task when we use standard VaR models. Besides, the need to use high percentiles of the P&L distribution incredibly increases the number of required scenarios. Finally, such approach implicate the assumption of consistency the bank's portfolio structure during the some time horizon, while in reality the portfolio structure evolves in time.

On the contrary, using the second approach on the base of scaling P&L distribution we can avoid the above-mentioned problems. Besides, the second way has the advantage of using the IMM models which deal with day-to-day statistics and already approved by regulators to estimate regulatory requirements.

Basel Committee on Banking Supervision requires the daily estimation of VaR and allows the calculation of the 10 day VaR according the formula:

$$VaR(10\text{ days},99\%) = \sqrt{10} \cdot VaR(1\text{ day},99\%) \tag{2}$$

Let  $X_1, X_2, \dots, X_n$  denote the negative log return series of a strictly stationary sequence with cdf  $F_X(x)$ . The negative log-returns mean that the losses correspond to the right tail of the distribution rather than the left tail. Then  $F_{\sum_{k=1}^h X_k}(x)$  represents the cdf of the consecutive h day returns. The h day VaR at the level  $q \in (0, 1)$  can be defined as follow

$$VaR_q(h) = \inf \left\{ x \in R : F_{\sum_{k=1}^h X_k}(x) \geq q \right\} \tag{3}$$

Similarly the 1 day VaR at the level q can be defined as

$$VaR_q = \inf \left\{ x \in R : F_X(x) \geq q \right\} \tag{4}$$

An empirical scaling factor  $\lambda_q > 0$  in that case can be calculated as

$$\lambda_q(h) = \frac{VaR_q(h)}{VaR_q} \tag{5}$$

Luca Spadafora et al. in work [2] pointed out that the choice of the VaR-scaling rule influence substantially on the estimation of the Economic Capital for long time horizon. In particular, the resulting risk-measure can be larger than the estimation obtained using normal assumptions on the P&L distribution by up to a factor of four [5]. Their empirical results concerning the properties of P&L distributions, as well as analytical results obtained by authors on the time scaling show that the widely-spread VaR-scaling rules relying on assuming normality of returns and the usage of the SRTR can lead to a sharp underestimation in the bank's long-term risk measure.

### Srtr scaling rule

The most spread methodology to evaluate the Economic Capital (EC) using VaR scaling rules is based on the assumption of normality of the P&L distribution, and lays on the next consistent steps:

1. Calculation chosen percentile by means of SRTR scaling rule:

2.

$$x_{\alpha}(T^1) = x_{\alpha}(T) \cdot \sqrt{\frac{T^1}{T}} \quad (6)$$

where  $x_{\alpha}$  is the percentile corresponding to chosen confidence level  $1-\alpha$ ;

3. Supposing mean of the P&L equal zero and assuming that 1 year is equal to 250 days (in some cases 260), the Economic Capital for confidence level  $1-\alpha$  can be calculated as follow:

$$VaR(\alpha, 1 \text{ year}) = \sqrt{250} \frac{F_N^{-1}(\alpha)}{F_N^{-1}(0.01)} VaR(0.01, 1 \text{ day}) \quad (7)$$

where  $F_N^{-1}(\alpha)$  is inverse Normal Cumulative Distribution Function (CDF).

In work [2] authors generalize this simplistic approach by deriving a VaR-scaling methodology based on the following steps [5]:

- Fit of the short-term (1-day) P&L distribution, in order to choose the PDF with the highest explanatory power;
- Calculation (either analytical or numerical) of the long-term (1-year) P&L distribution, based on the chosen PDF class;
- Computation of the Economic Capital as the desired extreme-percentile VaR-measure of the long-term P&L distribution.

The different methodology that allows direct evaluation of the scaling factor for getting the 10 day VaR on base of 1 day VaR was presented in works [5]. Authors argue that their methodology is superior to the standard scaling rule used generally in practice. Offered in article computationally simple method improves upon the scaling rule SRTR which is known to underestimate the VaR on long horizon.

Their method is based on the estimation of the ratio of the high quantiles of the aggregated data to the daily data. Using real data sets, the new scaling factors were compared with others such as square-root-of-time scaling, and a more complex simulation based estimation method. The authors are assure that developed empirical scaling factors surpass the square-root-of-time scaling approach, and are competitive with the simulation based method.

As it was mentioned before when scaling the 1 day VaR with multiplier  $\sqrt{T}$ , the implicated assumption is that the returns or the log-returns are independent and identically normally distributed with mean zero. However, in literature exist a lot of solid evidence that the financial returns are neither normally distributed nor iid. Therefore, many consider such scaling arbitrary.

In fact VaR corresponds to the high quantile of the long-term P&L. Authors in [4] assume the existence of an empirical scaling factor such that an evaluation of such factor can be obtained by the ratio of the order statistics corresponding to the 1 day VaR and the 10 Day VaR:

$$\text{empirical scaling factor} = \frac{10\text{DayVaR}_{99\%}}{1\text{DayVaR}_{99\%}} \quad (8)$$

Developed empirical scaling factor is not based on any assumptions about the underlying distribution of P&L and it is very convenient for usage of proposed approach not only in financial sphere. This is in contrast to the square-root-of-time scaling. In doing so, as it was underlined in [4], authors have followed principal ideas of statistics by letting the data speak for themselves. Spite the order statistics might not provide good estimates of the Value at Risk, in [4] was shown that the ratio of the order statistics provides a appropriate estimate of the empirical scaling factor (4).

Existence of incompatibility between two horizons for Value at Risk assessing according with Basel standard was pointed out in work [6], where author analyzed the suitability of the widely spread Square Root of Time rule for Value at Risk scaling. The problem is that we take 10-day horizon for regulatory capital calculation but we consider 1-day period for backtesting. In that research performance of SRTR rule was compared with the method utilizing Hurst exponent on the base of normal and stable distribution. They conclude that the normality assumption and the Square Root of Time rule prevail under the regulatory parameters. As it turned out performance of the Hurst exponent method under normality was not favourable. But the Hurst exponent complements stable distribution very well under non-Basel parameters. That is why authors concluded that the use of stable distribution and the Hurst exponent method is reasonable when dealing with complex non-linear instruments, during turbulent periods, or for general non-Basel setting [6].

Many scientists consider the performance of the SRTR scaling rule like acceptable, in case when the characteristics of a risk factor series is known. For example, according with research [6] application the simple  $\sqrt{10}$  scaling rule leads to the shift of fat tailed risk factor distribution. Besides, negative autocorrelation result in an overestimated 10-day 99% VaR estimate, while volatility clustering and positive autocorrelation cause the 10-day 99% VaR to be underestimated. On top of these biases, a positive (negative) mean shift induces the 10-day 99% left tail VaR to be overestimated (underestimated) and the right tail VaR to be underestimated (overestimated) [6]. M. Janssen noticed that autocorrelation and non-zero means in the risk factor shifts are the most important bias factors. When different shifts act in different directions, the performance of the SRTR scaling rule is deeply dependents on the risk factor series under consideration and very likely on the current market situation.

Actually this is can be the main reason why the scientific literature seems to present contradicting thoughts on regards of the effectiveness of the SRTR scaling rule for VaR



calculation. As the shifts become quite serious for some risk factor series, for example, the  $\sqrt{10}$  scaling rule can be considered as being a unreliable 10-day VaR estimator when applied ‘blindly’ to all these risk factors. Results in [3] show that the usage of the square-root-of-time rule to Value-at-Risk scaling when the underlying data follows a jump-diffusion process is bound to provide downward biased risk estimates. Moreover, the bias increases at an increasing rate with longer horizon, larger jump density or lower confidence level.

Swedish researchers in work [1] compared performance of the square-root-of-time rule to other popular empirical methods in scaling 1-day VaR. The scaled VaR were compared to a “real” 10-day VaR, which were obtained analytically or by means of simulation approaches. The distributions that were used to generate simulations were random walks with standard normal and student-t innovations, AR-, GARCH- and AR-GARCH processes. The scaling methods used in [1]:

1) Bootstrap: randomly and with repetition 10 values are chosen  $(X_{i_1}, \dots, X_{i_{10}})$  out of known sample of 500 values. Afterwards they were summed up:  $Y_n = \sum_{k=1}^{10} X_{i_k}$ . Then evaluate the empirical 99% quantile of  $(Y_n)_{n=1, \dots, s}$ , where s is number of simulations.

2) Independent resampling: 10 independent weakly daily log-returns  $(X_{i_1}, \dots, X_{i_{10}})$  should be selected out of the sample such that  $\min_{j < k} (i_k - i_j) \geq 10$ . Then they were summed up:  $Y_n = \sum_{k=1}^{10} X_{i_k}$ . After repeating s times quantile is evaluated.

3) Dependent Resampling: In this method 10 strongly dependent values are chosen out of the sample. In case the sample of 500 values for  $n=1, \dots, 481$  we select  $(X_{i_1}^n, \dots, X_{i_{10}}^n)$  where  $i_k \in [n; n + 19]$ . Obtained values then are summed up  $Y_n = \sum_{k=1}^{10} X_{i_k}^n$ . Finally we need to get s values and evaluate an empirical quantile.

4) Non-overlapping periods: we have 50 non-overlapping periods 10-day log-returns:  $Y_n = \sum_{i=0}^9 X_{10n+i}$  ( $n = 1, 2, \dots, 50$ ). Then we can evaluate the 99% empirical quantile.

5) Overlapping periods: we need to get overlapping 10-day log-returns:  $Y_n = \sum_{i=0}^9 X_{10n+i}$  ( $n = 1, 2, \dots, 491$ ). On the base of simulated  $Y_n$  we can evaluate the empirical 99% quantile. It’s used as a complement to non-overlapping periods to get more data points. Such approach ignores the dependence of the overlapping periods.

6) Square-root of time: on the base of known sample of daily log-returns we can evaluate the empirical quantile which then must be scaled by the factor to get the 10-day VaR.

Their findings were not contradicting with most of other researches. Using simulated data and real income data they confirmed that the square-root-of-time rule performs comparatively pretty good in a majority of cases. In combination with such methods as bootstrap and two-step method scaling Value-at-Risk to up to one year works well for low volatility assets and less so for assets with bigger jumps in price or more stable price. The same situation with scaling of the  $10\text{DayVaR}_{99\%}$  to  $1\text{year VaR}_{99\%}$  – the square-root-of-time rule performs well compared to the other methods mentioned before. In the case of quarterly and yearly VaR SRTR has acceptable accuracy for the less volatile assets, Swedish government bonds, European investment grade bonds and for emerging market bonds. The sudden fall in asset prices all over the world at the crisis 2007-2008 for American and European corporate bonds together with short price history made scaling VaR for such assets during that period problematic. Thus taking in account the simplicity of practical implementation and the conservative nature of the square-root-of-time rule it can be considered as appropriate for practical usage.

In paper [7] two methods for empirically and locally determined time varying scaling exponents were developed. There a recursive window framework on overlapping returns data based on order statistics was used. The first method is based on Hest empirical scaling rule that admit an invariant measure of the scale exponent, which is derived by the gradient of the linear regression of the q-quantile. The second method is based on the numerical local determination of scale variant exponents ( $H^{\text{num}}$ ) for the 1-day VaR returns and the VaR of  $n>1$  returns. The properties of these data determined scaling exponents were studied in [7] and on the base of use back testing methods they were compared with that of the square-root-of-time rule. The result of back testing indicated that the usage of the empirically determined scaling rules surpassed well known square-root-of-time rule and allow banks to save considerable sum.

An importance of the choosing the method of time scaling of risk for solving different financial task, risk analysis and derivatives pricing was underlined in research [8]. In this paper the time scaling rules when returns follow a jump diffusion process were examined. It was shown that the square-root-of-time rule leads to a systematic underestimation of risk, whereby the degree of underestimation worsens with the time horizon, the jump intensity and the confidence level. As a result, even if the square-root-of-time rule has widespread applications in the Basel Accords, it fails to address the objective of the Accords [8].

## Conclusions

Analysis of the recent research concerning the performance of SRTR rule as well as other methods such as bootstrap, dependent resampling, non-overlapping periods, independent resampling and different empirical scaling factors shown that the square-root-of-time rule performs comparatively pretty good in a majority of cases when we admit normal assumptions on the P&L distribution. The choice of the appropriate method of time scaling for VaR plays crucial role for risk analysis, derivatives pricing and solving different financial

task regarding estimation regulatory and especially economic capital. Empirical data confirm that SRTR has acceptable accuracy for the less volatile assets while excessive volatility of asset prices increases the error of VaR scaling procedure.

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## ECONOMIC RESEARCH OF EXCISE DUTY

**Iveta Mietule**

Prof. PhD, Rezekne Academy of Technologies, e mail: iveta.mietule@ru.lv, Latvia

**Lāsma Šmukša**

Mg.oec. Rezekne Academy of Technologies, e-mail: lasma1smuksa@inbox.lv, Latvia

**Abstract.** Comparative study of the excise duty (tax) as a fiscal policy instrument and as an item of budget revenue is presented in the article. Excise duty revenues in Latvia are explored in-depth; correlation between the excise duty revenue and specific macroeconomic indicators is assessed. Furthermore, the main taxation tendencies - considering excise duty as an important source of financial resources revenue of the national tax system, an indicator of people living standards, and an important instrument defining price and demand for excise goods - are reviewed in the article.

**Keywords:** excise duty, excise goods, budget, revenues.

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### Ievads

Katra nodokļa pamatfunkcija ir nodrošināt ieņēmumus valsts budžetā, turklāt akcīzes nodokļa mērķis ir arī kaitīgo preču patēriņa ierobežošana. Nodokļu ieņēmumu dinamika un struktūra Latvijas valsts pamatbudžetā līdz 2015. gadam ir ļoti mainīga, ņemot vērā Latvijas ekonomikas centienus sasniegt Eiropas vidējos ekonomiskos rādītājus. Šajā procesā būtiska loma ir fiskālajai politikai, t.sk. atsevišķu nodokļu piemērošanā, kas atstāj būtisku ietekmi uz vispārējiem ekonomiskajiem procesiem.

Darbā ir apkopotas zinātniskās atziņas par akcīzes nodokļa funkcijām, kā arī analizēti statistikas dati par akcīzes nodokli, nodokļa īpatsvars iekšzemes kopproduktā un pamatbudžetā.

Pētījuma mērķis ir izpētīt akcīzes nodokļa ekonomiskos aspektus un veikt salīdzinošo sakarību izpēti starp akcīzes nodokļa ieņēmumiem un atsevišķiem makroekonomiskajiem rādītājiem. Sākotnēji izvirzītā hipotēze – akcīzes nodoklis ir būtisks ieņēmumu avots budžeta ieņēmumos un tas korelē ar atsevišķiem makroekonomiskajiem rādītājiem.

Darba izstrādāšanas gaitā tika izmantotas vispārpieņemtās ekonomiskās zinātnes pētījumu metodes: loģiski- konstruktīvā metode, grafiskā metode, monogrāfiskā, zinātniskās indukcijas metode, korelācijas aprēķini. Pētījuma periods aptver ekonomiskos rādītājus no 2009. – 2015. gadam.

### Akcīzes nodokļa vispārīgie ekonomiskie aspekti

Akcīzes nodoklis ir viens no netiešajiem nodokļiem, kuru akcizēto preču patērētāji maksā iegādājoties specifiskas patēriņa preces – alkoholu, cigaretes, tabaku un citus tās

izstrādājumus, bezalkoholiskos dzērienus, kafiju, kā arī naftas produktus. Parasti šīs preces valstī ievie no citām valstīm tādēļ jau muitā šīm preču grupām tiek piemērotas noteiktas nodokļu likmes. Akcīzes nodokli piemēro tām precēm, kuru izmantošanu vēlas samazināt un kuru ietekme uz cilvēku vai uz vidi ir kaitīga.

Mūsdienu tirgus ekonomikā jaunajiem uzņēmumiem iesaistoties uzņēmējdarbības vidē ir svarīgi apzināties, kādu preci vai pakalpojumu uzņēmums sniegs un piedāvās klientiem, kā arī svarīgi zināt, cik liels ir pieprasījums pēc šīs preces. Ir liela preču grupa, kuras cenu dēļ netiek pilnībā apmierinātas un pieprasījumam augot palielinās arī cenas, tādēļ uzņēmēji sāk intensīvāk ražot šādas preces. Tādā veidā tiek palielināts piedāvājums un apmierināts pieprasījums piesātinot tirgus nišu ar attiecīgo preci vai pakalpojumu. (Lukašina, 2000) Ekonomisko mērķu pamatojums ir arī akcīzes produktu ieņēmumiem, šādām precēm nav tuvu aizstājējproduktu, kas ļauj to izmantot nodokļu sistēmu, lai gūtu budžeta ieņēmumus (Cnossen, 2005).

Katrai precei ko ikdienā iegādājas patērētāji ir noteikta maksimālā robežlīnija, kas raksturo tirgus piesātinājumu. Tādā veidā tiek regulēts cik intensīvi tiek pirktā prece vai pakalpojums, jo kad patērētāji vairs nepērk noteiktu preci tās cena pazeminās, tieši tādēļ uzņēmējiem ir izdevīgi ražot preces, ar kurām tirgus nav tik piesātināts. Brīvajā uzņēmējdarbībā nonāk citas pieprasītas preces, tās ir akcīzes preces, tradicionāli ar tām saprotam tabaku, alkoholu, naftas produkti. Ja valstī pasliktinās sociālā un politiskā situācija, krītas ekonomikas attīstības tempi pēc kā sākas ekonomiskā krīze, inflācija un citas ekonomiskas problēmas, kas skar ikvienu valsts iedzīvotāju, šo preču pieprasījums pieaug, tādā veidā padarot šīs tirgus daļas uzņēmējdarbību par ienesīgu un izdevīgu. Tieši tāpēc valsts ir izstrādājusi īpašu politiku tieši šiem produktiem, lai regulētu šo preču uzņēmēju ienākumus un preču patēriņu tirgū (Lukašina, 2000).

Akcīzes precēm ir raksturīgs zems pieprasījuma cenu elastīgums, tām parasti nav aizstājējproduktu. Šo nodokli ir samērā viegli iekasēt, kas parasti tiek iekļauts cenā preces importa vai ražošanas brīdī. Daudzas no akcīzes precēm no sabiedrības veselības un labsajūtu viedokļa nav vēlams patērēt, līdz ar to valsts, izmantojot nodokļu sistēmu, veicina šo preču patēriņa ierobežošanu. Tas attiecas gan uz alkoholu un cigaretēm, gan arī uz degvielām vai preču iepakojumu, kura patēriņš nodara kaitējumu videi. Nereti šī nodokļa ieņēmumi tiek izmantoti jeb novirzīti akcizēto preču patēriņa radīto seku novēršanai vai mazināšanai, piemēram, medicīnas nozarei, kas „cīnās” ar alkohola vai tabakas patēriņa radītām sekām. Savukārt, degvielas akcīzes nodoklis tiek novirzīts ceļu fondā, kā rezultātā patērētāji, kas vairāk izmanto ceļu infrastruktūru, arī vairāk maksā par šo ceļu uzturēšanu. Arī luksusa preces kā juvelierizstrādājumi, dārgas automašīnas u.tml ir akcīzes preces, līdz ar to ar nodokļa palīdzību tiek mazināta sociālā nevienlīdzība.

Akcīzes nodoklis kā patēriņa nodoklis Eiropas Savienības kopējā tirgū būtiski var ietekmēt konkurences apstākļus starp dalībvalstīm, tādēļ Eiropas Savienībā strikti tiek reglamentēti nosacījumi akcīzes nodokļa piemērošana trim preču grupām: naftas produktiem, alkoholiskajiem dzērieniem, tabakas izstrādājumiem. Akcīzes nodokļa harmonizācija ir attiecināta uz nodokļa minimālo likmju noteikšanu, apliekamo preču struktūras saskaņošanu, šo preču aprites un nodokļa maksāšanas kārtības saskaņošanu. Saskaņā ar Padomes direktīvu, kas nosaka minimālās akcīzes nodokļa likmes, nosacījumiem valstīm, kas nav piesaistījušas savu nacionālo valūtu eiro, katru gadu ir jākorrigē nacionālās akcīzes nodokļa likmes nacionālajā valūtā, lai tās atbilstu direktīvās noteiktajām likmēm eiro. Pārreķinot nodokļa likmes, nacionālajā likumdošanā tiek ņemts vērā oficiālais eiro kurss oktobra pirmajā darbā

dienā, kas ir publicēts “Eiropas Kopienų Oficiālajā Vēstnesī”, un šis kurss tiek ņemts vērā, salīdzinot nodokļu līmeņa atbilstību direktīvu prasībām nākamā kalendāra gada 1. Janvārī (Andrejeva, Ketners, 2007).

Nodokļu harmonizācija Eiropas Savienības dalībvalstīs izvirzīta kā viens no fiskālās politikas uzdevumiem, kura mērķis ir veicināt konkurences nosacījumu izlīdzināšanu Eiropas Savienībā. Atsevišķi nodokļu harmonizācijas pasākumi tika veikti jau pirmsiestāšanās periodā un joprojām turpinās. Galvenokārt tie tika vērsti uz netiešo nodokļu tuvināšanu. Pašreizējā periodā būtiska iezīme ir tā, ka aizvien vairāk saasinās diskusijas un spiediens no veco dalībvalstu puses harmonizēt arī tiešos nodokļus, kuri nopietni ietekmē konkurenci, darbaspēka un kapitāla kustību, kā arī ekonomisko attīstību kopumā (Kavale, 2006).

Ekonomikai attīstoties daudzas valstis ir sapratušas, ka kaut arī sākotnēji akcīzes nodokļa, ar ko apliek tabaku, galvenais mērķis bija tikai fiskāls, mūsdienās pasaulē tā funkcijas mainās, un šis nodoklis arvien vairāk kļūst par sabiedrības veselības un sociālās politikas instrument (Cheren, 2016).

Akcīzes nodoklis ir viens no netiešajiem nodokļiem., kurš tiek piemērots precēm, kuras izmantošanu cenšas ierobežot katras valsts valdība, akcīzes preces tiek uzskatītas par kaitīgām iedzīvotājiem vai apkārtējai videi.

Piemērojot akcīzes nodokli teorētiski tiek ierobežots akcīzes preču patēriņš, tomēr šīs preces netiek izņemtas no kopējā tirgus, jo mūsdienās tās ir nepieciešamas, kaut gan piemērojot akcīzes nodokli to cena kļūst samērā augsta.

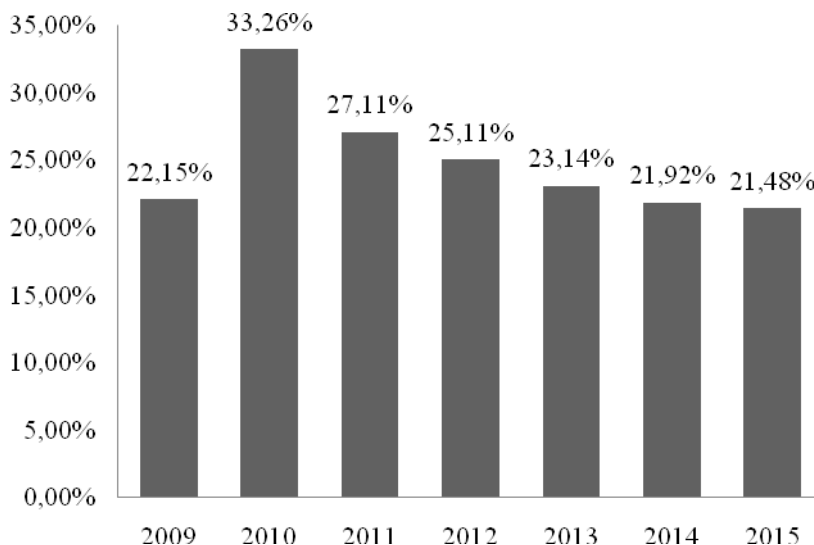
### Akcīzes nodoklis un makroekonomiskie rādītāji

Kā redzams 1.tabulā akcīzes nodokļa īpatsvars ir procentuāli liels un sastāda visos pārskata gados gandrīz ceturto daļu no visiem nodokļu ieņēmumiem pamatbudžetā. 2010. gadā akcīzes nodoklis sastādīja 33.26 % no visiem nodokļu ieņēmumiem pamatbudžetā, tomēr nākošajos gados vērojams akcīzes nodokļa īpatsvara samazinājums, bet tā kā nodokļu un budžeta ieņēmumi pieaug to arī var skaidrot ar pārējo nodokļu proporcionāli lielāku ieņēmumu pieaugumu, jo analizējot kopējos akcīzes nodokļu ieņēmumus milj. EUR tie kopš 2012. gadā salīdzinājumā ar iepriekšējo periodā palielinājušies, tāpat kā kopējie valsts pamatbudžeta ieņēmumi no nodokļiem milj. EUR.

**1.tabula Akcīzes nodokļa ieņēmumu īpatsvars nodokļu ieņēmumu pamatbudžetā 2009. – 2015. gadā milj. LVL /EUR (Valsts konsolidētais kopbudžets 2009-2015)**

Gads/ Valūta	Nodokļu ieņēmumi pamatbudžetā milj.	Akcīzes nodokļa ieņēmumi pamatbudžetā milj.	Akcīzes nodokļa īpatsvars pamatbudžetā %
2009 (LVL)	1 916,66	424,61	22,15%
2010(LVL)	1 018,61	338,79	33,26%
2011(LVL)	1 236,23	335,13	27,11%
2012(LVL)	1 423,16	357,41	25,11%
2013(LVL)	1 540,74	356,53	23,14%
2014(EUR)	3 406,34	746,55	21,92%
2015 (EUR)	3 581,65	769,23	21,48%

Lai strukturāli spētu novērtēt akcīzes nodokļa ieņēmumus pamatbudžetā autores izveidoja 1. attēlu, kur vizuāli redzams akcīzes nodokļa ieņēmumu īpatsvars kopējos nodokļu ieņēmumos pamatbudžetā.



### 1. attēls Akcīzes nodokļa ieņēmumu īpatsvars valsts pamatbudžeta ieņēmumos no nodokļiem 2009. – 2015. gadā

Var secināt, ka akcīzes nodokļa ieņēmumi pamatbudžetā ir samērā lieli, ņemot vērā to, ka akcīzes prece nav pirmās nepieciešamības prece un tās cenas ir salīdzinoši augstas, tad kopējais akcīzes nodokļa ieņēmumu daudzums attiecībā pret pamatbudžetu ir augsts. Lai izskaidrotu saistību starp akcīzes nodokli un pamatbudžeta ieņēmumiem no nodokļiem autores veica statistisko analīzi, kur izmantoja pāru korelāciju.

Pāru korelācija raksturo sakarību ciešumu starp divām pazīmēm: faktoriālo un rezultatīvo. Pāru korelācija ir atkarīga no citu pazīmju jeb fona ietekmes rakstura un intensitātes. Korelācijas jeb izkliedes diagrammu izmanto, lai vizuāli noteiktu sakarības veidu un ciešumu starp faktoriālo un rezultatīvo nozīmi. Iegūto punktu izkliede ap iedomāto sakarības līkni raksturo korelācijas ciešumu (Arhipova, Bāliņa, 2003)

Lai aprēķinātu korelācijas koeficientu tiek izmatota šāda formula:

$$r = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2} \sqrt{\sum_{i=1}^n (y_i - \bar{y})^2}} = \frac{n \sum x_i y_i - (\sum x_i)(\sum y_i)}{\sqrt{n \sum x_i^2 - (\sum x_i)^2} \sqrt{n \sum y_i^2 - (\sum y_i)^2}} = \frac{\text{cov}(x; y)}{s_x s_y}$$

Kur  $\bar{x}$  un  $\bar{y}$  - pazīmes X un Y vidējā vērtība,

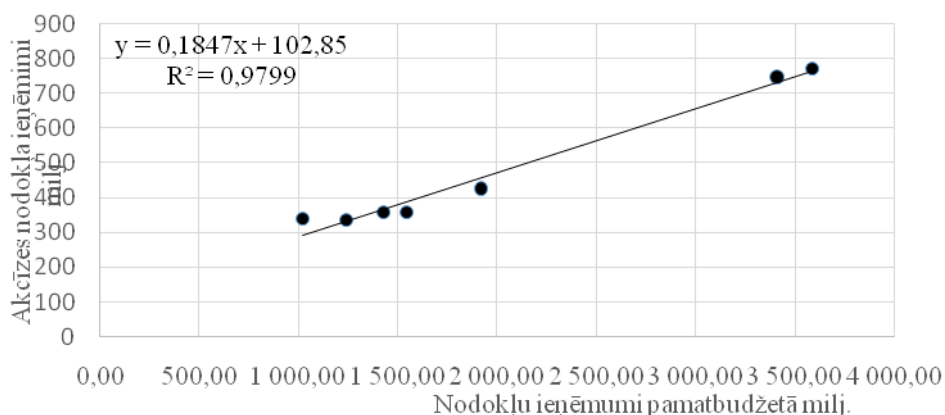
un  $s_x$  un  $s_y$  - pazīmes X un Y standartnovirze,

$$\text{cov}(x;y) = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{n-1} - \text{kovariācija starp pazīmēm X un Y,}$$

$n$  – izlases apjoms jeb novēroto pāru skaits.

Korelācijas koeficienta vērtība ir robežās no -1 līdz 1.

Pamatojoties uz šo datu apstrādes metodi autore ir izveidojusi korelāciju starp akcīzes nodokļa ieņēmumiem un kopējiem pamatbudžeta ieņēmumiem no nodokļiem. Tie tiek atspoguļoti 2. attēlā.



## 2. attēls Akcīzes nodokļa un pamatbudžeta ieņēmumu no nodokļiem korelācijas diagramma

Pēc izveidotās korelācijas diagrammas var secināt, ka sakarība starp akcīzes nodokli ir lineāri pozitīva. Aprēķinot korelācijas koeficientu kas ir 0,98, var secināt ka korelācija starp šiem diviem faktoriem ir cieša un palielinoties akcīzes nodoklim proporcionāli palielinās arī kopējie pamatbudžeta ieņēmumi no nodokļiem. Pētījuma ietvaros tika analizēta arī akcīzes nodokļa ieņēmumu un iekšzemes kopprodukta sakarība. Akcīzes nodokļa ieņēmumu īpatsvars iekšzemes kopproduktu Latvijā no 2009. gada līdz 2015. gadam ir apkopots 2.tabulā.

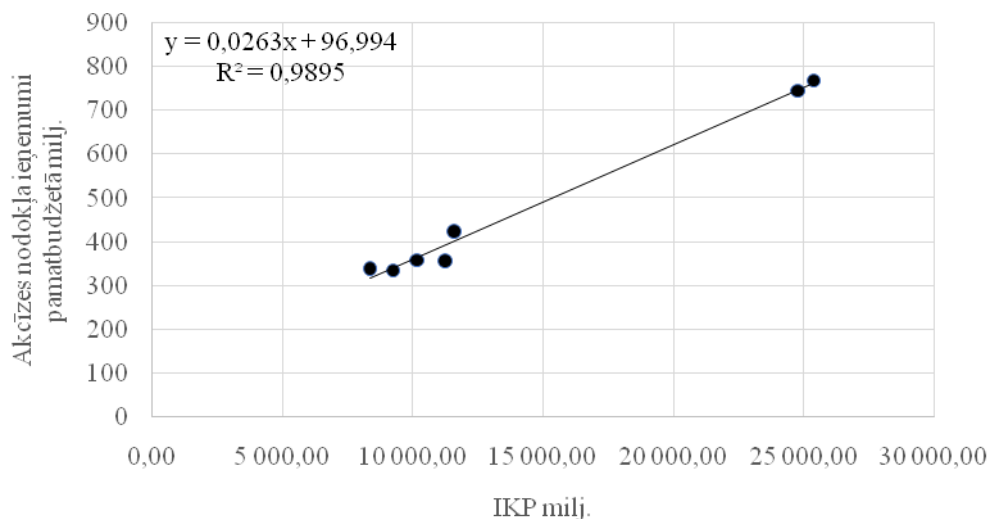
2.tabula Akcīzes nodokļa īpatsvars iekšzemes kopproduktā 2009. – 2015. gadā, milj. LVL/EUR

Gads	IKP milj.	Akcīzes nodokļa ieņēmumi pamatbudžetā milj.	Akcīzes nodokļa īpatsvars IKP %
2009 (LVL)	11 572,09	424,61	3,67%
2010 (LVL)	8 357,39	338,79	4,05%
2011 (LVL)	9 232,38	335,13	3,63%
2012 (LVL)	10 148,49	357,41	3,52%
2013 (LVL)	11 234,67	356,53	3,17%
2014 (EUR)	24 763,60	746,55	3,01%
2015 (EUR)	25 365,60	769,23	3,03%



Kā redzams tabulā lielākais akcīzes nodokļa īpatsvars bija 2010. gadā, kas sasniedza 4,05 % no iekšzemes kopprodukta. Nākošajos gados akcīzes nodokļa īpatsvars pakāpeniski ir samazinājies, to var skaidrot ar pārējo nodokļu ienākumu palielināšanos.

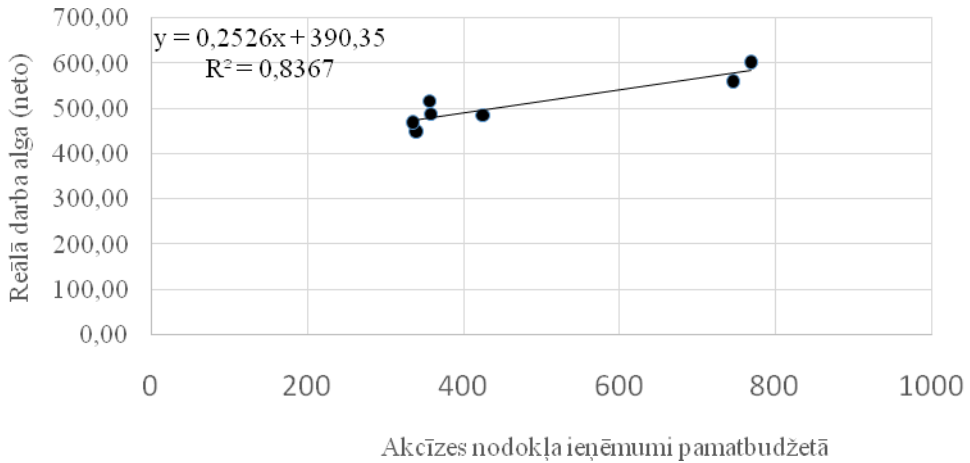
Kopējais akcīzes nodokļa īpatsvars iekšzemes kopproduktā ir salīdzinoši mazs. Kopējais iekšzemes kopprodukts kopsummā 2011. – 2013. gadā ir audzis un tas ir pozitīvi, tas liecina par ekonomisko „atlabšanu” pēc ekonomiskās krīzes. Lai izskaidrotu sakritību starp iekšzemes kopproduktu un akcīzes nodokli autore veica datu korelāciju, rezultātus attēlojot 3.6. attēlā.



### 3. attēls Akcīzes nodokļa un iekšzemes kopprodukta korelācija

Korelācijas rādītājs starp akcīzes nodokļa ieņēmumiem un iekšzemes kopproduktusastāda 0,98 un parāda, ka šī izkliede ir lineāri pozitīva, kas liecina par savstarpējo ietekmi starp iekšzemes kopproduktu akcīzes nodokļa ieņēmumiem.

Lai izskaidrotu sakarību starp reālajām algām un akcīzes nodokļa ieņēmumu palielināšanos tika aprēķināts korelācijas rādītājs starp minētajām 2 pazīmēm, kas grafiski attēlots 4.attēlā.



#### 4. attēls Akācijas nodokļa ieņēmumu un reālās darba algas korelācija

Apkopojot iegūtos datus, redzams, ka korelācijas koeficients  $r = 0,83$ , kas nozīmē ka faktoriem savā starpā ir samērā cieša pozitīva sakritība, tas apliecina, ka palielinoties iedzīvotāju neto algām palielinās ieņēmumi no akācijas nodokļa. Cilvēki atļaujas daudz vairāk iegādāties akāzētās preces, kas ir dārgākas un nav tik nepieciešamas. Protams, iedzīvotāji arī ar mazām algām pirks degvielu un tabakas izstrādājumus, kā arī pārējās akācijas preces, tomēr to nepieciešamība samazināsies un ieņēmumu īpatsvars kopumā arī samazināsies.

#### Secinājumi un priekšlikumi

Nodokļi izsenis ir bijuši svarīgs valsts finanšu instruments, ar kura palīdzību tika nodrošinātas valsts ekonomiskās un finansiālās funkcijas, lai valsts spētu segt radušos izdevumus un nodrošināt veiksmīgu finanšu politiku, gūstot ienākumus no iedzīvotāju veiktajiem maksājumiem valsts budžetā.

Akācijas nodoklis ir viens no netiešajiem nodokļiem, kurš tiek piemērots precēm, kuras izmantošanu cenšas ierobežot katras valsts valdība, akācijas preces tiek uzskatītas par kaitīgām iedzīvotājiem vai apkārtējai videi. Piemērojot akācijas nodokli teorētiski tiek ierobežots akācijas preču patēriņš, tomēr šīs preces netiek izņemtas no kopējā tirgus, jo mūsdienās tās ir nepieciešamas, kaut gan piemērojot akācijas nodokli to cena kļūst samērā augsta.

Latvijā akācijas nodoklis tiek piemērots – alkoholiskajiem dzērieniem, tabakas izstrādājumiem, bezalkoholiskajiem dzērieniem un kafijai, kā arī naftas produktiem un dabasgāzei. Latvijas Republikas likumdošanu par akācijas nodokli nosaka arī nodokļa atvieglojumus, tie saistīti galvenokārt ar ražošanu un lauksaimniecību, kas pierāda, ka valsts rūpējas par ekonomiskās attīstības iespējām, samazinot nodokļu slogu tām personām, kas ir ieinteresētas attīstīt valsts uzņēmējdarbību un lauksaimniecību, kā arī ir atrunāti noteikumi par mājražotājiem, kas savu ražoto produkciju nerealizē tālāk tirgū, bet izmanto pašpatēriņam, tādā veidā cenšoties uzlabot savu ekonomisko stāvokli, nenodarot kaitējumu visas valsts ekonomikai.

Apkopojot darba rezultātus, jāsecina, ka aizstāvēšanai izvirzītā hipotēze ir pamatota un apstiprinājusies – akcīzes nodoklis ir būtisks ieņēmumu avots budžeta ieņēmumos un tas korelē ar atsevišķiem makroekonomiskajiem rādītājiem.

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## INSTITUTIONAL DETERMINANTS OF THE QUALITY OF NATIONAL EXPORT

**Lesia Petkova**

Prof. DSc, State Technological University, e-mail: l\_petkova@ukr.net, Ukraine

**Dariya Marushchak**

Research assistant, State Technological University, e-mail: dariya-malyk@mail.ru, Ukraine

**Abstract.** In the article we analyze the impact of institutional factors on export of innovation in various countries. The components of the Global Innovation Index are important indicators that predict international competitiveness of export, these are, for example, quality of institutions, state of human capital, level of expenditure on research, infrastructure, etc. In this study we examine the influence of economic policies on technical complexity of export.

**Keywords:** advanced technology, export, international competitiveness, globalization.

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### Introduction

In a globalised world the quality of export determines the actual and perspective competitiveness of economies in world markets due to increasing openness to trade and rising importance of exogenous factors for national economic growth. To enhance competitiveness, countries more often specialize on production and export of advanced goods with high value added and of advanced technology products.

### The connection between scientific and technological level and the country's export specialization

In the context of modern geo-economic transformations lowering of the share of trade in primary goods and reorientation towards the exports of advanced goods is often considered an important goal in national economic strategies. It strengthens innovativeness of economic models and their international competitiveness. Only a handful of countries can attain this goal and as a result, the technological gap between the developed countries which constitute the core and the developing countries of periphery is widening. Differentiation of technological development of countries is an objective process driven by unpredictability of the process of innovation. The current state of technological development of the world is characterized by differentiation with most of the developing countries and emerging economies lagging behind the developed.

Many authors contributed to the literature on the quality of foreign trade as a premise of economic growth and the preconditions of changes on the world product market. For example, Gertler (2006) noted that developed countries should produce and export complex goods due to capital abundance, as the Heckscher-Ohlin model predicts. Nevertheless, there are important factors that act against this tendency. Rodrik (2006) examined the reasons behind the location of high-tech production in developing countries and the following changes in their export structure. Over a long period of time international mobility of capital reoriented

production, including high-tech, towards less developed countries with cheap labor. At the same time, the level of participation of a country in global value chains is still important. Traditional export sectors in developed countries are currently under pressure from cheaper exports from developing countries. Those of them characterized by the higher level of value added are more successful in keeping their positions (Giovannetti, G., Sanfilippo, M., Velucchi, M., 2010). The question of perspectives of these tendencies is important today. Which factors determine competitiveness of countries on the global market?

Technological progress ensures competitiveness on the world market, economic growth and social progress. The level of technological development of a country is determined by a number of factors. First of all, this is the state of research and development, but also the available production capacities, efficiency of resource use and, to the great extent, institutions. Capability of a country to generate new technologies is a basis for high and steady level of international competitiveness. The Global Innovation Index allows comparing the level of technological development across countries (tab.1).

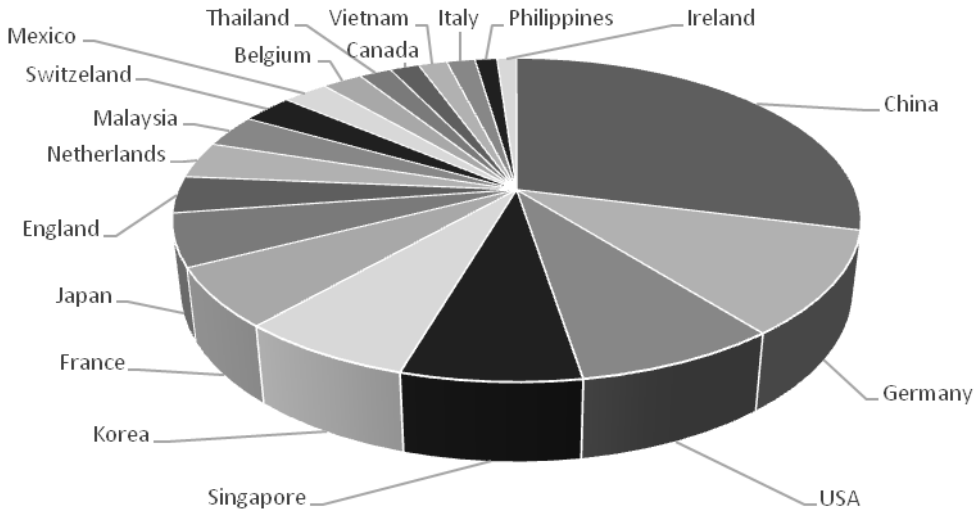
Table 1

### Ranking of countries in the global innovation index in 2015

Economy	Rank	Score	Economy	Rank	Score	Economy	Rank	Score
Switzerland	1	68,3	Hong Kong (China)	11	57,2	France	21	53,6
United Kingdom	2	62,4	Germany	12	57,1	Israel	22	53,5
Sweden	3	62,4	Iceland	13	57	Estonia	23	52,8
Netherlands	4	61,6	Republic of Korea	14	56,3	Czech Republic	24	51,3
United States	5	60,1	New Zealand	15	55,9	Belgium	25	50,9
Finland	6	60	Canada	16	55,7	Malta	26	50,5
Singapore	7	59,4	Australia	17	55,2	Spain	27	49,1
Ireland	8	59,1	Austria	18	54,1	Slovenia	28	48,5
Luxembourg	9	59	Japan	19	54	China	29	47,5
Denmark	10	57,7	Norway	20	53,8	Portugal	30	46,6

\* Source: The Global Innovation Index, 2015

Global innovation leaders also head the international competitiveness rankings. The level of competitiveness and innovation in developed countries is higher; one of the reasons is greater availability of the necessary financial resources. But the situation on the world market of advanced products is changing as the global importance of some emerging markets grows. For example, in 2014 China left Germany and the US behind in the ranking of world exporters of advanced products (Figure 1).



**Fig. 1. Share of countries in world exports of high-tech products, 2014, %\***  
 \*Calculated according to The World Bank

The group of net exporters of advanced products is heterogeneous (Tab.2).

Table 2

**The share of world's high-tech products exports, %**

Economy	2007	2008	2009	2010	2011	2012	2013	2014
China	17,12	18,46	19,78	22,81	23,56	25,3	26,59	26,0
Germany	8,68	8,68	8,94	8,9	9,45	9,36	9,2	9,3
USA	12,34	11,99	8,46	8,2	7,51	7,42	7,05	7,25
Singapore	5,82	6,36	6,09	7,13	6,52	6,42	6,44	6,39
Korea	5,71	5,48	5,93	6,82	6,29	6,07	6,19	6,21
France	4,46	4,99	5,27	5,6	5,45	5,43	5,38	5,34
Japan	6,67	6,51	6,08	6,86	6,52	6,17	4,99	4,7
England	3,48	3,28	3,04	3,38	3,59	3,39	3,29	3,29
Netherlands	3,81	3,16	3,24	3,34	3,46	3,21	3,28	3,27
Malaysia	3,69	2,33	3,26	3,33	3,15	3,06	2,87	2,95
Switzerland	2	2,31	2,51	2,4	2,58	2,51	2,53	2,6
Mexico	1,89	1,81	1,99	2,12	2,1	2,2	2,16	2,3
Belgium	1,42	1,54	1,89	1,79	1,79	1,83	1,98	2,03
Thailand	1,71	1,7	1,77	1,92	1,71	1,69	1,61	1,63
Canada	1,49	1,46	1,48	1,35	1,29	1,46	1,38	1,47
Vietnam	0,13	0,09	0,13	0,23	0,47	0,81	1,32	1,44
Italy	1,5	1,56	1,6	1,48	1,61	1,38	1,41	1,43
Philippines	1,67	1,46	1,38	0,9	0,67	1,04	1,04	1,11
Ireland	1,59	1,51	1,55	1,19	1,22	1,13	1,04	0,99

\* Source: The World Bank

It comprises not only developed countries, but also developing, first of all the countries of Southeast Asia. During the period of study, some of the countries of interest became less important, whereas others managed to strengthen their positions on the world market. Furthermore, in 2007-2014 the rate of growth of trade in advanced goods was much higher than that of the costs of research and development and employment in this sector. Overall, the share of trade in advanced goods decreased in Great Britain, Japan, Ireland, the USA and the Netherlands.

Developing countries (Indonesia, Malaysia, South Korea and Vietnam) strengthened their positions in development of high technologies and on the world market of advanced goods and now are starting to compete in the export of high technologies. Due to lower factor prices, developing countries could greatly improve their positions as producers of advanced technology products.

There are many factors that determine the ability of a country to bring out a nationally and internationally competitive product, among them the skills necessary to develop such a product, investments in research and advanced development (more detail in Tab. 3), innovation activity of firms and investment in the branch, state support. Together they guarantee the build-up of high-technology export.

Table 3

**Total gross expenditure on R & D**

Indicator	Gross expenditure on R & D (Bln. Dollars. USA)				The share of global gross expenditure on R & D (%)			
	2007	2009	2011	2013	2007	2009	2011	2013
Period / Economy	2007	2009	2011	2013	2007	2009	2011	2013
World	1 132,3	1225,5	1340,2	1477,7	100	100	100	100
Countries with high income	902,4	926,7	972,8	1 024	79,7	75,6	72,6	69,3
Countries with above average income	181,8	243,9	303,9	381,8	16,1	19,9	22,7	25,8
Countries with below average income	46,2	52,5	60,2	68	4,1	4,3	4,5	4,6
Countries with low income	1,9	2,5	3,2	3,9	0,2	0,2	0,2	0,3
EU	251,3	262,8	278	282	22,2	21,4	20,7	19,1
ASEAN	328,8	378,8	455,1	545,8	29	30,9	34	36,9
OECD	860,8	882,2	926,1	975,6	76,0	72,0	69,1	66,0
G20	1 042,6	1 127,0	1231,1	1 358,5	92,1	92,0	91,9	91,9

\* Source: UNESCO Institute for Statistics Database

Over the period 2007-2013 financing of scientific and technological progress changed. The share of upper middle income countries in global expense on R&D rose by 10 percentage points, the share of ASEAN – by 7 percentage points. At the same time, there was a decrease in the respective shares of the EU (by 3 percentage points) and of OECD (by 10 percentage points). These transformations were accompanied not only by remarkable changes in volumes of funding of innovation activity, but also in the number of employed in the sector and as a result the number of patents registered by residents of a country. In terms of dynamics of international trade in high-tech products emerging economies left developed countries behind.

It should be mentioned that it is extremely difficult to quantify some of the factors of interest. To estimate the influence of the factors of internal economic environment on the integration of a country into the global innovation space we use the model that employs fuzzy sets:

$$Y = f(x_1; x_2; x_3; x_4; x_5; x_6),$$

Where  $x_1$  is the index “Institutions”,  $x_2$  stands for the index “Human capital and research”,  $x_3$  for index “Marketsophistication”,  $x_4$  is index “Businesssophistication”,  $x_5$  – “Infrastructure” and  $x_6$  – subindex “Innovation results”. Estimation was performed in MATLAB with the help of FuzzyLogicToolbox.

Technological asymmetries become apparent in concentration of high-tech industry in the leading countries. Let’s take a look at the main world centers of production and export of high-tech goods China, Germany, USA and Singapore.

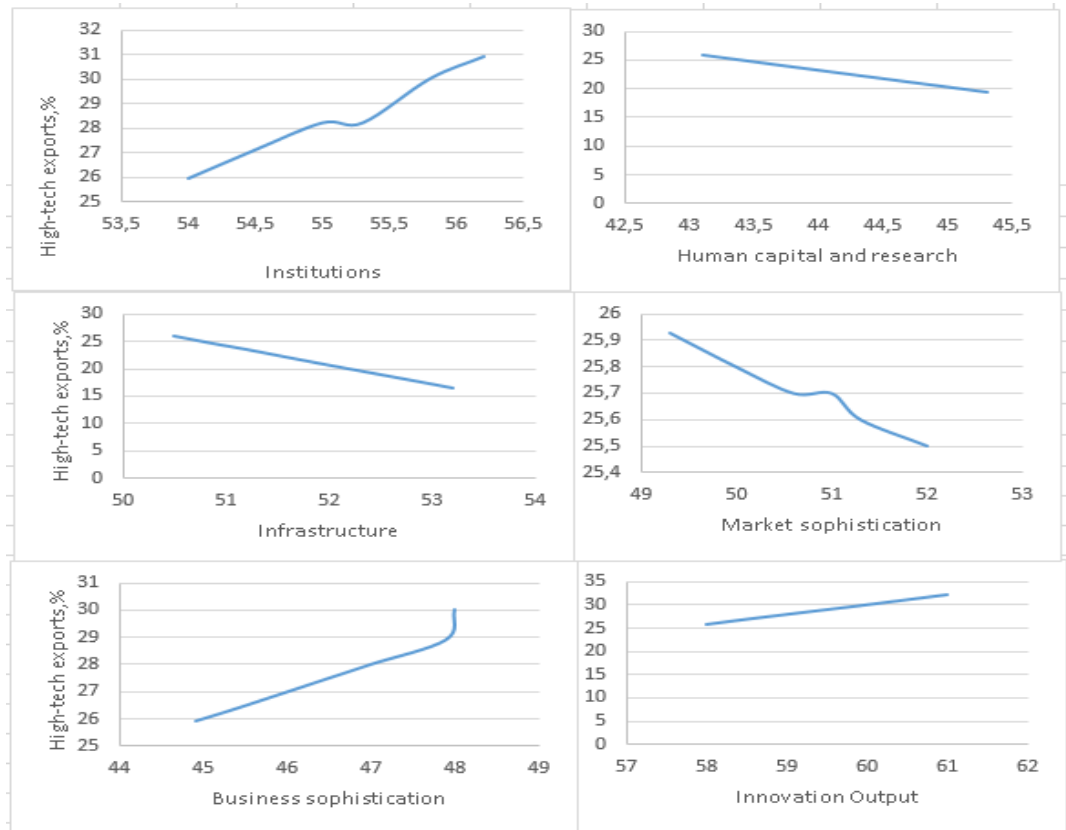
In 2015 the factors take the following values for China: index “Institutions” is 54, index “Human capital and research” 43.1, index “Marketsophistication” 49.3, index “Business sophistication” 44.9, “Infrastructure” 50.5 and subindex “Innovation results” 58. We’ll explore the separated impact of these factors on the result.

Out of all analyzed factors, consistently positive influence on integration of China into the global high-tech space had only indices “Institutions”, “Business sophistication” and subindex “Innovation results”. Changes in the indices “Infrastructure”, “Human capital and research”, “Market sophistication” can even have negative influence on integration of a country into the global high-tech market (Tab.4, Figure 2).

Thus, to increase the share of high-tech production in exports from China it is important to improve the quality of institutions and promote business. These measures will further foster increase in the number of patent requests, scientific and technical publications, the volumes of export of knowledge-intensive goods and services, the volumes of receipts from the use of intellectual property rights (subindex “Innovation results”).

Since some of the independent variables which determine the dynamics of the share of high-tech export from China are statistically significant, ambiguous result of others suggests that the limit of quantitatively-based growth has been reached and qualitative transformations are needed. Exceptionally high level of high-tech exports from China is even more impressive when we consider that in terms of the Global Innovation Index the country was ranked only 29<sup>th</sup> in 2014.





**Fig. 2. Projected changes of China's high-tech export\***

\*Authors' calculations using data The Global Innovation Index, 2015; OECD Stat

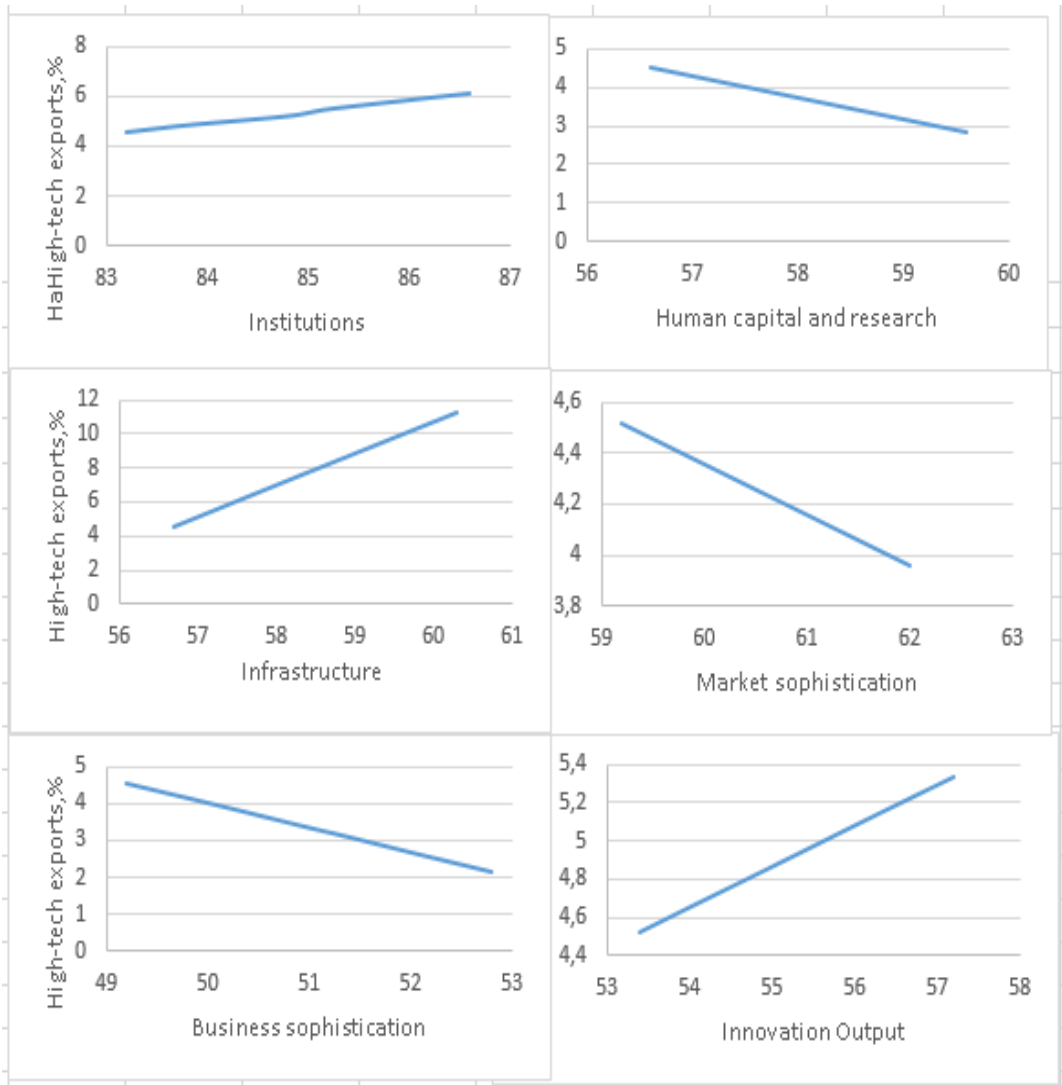
Table 4

**Projected changes in the value share of hi-tech export of China in the succession of the value factors of domestic economic environment**

Institutions	High-tech exports, %	Human capital and research	High-tech exports, %	Infrastructure	High-tech exports, %	Market sophistication	High-tech exports, %	Business sophistication	High-tech exports, %	Innovation Output	High-tech exports, %
54	25,93	43,1	25,93	50,5	25,93	49,3	25,93	44,9	25,93	58,0	25,93
54,5	27,1	43,7	24,1	50,9	24,5	50,0	25,8	45,4	26,4	58,5	27
55	28,2	44	23,2	51,2	23,5	50,6	25,7	46,3	27,3	58,9	27,8
55,3	28,2	44,6	21,4	51,7	21,7	51	25,7	47	28	59,4	28,8
55,8	30,0	45,0	20,2	52,1	20,3	51,3	25,6	47,9	28,9	59,9	29,8
56,2	30,9	45,3	19,3	52,8	17,9	52,0	25,5	48,0	30,0	61,0	32,1

\*Athors' calculations using data The Global Innovation Index, 2015; OECD Stat

According to the Global Innovation Index ranking, Germany has the second biggest share of high-tech export in the world (9.3%) after China (26.0%). The actual values of independent variables for Germany in 2015 were: 83.2 for index “Institutions”, index “Human capital and research” 56.6, index “Market sophistication” 59.2, index “Business sophistication” 49.2, “Infrastructure” 56.7 and subindex “Innovation results” 53.4. We’ll explore the separated impact of these factors on the result as other independent factors stay constant (Tab. 5, Figure 3).



**Fig. 3. Projected changes of Germany's high-tech export\***

\*Authors' calculations using data The Global Innovation Index, 2015; OECD Stat

There is positive correlation between the values of indices “Institutions”, “Infrastructure” and subindex “Innovation results” and the level of Germany’s integration into the global innovation market.

Table 5

**Projected changes in the value share of hi-tech export of Germany in the succession of the value factors of domestic economic environment**

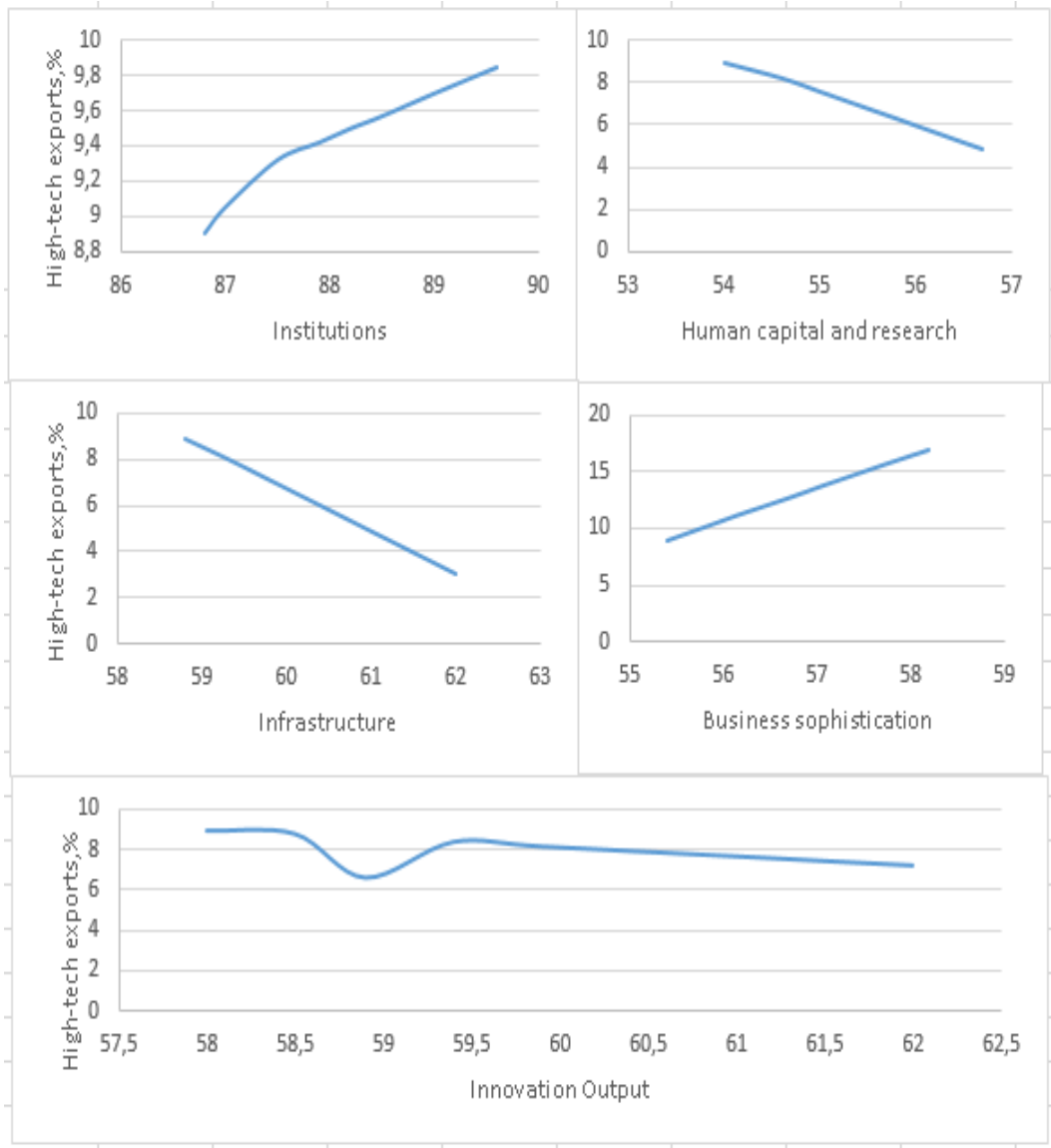
Institutions	High-tech exports, %	Human capital and research	High-tech exports, %	Infrastructure	High-tech exports, %	Market sophistication	High-tech exports, %	Business sophistication	High-tech exports, %	Innovation Output	High-tech exports, %
83,2	4,52	56,6	4,52	56,7	4,52	59,2	4,52	49,2	4,52	53,4	4,52
83,8	4,8	57,2	4,18	57,1	5,27	59,8	4,4	50,1	3,94	54,1	4,67
84,8	5,17	57,8	3,84	57,9	6,76	60,4	4,28	50,9	3,41	54,9	4,84
85,2	5,45	58,4	3,5	58,4	7,69	60,9	4,18	51,4	3,09	55,6	4,99
86	5,82	59	3,16	59	8,8	61,4	4,08	52	2,69	56,3	5,14
86,6	6,09	59,6	2,82	60,3	11,2	62	3,96	52,8	2,17	57,2	5,33

\*Athors’ calculations using data The Global Innovation Index, 2015; OECD Stat

These results show that the necessary actions of the potential strategy with the aim of increasing the share of high-tech production in Germany’s export could be: improving the quality of institutions, infrastructure development and other actions that result in increase of sub index “Innovation results”. At the same time, our sample doesn’t provide evidence that gains in the values of indices “Human capital and research”, “Business sophistication” and “Market sophistication” will guarantee positive changes of the dependent variables.

Now we are going to analyze the data for the USA. The actual values of the factors for the USA are the following: index “Institutions” is 86.8, index “Human capital and research” 54, index “Market sophistication” 81.5, index “Business sophistication” 55.4, “Infrastructure” 58.8 and sub index “Innovation results” 58 in 2015. Again, we’ll look at the impact these factors separately have on the result.

Out of all factors considered, only the impact of “Institutions” and “Business sophistication” on the level of integration of the US into the global high-tech market is always positive.



**Figure 4. Projected changes of high-tech export of the USA\***

\*Authors' calculations using data The Global Innovation Index, 2015; OECD Stat

Indices “Infrastructure”, “Human capital and research” and sub index “Innovation results” always exert negative influence on the integration of the country into the global high-tech market (Tab. 6, Figure 4). Negative correlation of these factors with the dependent variable confirms the necessity of change in the mode of participation in the global value chains even for the USA, the leader of economic development. It is important to secure the direct dependency of investment into human capital and innovation activity with advantages from foreign trade in high-tech products.

Table 6

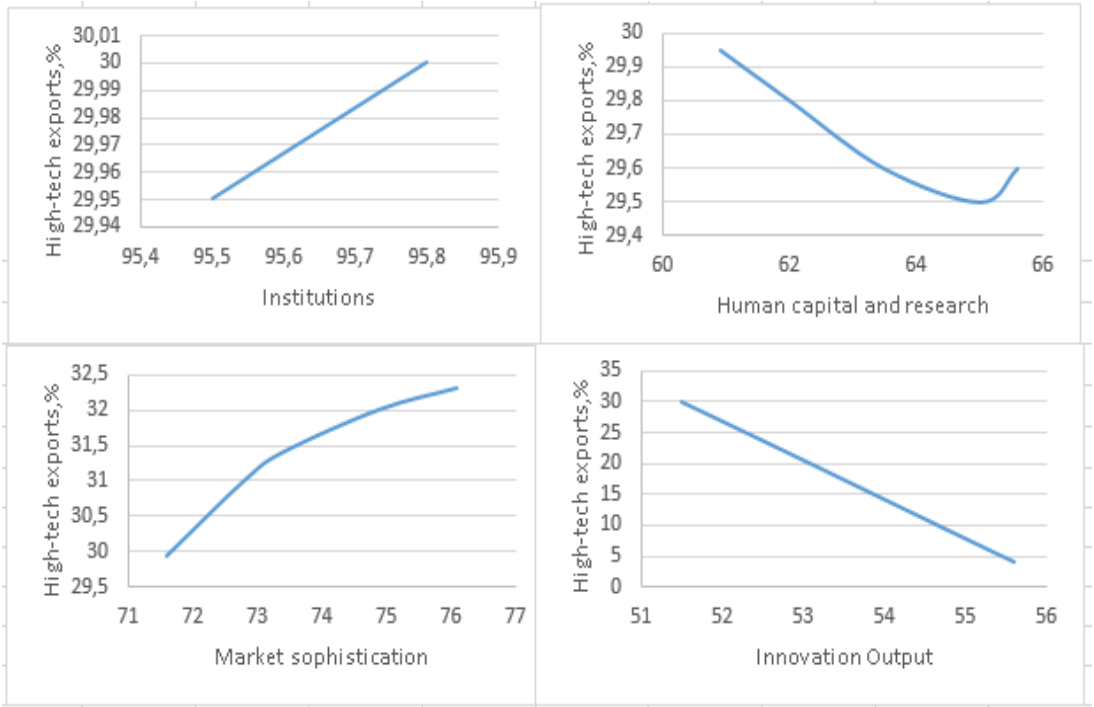
**Projected change sin the value share of high-tech export of USA in the succession of the value factors of domestic economic environment**

Institutions	High-teche xports, %	Human capital and research	High-tech exports, %	Infrastructure	High-tech exports, %	Business sophistication	High-tech exports, %	Innovation Output	High-tech exports, %
86,8	8,9	54	8,9	58,8	8,9	55,4	8,9	58	8,9
87	9,05	54,6	8,17	59,3	8,04	55,9	10,4	58,5	8,74
87,5	9,32	55	7,53	59,9	6,94	56,2	11,3	58,9	6,56
87,9	9,42	55,3	7,05	60,4	6,02	56,7	12,7	59,4	8,34
88,2	9,5	55,8	6,25	60,8	5,28	57,1	13,9	59,9	8,11
88,5	9,57	56,2	5,6	61,3	4,36	57,8	15,9	61	7,62
89	9,7	56,7	4,8	62	3,07	58,2	17	62	7,17

\*Authors' calculations using data The Global Innovation Index, 2015; OECD Stat

In the next part we review he details of the foreign trade of Singapore, one of the countries developing very fast economically. The independent variables took the following values in 2015: index "Institutions" was 95.5, index "Human capital and research" 60.9, index "Market sophistication" 71.6, index "Business sophistication" 63.1, "Infrastructure" 69.5 and sub index "Innovation results" 51.5.

According to the estimation results, positive correlation with the dependent variable is observed for the values of indices "Institutions" and "Market sophistication". It should also be noted that Singapore is world's leader in the rankings "Infrastructure" and "Business sophistication" (Tab.7, Figure 5).The findings show that the share of export of high-tech products can be increased by improvement of the quality of the market.



**Fig. 5. Projected changes of Singapore's high-tech export\***

\*Authors' calculations using data The Global Innovation Index, 2015; OECD Stat

Table 7

**Projected changes in the value share of high-tech export of Singapore in the succession of the value factors of domestic economic environment**

Institutions	High-tech exports, %	Human capital and research	High-tech exports, %	Market sophistication	High-tech exports, %	Innovation Output	High-tech exports, %
95,5	29,95	60,9	29,95	71,6	29,95	51,5	29,95
95,6	29,97	62	29,8	72,8	31	52,1	26,2
95,7	29,98	63,48	29,6	73,4	31,4	53,1	19,9
95,8	30	65	29,5	74,9	32	55	7,83
-	-	65,59	29,6	76,1	32,3	55,6	4,08

\*Athors' calculations using data The Global Innovation Index, 2015; OECD Stat

The countries considered in our study make up sort of a “high-tech pole” of the global economy in its current state. The positive influence of “Institutions” is common for all 4 countries, it comprises the complex of basic political, social, legal and economic rule sthat

determine the frame work of business-conductand form the basis for production and export of innovative products.

Thus, leadership in innovation is the precondition for increases in competitiveness of both companies and countries. An important indicator of active integration into the global innovation market is the share in the world's exports of high-tech products. Among the global leaders on this market are not only developed countries, but also emerging economies. The success of the latter depends on the focused state policies.

In this article we tried to identify to which extent the factors of internal economic development of countries influence their ability to integrate into the world market of high-tech products. Using the data from 4 countries we found out the following: first, a major role in their actual leader ship play the constantly high value sand improvement sin the indicator "Institutions" – Political, Regulatory and Business environment. It is also important to pay attention to it if the countries want to keep their positions in perspective. Regardless of political models in the above-mentioned countries and the peculiarities of government control over economic activities, political and economic stability, rule of law, transparent business operations directly affect the success nationally and internationally. Second, the influence of other independent variables on the share of a country in the world high-tech exports is individual and depends on labor and intellectual intensity of export, level of integration into the global value chains. Third, countries that aim for global leadership in export of high-tech products should form competitive advantages by means of innovation and investment.

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## MAIN SEGMENTS OF MANAGEMENT ACCOUNTING FROM THE POSITION OF INDUSTRIAL ENTERPRISE

**Serhii Hushko**

prof. DSc, Kryvyi Rih Economic Institute  
SHEI “Kyiv National Economic University named after Vadym Hetman”,  
e-mail: dep.director\_edu@kneu.edu.ua, Ukraine

**Yves Merlin Kengne**

MA, Polonia University in Czestochowa, e-mail: up@ap.edu.pl, Poland

**Rostyslav Kotkovskiy**

MA, SHEI “Kryvyi Rih National University”,  
e-mail: kotkovskiy22@gmail.com, Ukraine

**Abstract.** The article describes features and relevance of nowadays management accounting for enterprises. The authors define the place and role of management accounting, showing its advantages and differences from business accounting and tax accounting. The research reveals the relevance of management accounting for planning, monitoring and taking rational decisions for the enterprises, as well as the subject and the object of management accounting. It analyzes problems, meaning, prerequisites for the implementation of management accounting for decision making and effective management of an enterprise.

**Keywords:** management accounting, tax accounting, business accounting, management accounting system, cost accounting.

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### Introduction

Economic activity in the conditions of globalization of integration and automation puts forward new requirements for the management system. It should provide economic independence, competitiveness and sustainable financial situation for the market. It is impossible to accomplish this task without primary improvement of the cost management system and production costs.

Management accounting is meant to provide accurate and complete information needed to make correct and effective management decisions that may influence the receipt of the final financial results of the company activity and strengthen its reputation at the market. Management information reflects the real operating rate of the company activity and gives owners an idea of how effective and profitable their business can be. Unfortunately, most managers still do not have a clear understanding of the nature and content of management accounting, its organization and efficiency of implementation. The Implementation process of management accounting system at an enterprise is a very important and primary task.

Economic studies of the management accounting concept usually compare different scientists' points of view without taking into account the time when a certain point of view was expressed. However, management accounting as a socio-economic phenomenon is constantly evolving, expanding its features, along with the increase of a problem set to be solved and methods to be used. That is why questions about the necessity of management



accounting, methods of its effective implementation and analysis of the use remain controversial.

The research objective is to demonstrate the necessity of management accounting and find sectors for its implementation at industrial enterprises.

### **Directions implementation of management accounting for businesses**

Nowadays, there are two main problems in the sphere of management of expenses and financial results of the enterprise activity. The first one is to reorient domestic theory and accumulated experience into solving new tasks of controlling the company in market conditions. The second one is to create new innovating systems to get information about expenses, to use new approaches to cost accounting and calculation of financial results, along with methods of analysis, control and making on this base management decisions. In this regard, the analysis of management accounting is of a considerable interest for Ukrainian enterprises. It is recognized, that management accounting is a necessary tool for management of an organization. It allows increasing the quality and efficiency of management decisions, maximizing the expected result and controlling economic activity risks effectively.

Meanwhile, domestic enterprises which at present function in terms of competition and struggle for life, feel acute need in the organization of the efficient management accounting system. At modern stage of the economy development the crucial task is to improve the production management system on basis of unified principles for planning, accounting, pricing, calculation, analysis and control. Under the circumstances the role of management accounting immeasurably increases, which is the necessary tool for mobilization of all existing reserves for the increase of the effectiveness of production and economic activities at enterprises.

In this regard the problem of its implementation into the domestic practice acquires primary importance, arousing the need of conducting in-depth investigation of economical nature, essence and content of accounting management and its fundamental theoretical bases. Nowadays a lot of directors do not always realize the role of management accounting for organization and are sometimes unable to perceive the objectives and tasks for its implementation.

The critical analysis of national and foreign scientists' opinions on management accounting we can conclude that:

1. All scientists recognize that:
  - management accounting information is meant only for the internal use, which stipulates commercial confidentiality for management accounting data;
  - management accounting information is meant for making of management decisions; in this way it is able to actively influence the production process;
  - the essential part of management accounting information consists of expenditures data.
2. One group of authors (D. Doyle, K. Drury, Robert D. Kaplan, Robert Kupper, Ch. Hongren, Foster J., Sh. Datar, 2005) believe that:
  - management accounting provides collection, registration, systematization only of accounting information, that is management accounting is a part, a subsystem of accounting;
  - the objects of management accounting are only expenses and results;

- management accounting information is used only to make operational decisions;
  - management accounting information is meant to control structural subdivisions of an enterprise.
3. The other group of authors – the largest (P. J. Atamas, F. F. Butynets, S. F. Holov, M. O. Danyiuk, O. V. Lyshylenko, L. V. Napadovska, V. M. Panasiuk and others) believe that:
- management accounting is an integrated system of accounting, valuation, planning, monitoring and analysis;
  - management accounting reflects not only data about expenses and results, but also other objects the information about which is required to make special problem administrative decisions;
  - management accounting information is used both for making operational/current and prospective/strategic management decisions;
  - management accounting information is meant to control both the structural subdivisions of the enterprise and the enterprise as a whole with segments of its business.

Management accounting as a socio-economic phenomenon is constantly evolving. It expands its functions, increases the range of tasks solved by it and uses more diverse methods.

In addition to the management accounting an enterprise system includes business and tax accounting. They are closely related to each other, but each has its own characteristics. Thus, the business accounting functions for the benefit of external users. Therefore, the balance sheet, in principle, is not a closed document, so in the case with PJSC (public joint-stock companies), it is even published in the media. State bodies and public organizations develop accounting standards, mandatory for all businesses. In Ukraine, such standards are represented by national regulations (standards) of business accounting. In case the company seeks to enter the world market of investments, it is forced to prepare its financial statements according to IAS (International Accounting Standards - international standards of accounting) or GAAP (Generally Accepted Accounting Principles - generally accepted accounting principles applicable in the USA) rules as well.

Tax accounting is closely connected with business accounting, but is different because it introduces rules for calculation and payment of taxes, and for its regulatory sources has the Tax Code of Ukraine, laws and regulations of the State Fiscal Service and other agencies. By the way, the problem of discrepancy between tax and accounting standards is the recent issue of all Ukrainian accountants, as they have to prepare statements according to accounting rules, and to charge taxes - according to tax ones, while the differences between these rules are growing.

Business and tax accounting types are linked to legal entities. However, business can consist of one or several legal entities, when for this business owner it is important to know the results in the context of the aggregate of enterprises. In addition, the specific of each business requires different approaches to financial information. For example, to make management decisions it may be important for the company management to know the cost of sales by its individual species, while for fiscal and accounting purposes it is enough to have the total figure.

The subject of management accounting is the industrial and commercial activities of an enterprise as a whole and its separate structural subdivisions in the entire management cycle.

The objects of management accounting is the expenses for the whole enterprise and its

structural divisions; results of the economical activity of an enterprise and its divisions; financial results (expenses) of responsibility centres; internal pricing, which implies the use of transfer prices; budgeting and internal reporting system. Objects of management accounting are reflected through a set of methods and techniques that form the basis for the method of management accounting, which include methods of financial accounting, the index method, methods of economic analysis, mathematical methods, etc.

Each company can implement the management accounting system entirely based on its own goals and vision of development prospects. The use of management accounting system helps improve the entire business management process, creating real opportunities for its optimization.

The implementation of management accounting is a difficult task, which is often solved in the framework of the whole enterprise reorganization. All the problems associated with the management accounting implementation, can be summarized as follows:

- difficulty in determining the qualification and selection of experts, whose responsibilities include setting and conducting management accounting;
- lack of understanding by the management and employees of a company of this area of work;
- lag in other areas of work: too much difference between the accounting and tax accounting, lack of a clear structure of an enterprise;
- lack of ideology at an enterprise, which could provide the work of a team as a whole, relations of mutual assistance, mutual respect and awareness of responsibility for provided information, etc.

The responsibility for the solution of all these problems lies with the management of the company, which should take interest in creating a comprehensive system of management accounting and be proactive to deal with the related organizational, psychological and technical problems.

The reliability of information in management accounting system depends on many factors: whether the enterprise goals and strategies for their achievement were identified correctly in the process of management accounting system development; whether the centres of financial responsibility were selected properly; whether the technology of business processes correspond to company tasks and the planned system of management accounting; whether the system of distribution of burden costs is selected correctly; how well horizontal communication is arranged and the system of responsibility for information collecting and budgeting is divided.

In the process of management accounting system implementation apart from the enumerated ones the organization may face a lot of other subsidiary tasks such as: team building, the necessity to train the staff, overcoming the resistance of the staff to innovations, the establishment of strong horizontal communication and transition to regular management system.

However, the results obtained as a consequence of management accounting system implementation, will surpass all expectations, as management accounting which is properly organized will provide the information necessary to prioritize the activities of the enterprise and plan its future activities, will make a basis for evaluating the opportunities and provide a control mechanism able to implement taken decisions.

Management accounting came into the economic life of our country together with the emergence and growth of market-oriented enterprises. In the competitive environment not only the prosperity of business, but also its very existence often depends on correct,

appropriate to this environment, managerial decisions. Under the influence of various objective factors caused by new technologies, government regulation and growth of enterprises, a business structure becomes more complicated, there appears a need to split it into multiple entities with the simultaneous development of many areas of activity and the formation of a significant amount of structural subdivisions.

The main purpose of management accounting is to increase the profit of an enterprise. At the same time it:

- provides the management of an enterprise with the information about consolidated results of the business, which consists of an unlimited number of legal entities and structural subdivisions;
- shows the results of separate areas (these can be activities, product groups or other elements, depending on the specifics of the business), regardless of how these areas are distributed between entities starting this business;
- also shows the results of the work of structural subdivisions, which can be represented by divisions, departments, entities, etc.;
- controls expenses by maintaining their accounting according to the types and cost centres;
- accumulates statistics on income and expenditure of an enterprise in certain terms and reveals common trends;
- plans and monitors the budget performance by separate cost centres as well as business as a whole, including a set of legal entities;
- conducts operational accounting of settlements with certain contractors and mutual settlements between private entities.

Implementation of management accounting involves the solution of organizational and methodological tasks. Accordingly in the process of organizational decision making, it is necessary to determine who and how (which structural units and which way) will carry out the implementation of management accounting.

Taking into consideration organizational issues of management accounting implementation, it is worth noting, that for a small enterprise with a short production cycle and simple organizational structure it will be enough to hire accounting analyst or cost management specialist. Chief accountant can carry out management accounting as well and the head of the business can be responsible for setting objectives and coordinating activities to achieve them. At a medium-sized enterprise or an enterprise with a specific activity field, which is risky and requires continuous improvement under the conditions of significant competition a group of experts in management accounting consisting of planning and economic department can be created. Also, while solving specific problems, the company can use outsourcing, involving external specialists for a certain period of time to help with solving these issues. At a large enterprise it is reasonable to create a separate department for management accounting and economic analysis, which would be directly subordinate to the senior executive. Divisional organizational structure provides the division of a complex, inflexible organization into separate units, which can solve issues locally. That kind of structure has become a prototype for an internal holding and is effective in terms of efficiency and flexibility of controlling. Therefore, for the head of such an enterprise it would be reasonable to organize management accounting directly in subdivisions, assigning an appropriate specialist in each unit and delegating powers to make him closer to the receiver cost centres and decision making. However, management accounting by costs centres can't reveal the general complete picture of business activity and represent the level of goal

achievement at an enterprise on the whole. That is why it is indispensable that the head of the department should be the analyst, who will receive the information from appropriate employees of separate departments and summarise it.

Resolving methodological tasks for organization and functioning of management accounting requires the observance of a number of principles, including (Napadovska, 2010):

1. The principle of using methodical techniques from different sciences. To make effective management decisions it is sometimes necessary to consider many aspects and factors relating to different areas of knowledge. Based on a combination of teaching methods of various sciences, such as economics, mathematics, statistics, psychology, and also taking into account new technologies, current issues can be solved more rationally than if each of them was used separately.
2. The principle of accounting orientation to the achievement of strategic goals at an enterprise. Management accounting is oriented towards the future, i.e. to the predictable estimates, related to the objectives of an enterprise, to achieve which such activities are undertaken. Management accounting is meant, in particular, to provide the necessary information about alternative management decisions, though the advantage is primarily given to the companies oriented to desired strategic goals.
3. The principle of effectiveness. Company activities are profit oriented, so reasonably calculated alternative solutions due to their fulfilment should lead to certain positive economic results.
4. The principle of responsibility for decision making. It determines personal responsibility for the fulfilment of administrative decisions. So this principle proves the need for the allocation of responsibility centres not only as an effective functioning factor of the management accounting system, in particular, but also of the enterprise management system as a whole.
5. The principle of complexity. It implies the use of the corresponding approach to solve problems. It is based on the complex information arriving from different departments of an enterprise and also from the external environment.
6. The principle of cost differentiation. Depending on objectives it involves the use of different methods of cost determination in the process of reaching various goals, which gives an opportunity to increase the level of cost management. By choosing the optimal method we can accurately determine the required amount of resources needed to achieve the goal.
7. The principle of Economy. It indicates that the economic benefits from the implementation and functioning of management accounting system must exceed expenses.

The effectiveness of management accounting system depends on the level of its organization and assurance of its optimal functioning. In particular, it is reasonable to mark out the following criteria for the evaluation of the organisational level of management accounting system:

- the optimality of the organizational structure of an enterprise, which, among other things, would give an opportunity to allocate responsibility centres;
- the rationality of the projected structure of a management accounting department;
- the optimality in the distribution of duties among the employees of the department;
- the availability of opportunities for data systematization in a large information flow;
- the availability of a unified information field for a fast receipt of necessary data;
- the availability of effective software workstations for employees, etc.;

Thus, management accounting is an integral part of the enterprise management system. It is intended to ensure the information formation for the best management decision making while carrying out: the monitoring of the effectiveness of current activities at an enterprise; the planning of strategy and tactics of a company commercial activity, optimizing usage of material, labour and financial resources; measuring and evaluating the effectiveness of management, identifying the level of profitability of certain products; directing influence on the course of production and sales in order to take effective management decisions.

To implement the management accounting system successfully it is important to take into account three integral parts of this process:

- 1) Special resources necessary for the realization of this task. If an enterprise has set up to performance of the task, it will have to deal with a great amount of financial expenses as well as time expenditure;
- 2) Specialists. Management should realize that to implement management accounting they must hire not accountants, but professionals who have relevant experience. However, the idea to involve own experts instead of temporary consultants is worth considering;
- 3) Participation in the implementation process. Management often believes that it is unnecessary to interfere in the area where there are own specialists. However, you can look at it from the other point of view: how a consultant or specialist will know without the active participation of management what information they would like to see on their table to be able to make right management decisions.

### **Conclusions and suggestions**

Thus, the place of management accounting in the financial system of an enterprise is absolutely particular. Its introduction and implementation require different approaches and different professionals from those which serve accounting and tax sectors.

The reorganization of the management system of business processes at an enterprise through the implementation of a management accounting system opens up entirely new possibilities for Ukrainian enterprises and enables not only to receive information about production processes, but also efficiently use it for decision making. Management accounting is an effective management tool because it creates competitive advantages in the market environment, namely, providing the enterprise with key information. The Experience of Ukrainian enterprises shows that the practical application of management accounting, unfortunately, has not been well spread yet, due to the range of unresolved issues. In modern terms this task is very urgent and needs researching.

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## EUROPEAN INTEGRATION PRIORITIES OF UKRAINIAN RAILWAYS IN CONDITIONS OF GLOBALIZATION

**Olga Stasyuk**

PhD, Institute of Economics and Forecasting of Ukraine National Academy of Sciences,  
e-mail: stasyuk\_o\_m@ukr.net, Ukraine

**Oksana Pikulyk**

PhD, Lesya Ukrainka Eastern European National University,  
e-mail: oksanalutsk2009@rambler.ru, Ukraine

**Abstract.** Authors determined the main priorities of the Ukrainian railways in the course of European integration. These priorities are examined in the context of institutional and infrastructural integration of Ukraine Railway Transport. Authors defined the main tasks of the railway transport of Ukraine within the framework of European integration priorities.

**Keywords:** railway transport, priorities, European integration process, institutional and infrastructural integration.

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### Introduction

Globalization processes cover not only trade, capital market, industrial production, and also the integration of transport systems. An integration of the railway transport of Ukraine into the European transport system is one of the priorities of Ukrainian state policy. This is evident from signing of the Association Agreement between Ukraine and the EU, which became the basis of the large-scale internal changes in all spheres of Ukrainian economy, including the railways, that, moreover, are in the process of the internal reforming and therefore it determines a particular interest in the prospects of the railway transport. Railway transport cooperation, in accordance with the Agreement, ensures the implementation of 8 directives and 4 regulations for the period of 8 years, i.e. until 2022. Therefore, the integration processes of the railway transport of Ukraine should be coordinated with the internal reform processes and the implementation of the relevant directives and EU regulations in the sector.

### Directions of institutional and infrastructural integration of Ukrainian railways

The most effective in the next few years for Ukraine in the framework of the Association Agreement is the sectorial integration cooperation, where the important role in the transport sector belongs to the railway transport. The international integration process in the transport sector can manifest itself as *functional* (joint ventures, companies and corporations in the transport sector), *institutional* (going through the participation of countries in the international transport organizations, in management and coordination of international cooperation, promotion of common standards, rules regarding transportation and regulation of the market of transport services) and *infrastructural* (occurring through a combination of disparate transport infrastructure into a unified transport and communication system of two or more countries) integration (Nykyforuk, 2009).



The need to increase the competitiveness of Ukrainian railway transport in the international transportation market allows us to determine a number of priorities for the Ukrainian Railways in terms of deepening the institutional and infrastructural integration in the context of the European integration process in the transport sector:

1) *Intensification and implementation of the railway transport reform taking into account the experience of European countries.*

Railway transport reform is taking place in accordance with the State Program of Reforming Railway Transport for 2010-2019 (Derzhavna tsil'ova prohramare formuvannia zaliznychnoho transportu na 2010–2019 roky). The reform involves the creation of an effective mechanism for intra-industry competition through a policy of liberalization of access to potentially competitive sectors, following the European reforms and realizing their principle of separation of infrastructure and transportation – infrastructure management and management of the transportation process, that was firstly defined in the EU by Directive 91/440/E40 (Council Directive on the development of the Community's railways, 1991). This will force the railroad to introduce new rules and management principles for the organization of these fields, to define and set new appropriate requirements to own property, own calculations, i.e. its own financial performance. Open access to railway infrastructure will provide the possibility for new businesses to be started that will offer new and better services. According to three European directives and one regulation that provide access to market and infrastructure, any carrier should have the right to use the infrastructure. A prerequisite of equal access to the railway infrastructure is the organizational and financial separation.

The reform of the Ukrainian Railways becomes urgent in the light of the approximation of national and European legislation in the framework of the Association Agreement between Ukraine and EU and because the paces of the rail transport reform in Ukraine is much slower than in EU. This requires a review of the State Program of Reforming Railway Transport for 2010-2019 to adjust the terms of reform and harmonize the normative-legal base of the reform with the basic provisions of the relevant EU directives, that will ensure the institutional integration of Ukrainian Railways with the European ones.

2) *Large-scale technical and technological modernization of railways and transition to an innovative development path.* Some of the most acute problems of the Ukrainian Railways are: 1) the physical and moral deterioration of the rolling stock, the inconsistency of its technical and economic characteristics to the modern requirements (table. 1) and 2) the infrastructure deterioration, (table. 2), therefore, the technological upgrade is one of the priority tasks for today.

In the period of 2000-2015, the operated traction rolling stock decreased by 17 % (782 units), freight cars – by 42 % (77,8 thousand units) and passenger cars – also by 42 % (3,8 thousand units), that is, the amount continuously decreases and the operational lifetime increases.

The main reasons for this situation are: 1) decommissioning of the rolling stock, which has fulfilled the appointed service life; 2) permanent underfunding, that makes the rate of aging of the Ukrainian Railway rolling stock much higher than the rate of buying of the modern ones; 3) ineffective approach to the maintenance and updating of the material and technical base (the necessary technical services haven't been provided in full, the rolling stock hasn't been renewed in time); 4) regular failure to implement major state programs for the renewal of the rolling stock and infrastructure.

Table 1

**Railway transport inventory, rolling stock in 2000–2015, units\***

Rolling stock by purpose	Years			
	2000	2005	2010	2015
Diesel	2741	2572	2539	2151
Electric	1796	1797	1861	1720
Locomotives	140	66	51	24
Freight cars, thous. including:	185,7	150,3	120,6	107,9
covered	21,0	18,3	12,0	7,1
platforms	16,2	12,5	8,6	5,5
open wagons	82,5	64,4	59,6	48,5
tanker	17,8	14,3	9,6	9,5
refrigerators	4,1	1,1	0,3	0,5
Passenger cars, thous. including:	9,0	7,9	7,3	5,2
soft	0,4	0,4	0,4	0,3
no compartment	4,6	3,9	3,6	2,7
compartment	2,7	2,5	2,5	1,9
interregional	0,3	0,6	0,4	0,2
dining cars	0,3	0,2	0,1	0,1
baggage, mail-baggage	0,2	0,1	0,1	0,04

\* Source: Derzhavna tsil'ova prohamare formuvannia zaliznychnoho transport na 2010–2019 roky

Table 2

**The railway network technical equipment in 2000-2014, km\***

Indicators	Years			
	2000	2005	2010	2014
The operational length of the path including 2-track and more	22301,9	22001,4	21705,2	20969,1
	7279,1	7150,7	7333,9	7312,0
The exploited length of electrified sections including alternating current	9169,8	9407,2	9877,1	9990,00
	4510,2	4716,6	5112,6	5506,09
The operational length of lines equipped with automatic block system and dispatching centralization	13491,5	13378,3	13402,2	12829,89
The total length of main tracks	30328,8	29848,1	29661,1	28886,9
The length of the tracks on reinforced concrete	18885,6	21532,5	24730,2	25066,1
The length of jointless track	171189,7	19242,7	21387,0	21663,3

\* Source: Derzhavna tsil'ova prohamare formuvannia zaliznychnoho transport na 2010–2019 roky.

The deepening integration of Ukrainian Railways will cause both positive (for example, import of new technologies) and negative consequences (including vulnerability of domestic producers) for technical and technological renovation.

3) *The development of multimodal (combined) transport through participation in the European multimodal projects.* EU enlargement to Ukraine's borders brought new challenges on the transportation zone formation and the ITC development.

Ukrainian Railways conduct transportation services within three (№ 3, № 5, № 9) Pan-European international transport corridors, defined at the second Pan-European transport Conference in Crete. However, the pace and scale of the railway infrastructure development in Ukraine are not comparable with the similar processes in the European countries that are not only active in the development of their transport networks but also in the implementation of innovations. One of the important tasks is to complete the new Beskidy tunnel that will allow to increase the throughput of the fifth European transport corridor (Italy – Slovenia – Hungary – Slovakia – Ukraine). Its strategic importance is determined by its special role in transporting goods to the Western border of the country, and the completion of the new Beskidy tunnel will allow increasing the efficiency and the traffic speed on this part of the corridor.

In addition to infrastructure projects, it is also important to improve the traffic management system within international transport corridors, to carry out the analysis of the modern transport market and its prospects, to use new information technologies in the traffic flow management for both domestic and international market.

Combined transport is considered to be one of the potential of Ukrainian railways but we are far behind the EU by the level of its development and this is an obstacle to our integration into the European railway network. The combined transport train "Viking" goes through Ukraine, Belarus and Lithuania and connects the infrastructure of Maritime container and piggyback lines of the Baltic region with the similar infrastructure of the Black, the Mediterranean and the Caspian seas. The container train "Zubr" runs across four states, connecting the Baltic and the Black seas, as well as Ukrainian ports Illichivsk and Odessa with ports Riga (Latvia) and Muuga (Estonia).

There is a new project for the TRANS-European transport network development (TEN-T) in Europe. Its core and comprehensive networks should be finished by 2030 and 2050. The major aim of TEN-T policy is to connect the TEN-T networks to the infrastructure of the neighbouring countries that will also ensure effective and reliable management of migration at the external border with the emphasis upon the border crossing points, to ensure the seamless traffic flow, to simplify the border checks and the border control procedures (Updated National Transport Strategy of Ukraine, 2016).

The Ukrainian railway transport, which plays an important role in the international transport and now remains not integrated with TRANS-European transport network, can take a special place here. There are the ends of two multimodal corridors integrated into the TRANS-European transport network on the Ukrainian border. In particular, the Mediterranean corridor, that ends at Záhon station on the border with Hungary, and the Eastern corridor, that ends at Chierna-nad-Tisou and Matovce stations on the border with Slovakia. Both sides are interested in multimodal corridors to be continued on the territory of Ukraine.

4) *The development of high-speed transportation.* The important task of Ukrainian transport policy in the context of deepening integration and globalization is to increase the speed and efficiency of both domestic and transit transport.

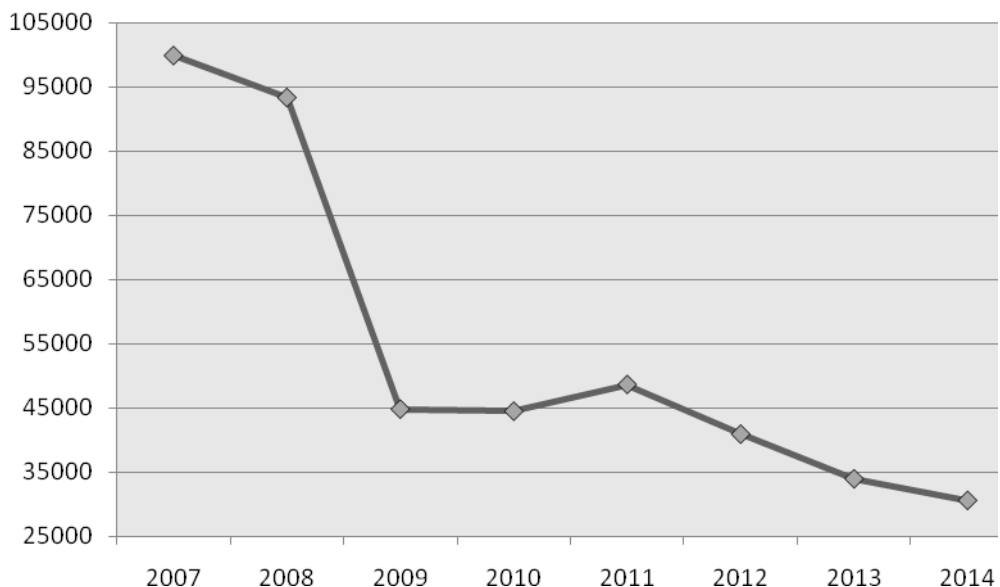
Today, the main highly-demanded directions in Ukraine are provided by high-speed passenger transportation. However, using the term "high-speed passenger message", it should

be noted that the maximum rate (not the route rate) of Ukrainian high-speed trains is 100-120 km per an hour, while in Europe the figure is 160 km per an hour or more. High-speed rail transportation in Ukraine does not meet European standards. This leads to a contraction of European carriers demand for the railway transportations that prefer more attractive terms, routes and prices.

The further introduction of the high-speed traffic, by construction of the appropriate infrastructure and the division of the railway network separately for the passenger and freight transport on the strategic rail roads should be considered as a long-term and innovative basis for the Ukrainian Railways development. This will ensure integration within the European railway community, considering the global trends in the high-speed freight and passenger traffic development and can be implemented only through the railway reform, the gradual transition to a vertically integrated management structure.

Considering the current sharpening of competition for the transit flows, it is important today to construct a high-speed European rail track of 1435 mm width through the territory of Ukraine to provide services at the northern branch of the Silk Road, that will link Europe with the countries of the South-East Asia, including China.

5) *Recovery of the railway transport transit potential.* Rail transport is the basis of the transit potential of Ukraine (except for pipeline), as it is used to transport 75-80% of all transit cargoes in Ukraine. In 2014 the Ukrainian Railways carried 29.4 million tons of transit cargo. Comparing the peak period from 2007 to 2014, the rail transport lost almost 30% (29.4%) of the annual volume of cargo transit (graph 1).



**Fig.1. The volumes of transit transportation by the railway transport in 2007-2014, in million tons**

Source: Derzhavna tsil'ova prohramare formuvannia zaliznychnoho transportu na 2010–2019 roky

The major part of transit goods is transferred from Kazakhstan, Russia and Belarus to European countries, particularly Hungary, Slovakia, Czech Republic, Austria and Romania and also other countries of the world through the ports (Vidnovlennia tranzynohoho potentsialu v konteksti pidvysychennia konkurentospromozhnosti Ukrainy na mizhnarodnomu rynku transportnykh posluh. Analitychna zapyska, 2014).

The two major programs expired in 2010 – the Comprehensive Approval Program of Ukraine as a Transit State in 2002-2010 and the State program of development of national network of international transport corridors in Ukraine for 2006-2010, that were implemented under the Government's policy to attract transit traffic through the territory of Ukraine. These Programs were not fully implemented, but the new state transit transport and the transport infrastructure development program was not drawn up.

The growth of international competition in the transport-transit sector for the additional transit flows, accelerated railway infrastructure development in the neighbouring countries require increasing traffic capacity on the border.

6) *The improvement of passengers services in accordance with EU directives and regulations stipulated by the Association Agreement.* The passenger rail transportation in EU is defined by two regulations – Regulation (EC) No 1371/2007 on the rail passengers' rights and obligations and Regulation (EC) No 1370/2007 of the European Parliament and Council of 23 October 2007 on the public passenger transport services by rail and by road (Regulation (EC) of the European Parliament and Council on public passenger transport services by rail and by road, 2007). Regulation (EC) No 1371/2007 was aimed at safeguarding the users' rights for the rail passengers and at improving the quality and the effectiveness of the rail passenger services in order to help increase the share of the rail transport in relation to other modes of transport (Regulation (EC) of the European Parliament and Council on rail passengers' rights and obligations, 2007).

The successful implementation of this Regulation in the railway industry of Ukraine will not only improve the quality and efficiency of the rail services and raise the safety standards of the passenger transportation operated by the railway transport, and also will help regulate relations between the railway enterprises and passengers (consumers) in Ukraine, and to preserve the share of the rail transport in the transport market of Ukraine, will contribute to improving the competitiveness of the rail transport in the internal and foreign markets.

The full implementation of this Regulation requires other directives and regulations to be implemented as the Regulation contains 6 references to these documents. Ukraine should sign an Additional agreement on transport, that will contain a paragraph concerning the implementation of this Regulation and provide a transition period.

The introduction of Regulation (EC) No 1370/2007 of the European Parliament and Council of 3 October 2007 on public passenger transport services by rail and by road into the national legislation is complicated by the lack of the public market for the rail passenger services, that has just started to form and its formation is considered to be a final stage of the deep structural reform.

7) *Creation of a traffic safety management system and environmental protection system.* The main railway transport problems are outdated production technologies, energy-intensive equipment, transporting of dangerous goods, a large number of obsolete and physically worn-out environmental constructions, increasing noise pollution, safety problems and the like ones. All mentioned have the adverse effects on the environment.

The reform of the railway sector is considered to be an opportunity to create an effective environmental safety system of the railways, that will be fully consistent with the basic

principles of national environmental policy. It is advisable to develop a sectorial environment protection program based on the EU directives (especially the Directive 2004/49/EC of the European Parliament and Council of 29 April 2004 on safety on the Community's railways (Directive 2004/49/EC, 2004), that requires a different approach to the environmental safety issues in the railway sector, as well as the study and systematization of domestic and European Railways experience in the environmental field.

### **Conclusions and suggestions**

In summary, we can conclude that there is a common interest in enhancing the integration of Ukrainian Railways in the transport market of the EU. Western European States seek to diversify both the sources of origin of imported goods and the ways of their transportation, and the Ukrainian Railways have a considerable potential in this field. However, these activities should be more consistent and well-grounded. It is reasonable to develop a strategy on the prospects of the railway transport development, directions of its development, transit, participation in projects for the development of TRANS-European transport network (TEN-T) in the context of the world market conditions in the age of globalization.

Among the major challenges faced by the Ukrainian railway in the context of the institutional and infrastructural integration should be mentioned the following:

1) to accelerate the railway industry reform with due regard to the experience of the EU countries (to change and improve the organizational structure of the railway transport management, to ensure transparency and equal access of all entities to the railway infrastructure, leaving the state regulation in the market only for the safety-related issues);

2) to attract foreign and domestic investment for technological renovation of the main equipment and infrastructure, according to the principle of reasonable combination of technological efficiency and environmental safety on the basis of studying the European countries experience in the field of the rolling stock and railway infrastructure repair and modernization;

3) to use the opportunities given by the participation in the European multi-modal projects for the development of TRANS-European transport network TEN-T to improve the competitiveness of the Ukrainian Railways at the international level;

4) to introduce high-speed transportation services establishing long-term and qualitatively new principles of the Ukrainian Railways development on the European integration path, providing continuous market relations between economic agents and taking the challenge of globalization that makes the delivery of both cargo and passengers faster;

5) to adopt the railway infrastructure development strategy, that will allow to overcome the lag in the pace of development of the Ukrainian part of international transport corridors and to attract additional transit cargo flows that will accelerate the infrastructure integration of the Ukrainian railway;

6) to raise and keep the high quality standards of passenger transportation services according to the European principles and norms on the responsibilities of rail transport to passengers, the rights of passengers, etc.;

7) to change approaches to these issues and to create an effective safety management system of the railway transportation.

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## THE TWILIGHT OF STRATEGY ZMIERZCH STRATEGII

**Wojciech Grabalowski**

PhD, Polonia University in Czestochowa, e-mail: promotor.ap@wp.pl, Poland

**Abstract.** The author considers the problem of the possibility and meaning of modeling and building a long-term strategy, in conditions of uncertainty and turbulence of proximal and distant environment of an organization. The strategy is based on the classic assumptions of management sciences. In the article the author cites arguments negating the meaning of such actions, directing thoughts to the ongoing need, significant flexibility of long-term planning and readiness for sudden and unexpected changes dictated by uncertainty and turbulence of phenomena that characterize today's economic, social and political reality.

**Keywords:** globalization; strategy; instability and economic uncertainty; the turbulence of environment of an organization; Chaos Theory.

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### Streszczenie

Pozwólcie Państwo, że rozpocznę swoje rozważania od prowokacyjnego pytania, które stanie niejako w opozycji do ogólnego tematu jednej z sekcji tematycznych dzisiejszej konferencji.

Czy, modelowanie strategiczne systemów zarządzania w warunkach niestabilności i niepewności gospodarczej, nie tyle jest możliwe, ale.... czy ma sens ?

Ja mam istotne, jak mi się wydaje, wątpliwości. I dlatego moja odpowiedź na tak postawione pytanie jest negatywna.

By, choć w niezbędnym minimum argumentacji, uzasadnić tą negację i przekonać Państwa do mojego poglądu na wspomniany temat, z uwagi na ograniczony czas, wypadnie mi tylko sygnałnie poruszyć trzy zasadnicze elementy problemu zawartego w pytaniu.

Będą to :

- Globalizacja
- Niestabilność i niepewność gospodarcza
- Modelowanie..... strategii

### Globalizacja

Czym miała być ?

Naiwni (a takich było sporo) wierzyli, że miała nieść kaganek (światelko) nauki, postępu technicznego i społecznego. Miała nieść dobrobyt i nadzieję na poprawę dobrostanu tych społeczeństw, które dziś odbiegają znacznie poziomem życia, nauki, techniki i kultury gospodarczej od czołówki krajów rozwiniętych.

Tak przynajmniej mówili i pisali o niej (o globalizacji) jej entuzjaści i apologety.



Ja dziele ich właśnie..... na tych naiwnych, wierzących w to przesłanie i w to, że jest ona (globalizacja) szansą na wyrównanie tempa zmian rozwojowych zróżnicowanego przecież, poziomem nauki, gospodarki i dobrobytu Świata.

I na tych, którzy świadomie, celowo i bez skrępołów wmawiali to społecznościom krajów angażowanych w ten proces, mając za ukryty cel łatwe wykorzystanie ich taniej siły roboczej, surowców naturalnych i udostępnienie rynku zbytu dla towarów, które w macierzystych krajach wielkich korporacji napotkały już istotną barierę wysycenia konsumpcji.

Dziś po wielu latach „globalizacja” a ściślej, jej realizacja ma znacznie więcej efektów negatywnych niż pozytywnych.

Zainteresowanych tą stroną procesu globalizacji, odsyłam do bestsellerowej książki „No Logo” Naomi Klain (Klein, 2004).

Logika i poczucie realizmu wskazują jednak, a ja też podzielałam ten pogląd, że proces globalizacji dziś, można uważać za nieuchronny i niemożliwy do cofnięcia. Wielu też, wnioskując o jej instytucjonalizację, uważa ją za szansę zrównoważenia gospodarki Świata, gdzie dalszy postęp gospodarczy, oparty będzie o ekonomię zrównoważonego rozwoju, szacunek dla szeroko pojętej ekologii i poszanowanie suwerenności wszystkich krajów Świata, bez siłowej, negatywnej przemocy... technologicznej, militarnej i kapitałowej (Kołodko, 2013).

Głęboko wierzę w możliwość takiego zorganizowania świata gospodarczego, choć wiem, że nie będzie to ani łatwe ani proste ani szybkie.

Doraźne korzyści czołwki korporacji krajów rozwiniętych, w tym lobby militarne, mogą znacznie opóźnić transfer nauki, technologii i kapitału, które powinny podążać w ślad za globalizacją rynków a keynesowskie „ciemne strony natury ludzkiej” i walka ze zwykłą popolityką, mroczną, ludzką chciwością, może prowadzić do skutków destabilizujących, wzmagających niepewność, potęgujących poczucie deprivacji, upokorzenia i marginalizacji wielu, traktowanych instrumentalnie, uczestników tego procesu (Koźmiński, 2005).

Samo pojęcie „globalizacji” przynosi wiele niejasności. Jest nieostre, wielopłaszczyznowe i uwikłane w liczne spory i konfrontacje ideologiczno - polityczne.

W sensie menadżerskim, a o takie nam tu chodzi, najczęściej pojmowane jest, jako pojawianie się coraz większej ilości „globalnych przemysłów”

Te zaś, to takie, w których pozycja firmy na rynku krajowym jest poważnie uzależniona od jej pozycji konkurencyjnej na rynkach wielu innych krajów (Koźmiński, 2005).

Tak rozumiana, jest poważnym elementem wpływającym na niepewność decyzyjną w procesie zarządzania.

Wiedzą coś na ten temat ci, którzy napotkali systemowe i społeczne opory wejścia na inne, zagraniczne rynki a także krajowi producenci np. odzieży, odczuwający zalew tej produkcji pochodzący z Chin czy Indii.

Przykłady zatem można tu mnożyć prawie w nieskończoność.

Na użytek jednak tego materiału pozostaniemy przy tej właśnie konstatacji, że jest globalizacja poważnym elementem niestabilności gospodarczej, poważnie wpływającym na proces zarządzania i to zarówno w sensie strategicznym jak i operacyjnym. Uważam nawet, że silniej wpływającym na proces zarządzania strategicznego, budowanego przecież na dłuższe okresy czasowe.

Cały globalny układ jest dynamiczny i wysoce niestabilny, co wynika z tego, że z powodu coraz silniejszych wzajemnych związków elementów składowych, całość, coraz

bardziej staje się podatna na destabilizujące oddziaływanie lokalnych stanów nierównowagi i warunki brzegowe (Kozłowski, 2005).

### **Niestabilność i niepewność gospodarcza**

Działalność gospodarcza obarczona jest poważnym ryzykiem wynikającym z wzajemnych relacji popytu i podaży, istniejącej na rynku konkurencji krajowej i międzynarodowej i turbulencji otoczenia. Specjaliści, ogólnie oceniają to ryzyko na 50%. W krajach wysoko uprzemysłowionych określa się, że jeśli przyjąć ilość nowo powstałych w roku przedsiębiorstw za 100 % po trzech latach na rynku pozostaje 7 – 15 % Reszta zostaje wchłonięta przez silniejsze jednostki, jest likwidowana, bądź upada.

Dość powszechną zatem i popularną konstatacją jest, że w dzisiejszych warunkach funkcjonowania, jedynie pewnym jest to, że nic nie jest pewnym.

Ludzie i ich organizacje są coraz bardziej transparentni. Uogólniając, w naszej dzisiejszej społeczno gospodarczej czasoprzestrzeni jest coraz więcej innowacji, naukowych, technicznych i informatycznych, tworzących w systemie sprzężeń zwrotnych coraz to nowe, następne innowacje w nauce i technice.

I groźnym wydaje się być nie tylko ów sam wzrost, ile jego tempo, które dzisiaj ma już charakter wykładniczy.

Paradygmat, jak go dziś pojmujemy, jest intelektualnym modelem, ogólnym sposobem patrzenia na rzeczywistość.

Przez ostatnie czterdzieści lat w gospodarce, ekonomii i finansach panował paradygmat liniowy, polegający na założeniu, że każdy bodziec wywołuje proporcjonalną do jego siły reakcję. Rynki, a rynki globalne w szczególności, nie są jednak tak uporządkowane. Bardzo często zdarza się, że w najmniej oczekiwanym momencie reakcja staje się niewspółmierna do bodźca i nabiera charakteru wykładniczego. A to właśnie jest istotą nieliniowości.

Odkryta i rozwinięta w ubiegłym stuleciu teoria chaosu przyniosła nowe spojrzenie na zjawiska ekonomiczne i finansowe. Przychodzi nam się zatem zderzyć z koniecznością zmiany paradygmatu i przyzwyczać się do tego, że rzeczywistość gospodarcza i finansowa jaka nas otacza to pogmatwane zjawiska nieliniowe, wrażliwe na warunki wejściowe, początkowe, na warunki brzegowe, niemożliwe do przewidzenia i kwantyfikacji, a właściwie, z wielkim trudem tej kwantyfikacji się poddające. To stąd się bierze lawinowe wzmocnienie pierwszych i brzegowych odchyłeń, które pozwalają zdarzeniom przyjmować końcową, wykładniczą postać (Peters, 1997).

Tych turbulencji nie da się łatwo kwantyfikować. Nie przynoszą one zatem ryzyka które nauczyliśmy się szacować i oceniać a... niepewność wobec której bardzo często jesteśmy po prostu bezradni.

Odpowiedzią na coraz powszechniejszą turbulencję otoczenia i występujących tu zjawisk powinna być narastająca elastyczność, brak sztywnego uporządkowania organizacji. Jednym słowem, odpowiedzią na chaos powinien być chaos, tu rozumiany jako ukryty elastyczny porządek. Gotowość do ciągłych, stałych zmian w podejściu do rzeczywistości własnej i otoczenia.

Klasyczne teorie organizacji i zarządzania zatem uważać należy z jednej strony za podstawę podejmowania decyzji zarządczych w organizacjach, z drugiej zaś, jedynie za punkt wyjścia i odniesienia dla tworzenia nowych propozycji mających pomóc w rozwiązywaniu współczesnych problemów przedsiębiorstwa. Problemów, które nie istniały w latach gdy

powstawały nauki zarządzania, a otoczenie przedsiębiorstw było spokojne, ustrukturalizowane i przewidywalne, poddające się kwantyfikacji.

I nie jest to pogląd nowy. Już Hipokrates głosił, że jedyną stałą rzeczą we wszechświecie jest zmiana.

Dziś, nożyce pomiędzy turbulentnym otoczeniem i jego właściwościami, a strukturalnie usztywnioną, wg kanonów klasyki zarządzania organizacją, pozostają niebezpiecznie rozwarłe.

Zagłębiając się w literaturę przedmiotu, napotkamy takie zagadnienia jak... elastyczność celów i strategii, elastyczność struktur i zasobów, strategię rozumianą jako system szybkich działań, zastosowanie teorii chaosu w zarządzaniu, organizacje procesowe, sieciowe, fraktalne, wirtualne, konieczność dywersyfikacji działań, zarządzanie scenariuszowe, czy zarządzanie bez celów strategicznych.

Za każdym z tych określeń, stoi nadzieja, że uda nam się przy ich pomocy rozwiązać problemy niepewności, zmienności zjawisk, ich bezustannego „bulgotania” w otaczającej nas rzeczywistości.

W niektórych branżach cykl życia produktów sięga już tylko kilku miesięcy.

Zastosowanie tych, pobieżnie jedynie, wymienionych metod radzenia sobie z turbulencją i bezustanną zmiennością, prowadzi do radykalnych zmian w sposobie zorganizowania i funkcjonowania firmy. Najważniejsze z nich można określić następująco (Koźmiński, 2005):

- podstawowe jednostki organizacyjne zmieniają się z wydziałów funkcjonalnych w zespoły realizujące procesy;
- Proste stanowiska pracy zmieniają się w wielofunkcyjne i wielospecjalistyczne;
- Rola pracownika zmienia się z kontrolowanej i nadzorowanej w samodzielną;
- kwalifikacje zmieniają się ze szczegółowych w ogólny poziom wiedzy często wielodyscyplinarnej;
- mierniki efektywności zmieniają się w zorientowane na rezultaty;
- menedżerowie zmieniają się z nadzorców w trenerów i przywódców;
- struktury organizacyjne zmieniają się z hierarchicznych w płaskie;
- rola naczelnego kierownictwa zamienia się w przywództwo.

Elastyczną zatem jest ta organizacja której struktura i kultura działania umożliwiają szybkie dostosowywanie się do zmieniających się potrzeb klientów, wymogów konkurencji i warunków działania, dyktowanych przez otoczenie (w szerokim tego słowa znaczeniu).

### **Modelowanie strategii**

Strategia to wzorzec, plan, który integruje główne cele i sekwencje działań organizacji w jedną spójną całość na dłuższy okres czasu. Dobrze sformułowana strategia, pomaga tak uporządkować i rozmieścić zasoby organizacji aby tworzyły unikalną i zdolną do działania strukturę, opartą na relatywnej wewnętrznej przewadze, ujawnieniu słabych punktów antycypowanych zmian w otoczeniu i wynikających z nich posunięciach inteligentnych konkurentów (Koźmiński, 2005).

Modelowanie zaś, to świadome kształtowanie, budowanie elementów strategii z pełnym wykorzystaniem zasobów materialnych i intelektualnych organizacji a także wiedzy dotyczącej konkurencji, otoczenia i dynamicznie zachodzących wielopłaszczyznowych zmian.

Politycznych, prawnych, gospodarczych, finansowych, informacyjnych, ekologicznych, klimatycznych. O charakterze lokalnym, krajowym, i globalnym.

U podstaw klasycznej koncepcji budowania strategii leży kilka założeń trafnie już dzisiaj zidentyfikowanych.

Przyjmuje założenie, że kontekst w którym strategia jest realizowana, nawet jeśli jest niestabilny, to z dużą dozą pewności pozwala przewidzieć te jego stany, które są ważne dla organizacji

Zakłada możliwość kwantyfikacji co oznacza, że zarówno wewnątrz jak i otoczenie dadzą się opisać przy pomocy twardych danych liczbowych

Zakłada, że proces formułowania strategii da się zaprogramować przy użyciu formalnych procedur informatycznych i reguł postępowania a ich analiza pozwala na budowanie prawidłowej syntezy, oddzielonej od interesów zaangażowanych w proces ludzi.

Nawet pobieżna dziś obserwacja procesów zarządzania wskazuje na to, że żadne z tych założeń nie odpowiada dziś rzeczywistości i to proporcjonalnie do narastającej niepewności ogólnej.

Zarówno wewnątrz jak i otoczenie organizacji stają się coraz bardziej nieprzewidywalne.

Założenie, że możliwa jest kwantyfikacja podstawowych problemów i zachowań organizacji jest tu najbardziej nierealna ale co gorsze, bardzo złudna, gdy uważa się ją za możliwą.

Opinie tą dobitnie potwierdzają spekulanci giełdowi, którzy często największe sukcesy odnoszą, stosując się do znanej maksymy A. Einsteina: „Fantazja jest ważniejsza od wiedzy” (Koźmiński, 2005).

Czy w takiej sytuacji realiów otoczenia, realiów płynących z niestabilności warunków, nieprzewidywalnych zjawisk, dynamicznych zdarzeń dyktowanych procesami globalizacyjnymi, płynącej z narastającej zamiany ryzyka w niepewność która z trudem a czasami złudnie tylko poddaje się kwantyfikacji, jest sens budowania i modelowania sztywnej strukturalnie strategii działania organizacji na wiele lat ???

Wszystko temu przeczy a określenie (wymienione wyżej) „elastycznych strategii szybkich działań” lub, precyzyjniej, Gotowości do podejmowania szybkich działań wskazuje dobitnie jedynie słuszną drogę postępowania w budowaniu podstaw dzisiejszych nauk o zarządzaniu.

I... co oczywista rzecz nie w semantyce a w realnych, twardych faktach.

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## IMPACT OF LABOUR FORCE MIGRATION ON LATVIA'S ECONOMY

**Iluta Arbidane**

PhD, Rezekne Academy of Technologies, e-mail: iluta.arbidane@ru.lv, Latvia

**Lāsma Markevica**

Rezekne Academy of Technologies, e-mail: markevica.lasma@gmail.com, Latvia

**Abstract.** Migration of labour force has a significant impact on national economy. The labour force is the most important resource of any country; growing and developed economy is not possible without labour force. The economic crisis of 2008 has been one of the factors influencing fast migration of the labour force and decrease in number of population in Latvia during 2000-2015. Despite the fact that the economic crisis is defeated and the economic situation gradually improves, the number of population has shrunk by 400 000 persons from 2000 until 2015. It is critical to identify reasons of labour migration, factors influencing the process, and its impact on national economy as the country's overall development depends on it. The aim of the research was to study migration of the labour force, influencing factors, and their impact on the national economy of Latvia. Within the research, the factors related to labour migration influencing the national economy of Latvia were analysed. The authors have come to the conclusion that the Latvia's economic crisis and free movement of labour have been the most essential factors causing migration.

**Keywords:** labour migration, labour.

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### Introduction

Darbspēka migrācija rada lielu ietekmi uz tautsaimniecību. Valsts svarīgākais resurss ir darbspēks, bez darbspēka nav iespējama augoša un attīstīta ekonomika. Viens no ietekmējošajiem faktoriem Latvijā no 2000.-2015.gadam, kas ietekmēja strauju darbspēka migrāciju un iedzīvotāju skaita samazināšanos, ir 2008.gada ekonomiskā krīze. Neskatoties uz to, ka ekonomiskā krīze ir pārvarēta un ekonomiskā situācija uzlabojas, iedzīvotāju skaits no 2000.gada līdz 2015.gadam ir sarucis par aptuveni 400 tūkstošiem iedzīvotājiem. Tautsaimniecības attīstības būtiska nepieciešamība ir noteikt darbspēka migrācijas iemeslus, to noteicošos faktorus un ietekmi uz tautsaimniecību, jo no tā ir atkarīga valsts ekonomikas attīstība.

Pētījuma mērķis- izpētīt darbspēka migrāciju, to ietekmējošos faktorus un ietekmi uz Latvijas tautsaimniecību.

Pētījumā izmantotas šādas metodes: vispārteorētiskās pētīšanas metode, monogrofiskā jeb aprakstošā metode, grafiskā metode.

Darbspēks ir fizisko un garīgo spēju kopums, ko cilvēks izlieto, ražodams materiālās vērtības vai sniedzams pakalpojumus. Tie ir valsts darbaspējīgie iedzīvotāji vai organizācijā nodarbinātais personāls (Ābeltiņa A., 2007). Migrācijas rezultātā iedzīvotāji pārvietojas uz pastāvīgu dzīvi vai uz laiku aiz valsts vai administratīvās teritorijas robežām.

Migrācija formas:

- patstāvīgā migrācija- iedzīvotāju pārcelšanās uz pastāvīgu dzīvi;

- svārstveida jeb ikdienas migrācija- darbs vienā valstī, bet dzīvesvieta citā valstī, ik dienas pārejot valsts robežu;
- sezonas un epizodiskā migrācija- īslaicīga strādāšana ( ne ilgāk par gadu) citā valstī (Jerāns, 1987).

Castles, S., Miller, J.M., (2003) uzsver migrācijas lomu sarežģītajā un neskaidrajā pārmaiņu procesā starptautiskajā slānī, kuru mēs šobrīd piedzīvojam. Tā ietekmē valstis un reģionus, tās sabiedrību un ekonomiku. Mūsdienu zinātnes priekšstats migrācija ir kompleksss fenomens, kas veidojas mijiedarbojoties sociāli ekonomisko norišu kopumam ar cilvēka individuālajām vēlmēm un iespējām (Berzins, 2011).

Starptautiskajā migrācijas konferencē, diskutējot par terminoloģiskajiem aspektiem tika uzsvērts, ka darbaspēka migrācija parasti tiek definēta kā pārrobežo pārvietošanās darba meklējumos ārvalstīs. Termins „ekonomiskais migrants” parasti tiek pielietots kā līdzvērtīgs darbaspēka migrants vai migrējošais strādnieks. Ir divi jēdzieni, kas aptver dažādas kategorijas. Termins „migrējošais strādnieks” var tikts sašaurināts tikai aptverot kustību darba meklējumos, kamēr „ekonomiskais migrants” tiek pielietots divējādi, kura iekļauj kustību darba meklējumos vai paplašinot nozīmi, kas iekļauj personas iekļaušanu valsts paveiktajā, kas ir cita tipa ekonomikas aktivitātes- kā investori vai biznesa ceļotāji.

Darbaspēka migrācija ieskicējas kā veids, kādā notiek ienākumu pārdale un dzīves līmeņa izlīdzināšanās starp valstīm un reģioniem, nevis kā instruments, kas nodrošinātu dzīves līmeņa un dzīves kvalitātes pieaugumu saņēmējvalstī. Darbaspēka migrācijas klasifikācija parasti ir pamats darbībām, lai valstis var darboties pēc savas valsts tiesiskā regulējuma- administrējot, apkopot un kārtojot uzturēšanās atļaujas.

### **Darbaspēka migrācijas tendences Latvijā no 2000.-2015.gadam**

Darbaspēka migrācijas tendence Latvijā no 2000.-2015. gada ir krasi atšķirīga, jo šajā laika posmā Latvijā bija vērojama strauja ekonomikas izaugsme un strauja tās lejupslīde-ekonomiskā krīze, kas ļoti ietekmēja darbaspēku migrāciju Latvijā. Darbinieki migrē no Latvijas atšķirīgā atalgojuma dēļ – attīstītajās Eiropas Savienības valstīs tas ir krietni augstāks nekā Latvijā. Skribans, V., (2010). norāda, ka darbaspēka samazināšanās valstī noved pie bezdarba samazināšanās, kas pēc noteikta laika izraisa algu pieaugumu valstī. Savukārt algu pieaugums samazina emigrāciju.

Apkopojot Centrālās statistikas pārvaldes datubāzes pieejamos datus par iedzīvotāju skaitu Latvijā no 2000.gada līdz 2015.gadam, secina, ka kopš 2000.gada iedzīvotāju skaits ir strauji samazinājies. Ozols, N., Ignats, G., Osmane-Siliņa, I., (2015) uzsver, ka iedzīvotāju skaita samazināšanās un novecošanās tendences ir atstājušas būtisku ietekmi uz darbaspēka piedāvājumu, paredzams, ka jau sākot ar 2017./2018. gadu Latvijā var veidoties izteikts darbaspēka iztrūkums, kas var kavēt ekonomikas izaugsmes mērķu sasniegšanu. Balstoties uz Indāna, I., (2012) pētījuma rezultātiem autori ir apkopojuši masveida emigrācijas cēloņu Latvijā, kas ir iedzīvotāju skaita samazināšanās pamatā Latvijā:

- Darba samaksas un pabalstu atšķirības Latvijā un citās Eiropas Savienības valstīs
- Sociālā drošība un stabilitāte, strādājot citās Eiropas Savienības dalībvalstīs
- Izglītības iespējas Latvijā un citās Eiropas Savienības dalībvalstīs
- Eiropas Savienības valstu darba tirgus atvērtība Latvijas darbaspēkam (atvērto durvju efekts)

- Nepietiekama iekšējā darbaspēka mobilitāte (nepietiekami attīstīta uzņēmējdarbība, infrastruktūra un transporta sistēma reģionos)
- Nav attīstīta darbaspēka pieprasījuma- piedāvājuma prognozēšana, kas ļautu izstrādāt efektīvus priekšlikumus profesionālās izglītības programmu atbilstības darba tirgus prasību nodrošināšanai.



**1.attēls. Iedzīvotāju skaita izmaiņas no 2000.-2015.gadam (gada sākumā, iedzīvotāju skaits tūkstošos) (autora veidots pēc CSB.)**

Latvijas Universitātes pētnieku 2014. gadā veiktā aptauja „Latvijas emigrantu kopienas: nacionālā identitāte, transnacionālās attiecības un diasporas politika.” Ir atspoguļojuši rezultātus no iegūtajām atbildēm, kas iegūtas aptaujājot 11631 personas, kas emigrējušas pēc 2004.gada. No tiem 1960 bija emigranti, kas uz dzīvi ārzemēs pārcēlās kopā ar bērniem. Atbilde uz jautājumu „Kas pamudina ģimenes ar bērniem atstāt Latviju” nav vienkārša - nav tāda viena galvenā iemesla, kas būtu pats svarīgākais lielākajai daļai emigrējušo. Visbiežāk kā galveno emigrācijas iemeslu ģimenes ar bērniem min finansiālās grūtības (tai skaitā grūtības tikt galā ar kredītsaistībām un nespēju atrast darbu). Šo iemeslu kā galveno minēja 34% no 2004./2008.gadā aizbraukušajiem, 37% no 2009./2011.gadā un 23% no pēc 2011.gada izceļojušajiem pieaugušajiem ar bērniem (LU pētnieku grupas pētījums, 2014). Ekonomiskās krīzes periodos strauji pieauga to ģimeņu skaits, kas nolēma emigrēt un ekonomiskās izaugsmes laikā emigrācija strauji kritās. Šīs svārstības norāda, ka emigrācija ir daudz plašāku ekonomisku problēmu sekas.

### **Darbaspēka migrācijas ietekmējošie faktori**

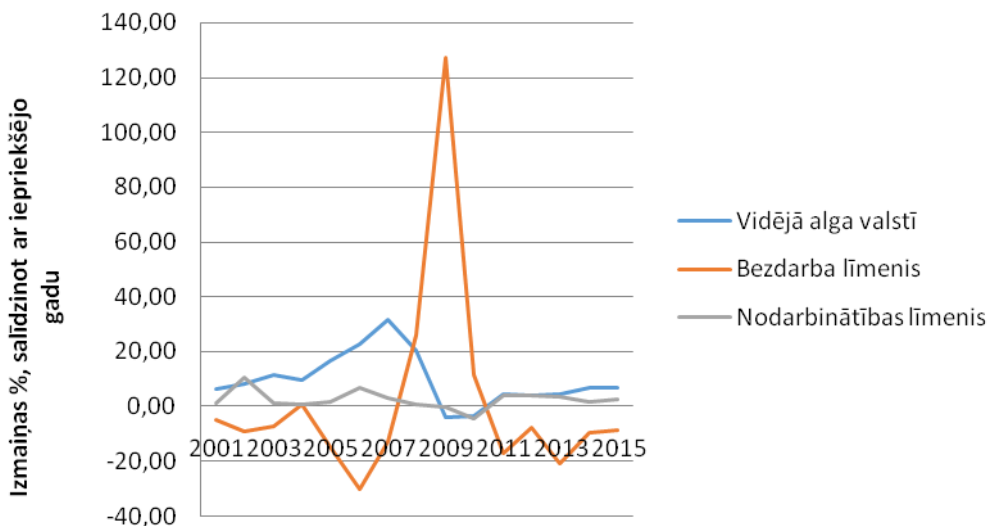
Migrāciju ietekmē ekonomisko, politisko un sociālo faktoru apvienojums: vai nu migranta izcelsmes valstī (emigrāciju veicinošie faktori) vai galamērķa valstī (imigrāciju veicinošie faktori) (Larry A. Sjaastad, L.A., 1970). Tiek uzskatīts, ka Eiropas Savienības relatīvā ekonomiskā labklājība un politiskā stabilitāte vēsturiski ir bijis būtisks imigrantus piesaistošs faktors. Migrācijas kustība ir vērojama konkrētā virzienā, bet nav zināms, vai tas ir pietiekami, lai efektīvi varētu novērst ienākumu atšķirības, tiklīdz tās parādās. Iedzīvotāju migrācija nodrošina darbaspēka ģeogrāfisko kustību, kā arī ietekmē teritoriju ekonomisko

attīstību un sabiedrības labklājību. Migrācijai ir komplekss raksturs, ne tikai skaidrojot procesa telpiskās, ekonomiskās un sociālās izpausmes, bet arī analizējot procesos iesaistīto iedzīvotāju sastāvu un pārcelšanās motīvus.

Apsīte-Beriņa, E., (2013) savā promocijas darbā ir norādījusi, ka starpvalstu migrācijas procesa izpratnes pamatā ir ekonomiskie motīvi. Papildus dominējošajiem ekonomiskajiem motīviem svarīgi kļūst arī daudzi neekonomiski faktori, piemēram, ģimenes saites, dzīves vides un kultūras aspekti. Promocijas darba autore norāda, ka mūsdienās, īpaši Eiropas Savienības kontekstā, brīva iedzīvotāju un darbaspēka kustība ir viens no tās pamatprincipiem, un tas dažādu izceļošanas un iecelošanas valstu kontekstā var nest gan pozitīvas, gan negatīvas pārmaiņas. Kā būtiskākos migrācijas motīvus autore nosauc:

- Ekonomiskie un demogrāfiskie;
- Politiskie;
- Sociālie un kultūras.

Katram no šiem motīviem ir savi ietekmējošie faktori, kas rosina iedzīvotāju migrāciju. Latvijas aspektā tie visbiežāk ir ekonomiska rakstura faktori, piemēram, nabadzība, bezdarbs, darba iespēju trūkums, zemas algas, nespēja nopelnīt pietiekoši, nestabilitāte, veselības aprūpes trūkums u.c.



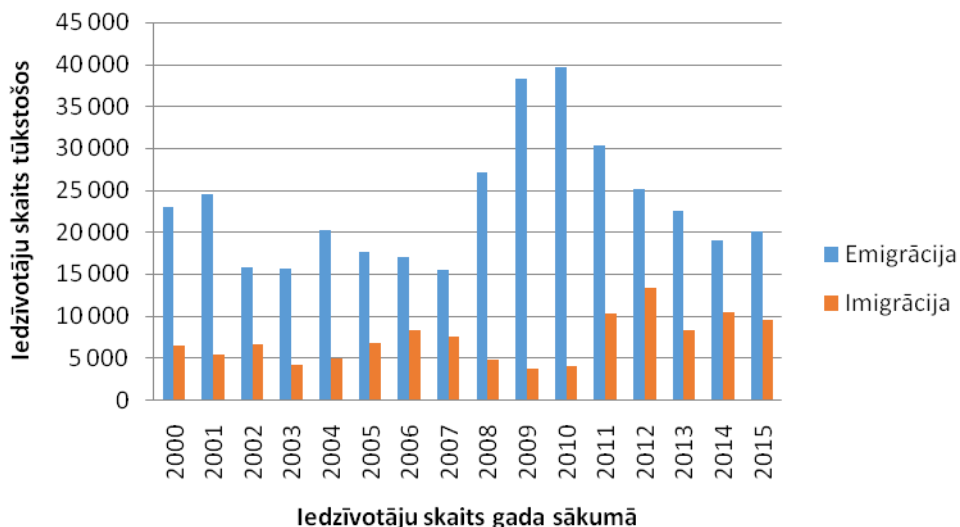
**2. attēls. Vidējās algas, bezdarba un nodarbinātības līmeņa izmaiņas no 2000.-2015.gadam Latvijā (izmaiņas %, salīdzinot ar iepriekšējo gadu)**  
(autora veidots pēc CSB)

Analizējot darbaspēka migrācijas ietekmējošos faktoros, kas palielināja emigrāciju, 2. attēlā ir attēlota vidējās algas, bezdarba un nodarbinātības līmeņa izmaiņas (%), kas norāda, ka no 2007.-2011.gadam ir vērojamas visstraujākās izmaiņas. Vidējā alga ekonomiskās krīzes periodā ir strauji samazinājusies, savukārt, bezdarba līmenis ir strauji palielinājies, kas tieši ietekmēja emigrācijas attīstību Latvijā.

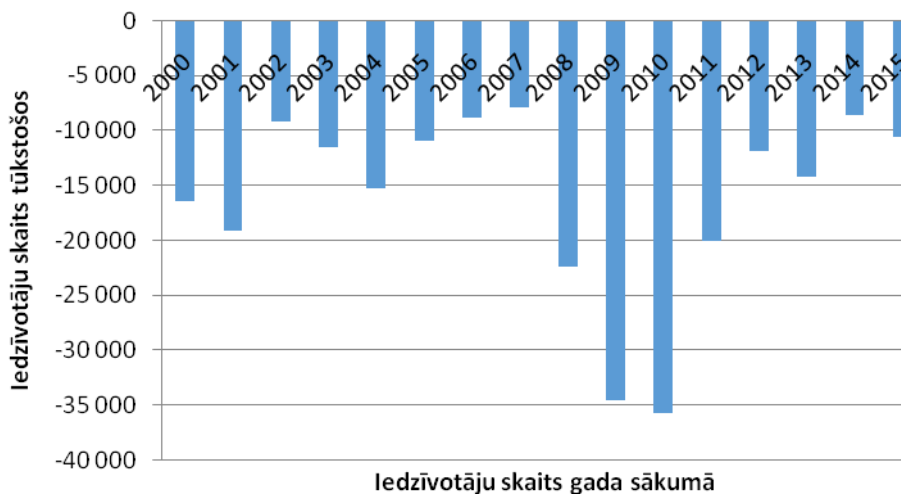


Apkopojot Centrālās statistikas pārvaldes datus var secināt, ka emigrējošo skaits ir bijis vislielākais no 2008.-2011.gadam un imigrējošo skaits uz Latviju ir vērojams visaugstākais 2012.gadā (3.attēls).

Izmantojot iegūtos datus par emigrāciju un imigrāciju Latvijā autori ir veikuši migrācijas saldo rādītāju aprēķinus, kuri ir apkopoti 4.attēlā. Migrācijas saldo Latvijā no 2000.-2015.gadam ir ar negatīvs rādītājs. Visaugstākais tas ir bijis 2008.-2011.gadam.

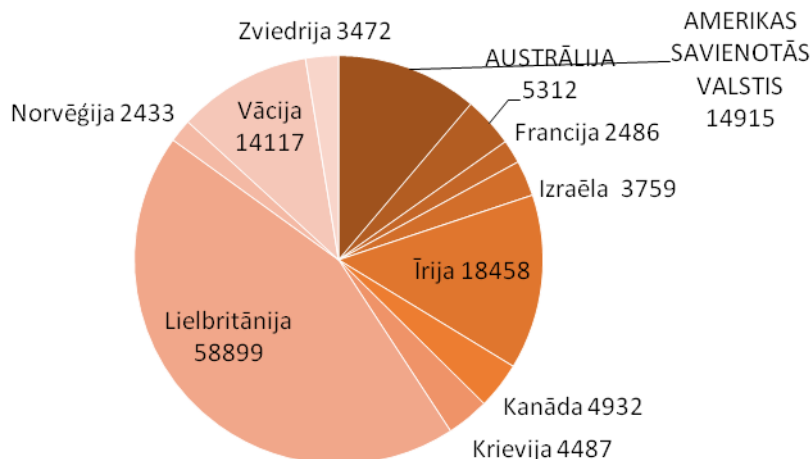


3.attēls. Starptautiskā ilgtermiņa migrācija Latvijā no 2000.-2015.gadam (iedzīvotāju skaits tūkstošos, gada sākumā) (autoru veidots pēc CSB)



4.attēls. Migrācijas saldo Latvijā no 2000.-2015.gadam (iedzīvotāju skaits tūkstošos, gada sākumā) (autoru veidots pēc CSB)

Pilsonības un migrācijas lietu pārvaldes 2016.gada jūlija dati liecina, ka kopumā Latvijas valsts piederīgo personu skaits ārvalstīs ir 152884 iedzīvotāju. Autori ir apkopājuši informāciju, kurā atspoguļoti dati ar valstīm, kur Latvijas valsts piederīgo personu skaits ir vislielākais (5.att.). Skatīt 2.3.attēlā.



##### 5. attēls. Valstis, kurās Latvijas valsts piederīgo personu ir visvairāk (autoru veidots pēc PLMP)

Kā redzams no 5.att., tad nozīmīgākie gala mērķi Latvijas iedzīvotājiem ir Lielbritānija un Īrija. Īpaši liels pieaugums Lielbritānijā bija 2009.gadā - 15835 iebrucēju no Latvijas, kuri bija reģistrējušies Strādājošo reģistrācijas sistēmā. Savukārt Īrijā sociālajā apdrošināšanas sistēmā reģistrēto no Latvijas izceļojušo skaits kopš ES paplašināšanās līdz 2009. gada beigām bija sasniedzis 35,9 tūkstošus. Tas skaidrojams ar krīzes ietekmi un salīdzinoši augsto bezdarba līmeni.

##### Darbaspēka migrācijas ietekme uz Latvijas tautsaimniecību.

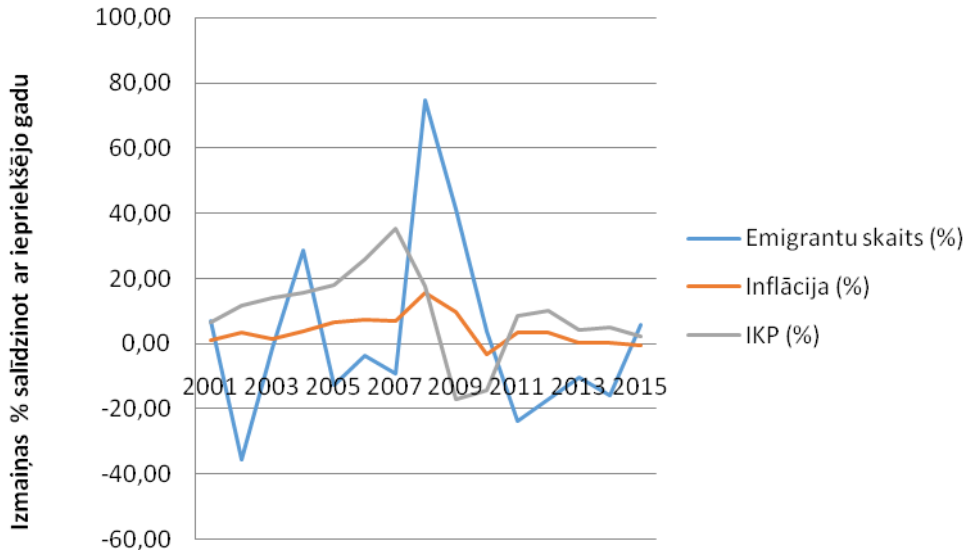
Migrācijas procesi ir atstājuši savu ietekmi arī uz Latvijas darba tirgus attīstību. Bezdarbnieku skaita samazināšanās valstī kopumā ir vērtējama pozitīvi, tai pat laikā, izbraucot lielai daļai iedzīvotāju, ir radušās problēmas ar kvalificēta un noteiktas profesijas darba spēku. Kā turpinājums tam ir izmaiņas darba algas līmenī un ekonomiskajiem procesiem valstī kopumā.

Kā būtiski negatīvie aspekti iedzīvotāju emigrācijas aspektā Latvijā ir jāmin:

- darbaspēka trūkums atsevišķās profesijās un/vai nozarēs;
- izmaiņas darba algas līmenī, kas nav saistīts ar izmaiņām darba produktivitātē;
- Kvalificēta darba spēka aizplūšanas rezultātā valsts zaudē izglītībā ieguldītos resursus;
- palielinās vecākās paaudzes iedzīvotāju skaits, sabiedrības novecošanās;
- sieviešu produktīvajā vecumā skaita samazināšanās, kas ietekmē dzimstības rādītājus;
- nevienmērīga reģionālā attīstība Latvijā;

- Latvijas sociālās aizsardzības sistēmas nelīdzsvarota attīstība, īpaši ilgspējas kontekstā;
- Emigrācijā esošo Latvijas pilsoņu zema politiskās līdzdalības pakāpe, patriotisma samazināšanās, valsts piederības izjūtas samazināšanās.

Neapšaubāmi iedzīvotāju emigrācija ir devusi arī savus pozitīvos aspektus tautsaimniecības attīstībā. Tas galvenokārt ir saistāms ar to, ka Latvijā ir ieplūdusi būtiska daļa naudas, kas ir nopelnīta ārzemēs. Tas ļauj uzturēt iedzīvotāju ienākumu līmeni, kā arī veicina makroekonomisko rādītāju uzlabošanu.



**6.att. Emigrantu skaita, inflācijas un IKP līmeņa izmaiņas Latvijā no 2001.-2015.gadam (izmaiņas %, salīdzinot ar iepriekšējo gadu) (autoru veidots pēc CSB)**

Analizējot Centrālās statistikas pārvaldes datus par emigrantu skaitu, inflācijas un IKP līmeni Latvijā no 2001.-2015.gadam, var secināt, ka starp šiem rādītājiem ir vērojamas kopsakarības – palielinoties inflācijai palielinās emigrantu skaits, savukārt IKP šajā periodā krīt. Īpaši izteikti tas ir vērojams ekonomiskās krīzes laikā. Palielinoties emigrantu skaitam, samazinās pieprasījums pēc precēm, pēc pakalpojumiem. Visus šos rādītājus ietekmē ekonomiskā situācija valstī un citu valstu dzīves līmenis, kas tieši ietekmē iedzīvotāju vēlmi emigrēt uz valsti, kur labklājības līmenis ir augstāks nekā Latvijā. 2004.gadā, kad Latvija iestājās ES, radās iespēja brīvi migrēt, kas ir izteikti redzams 6.att.

Pasaules finanšu krīze ļoti smagi ietekmēja Latvijas tautsaimniecību. IKP krīzes laikā samazinājās par ¼ daļu, bezdarba līmenis palielinājās no 5,3% 2007.gada 4.ceturksnī līdz 19,7% 2009.gada beigās. Būtiski samazinoties budžeta ienākumiem, vispārējās valdības budžeta deficīts 2009.gadā sasniedza gandrīz 10%.

Kā uzskata Ozols, N., Ignats, G., Osmane-Siliņa, I., (2015), tad migrācijas politikai turpmākajos gados būs nozīmīga loma, lai mazinātu demogrāfijas tendenču negatīvo ietekmi uz Latvijas darba tirgu un paredzētu selektīvu imigrācijas mehānismu izveidi, kas ilgtermiņā

nodrošinātu ātru un efektīvu darba tirgus nepilnību novēršanu. Jāatzīmē, ka trešo valstu pilsoņu imigrācija nav vienīgais līdzeklis darbaspēka iztrūkuma risināšanai, jo politikas veidotāji pievērš uzmanību Latvijas valsts piederīgo reemigrācijas veicināšanai, izglītības sistēmas pilnveidošanai un darbaspēka pārkvalificēšanai. Ekonomikas ministrijas vadībā izstrādātais Reemigrācijas atbalsta pasākumu plāns 2013.-2016. gadam paredz pasākumus un praktisku palīdzību tiem ārzemēs dzīvojošajiem Latvijas piederīgajiem un viņu ģimenes locekļiem, kuri apsver iespēju vai jau ir izlēmuši atgriezties un strādāt Latvijā, vai arī vēlas dibināt savu uzņēmumu, attīstīt biznesa saiknes ar Latviju, vai no savas mītnes zemes grib uzturēt ciešākas saites ar Latviju.

Latvijā ir izstrādāti Ministru kabineta noteikumi Nr.75 „Noteikumi par aktīvo nodarbinātības pasākumu un preventīvo bezdarba samazināšanas pasākumu organizēšanas un finansēšanas kārtību un pasākumu īstenotāju izvēles principiem”. Labklājības ministrija ir izstrādājusi aktīva darba tirgus politiku, kas tiek uzskatīts par nozīmīgu instrumentu nodarbinātības veicināšanai. Ir izstrādāti un ieviesti virkne dažādu projektu un programmu, bet jāatzīst, ka emigrācijas problēma pastāv un tai nav tendence samazināties. Analizējot veiktos pasākumus, kas mazina darbaspēka migrāciju, var secināt, ka uzlabojumi ir veikti. Piemēram, ir palielināta minimālā darba alga, ģimenes valsts atbalsts atkarībā no bērnu skaita (tādejādi veicinot demogrāfiskās situācijas uzlabošanu), atvieglojumi par apgādājamiem, pensijas, māmiņu algas, bērnu kopšanas pabalsti un citas izmaiņas. Bet šāda veida izmaiņas nespēj samazināt darbaspēka migrāciju, jo citās Eiropas Savienības dalībvalstīs šāda veida valsts atbalsts ir krietni augstāks. Ja no pagātnes datiem varam izdarīt prognozes par nākotni, ekonomiskais uzplaukums tāpat vien aizbraukušos atpakaļ neatgriezīs. Līdzšinējā pieredze rāda, ka ekonomiskās krīzes laikā bērnu emigrācija strauji pieaug, bet ekonomiskā uzplaukuma laikā atpakaļ imigrācija būtiski nepalielinās. Ģimenēm ar bērniem Latvijā ir viens no augstākajiem nabadzības riskiem Eiropā, tāpēc, ekonomisku apsvērumu vadītas, daudzas ģimenes izvēlas dzīvot citur.

### **Secinājumi un priekšlikumi**

Iestājoties Eiropas Savienībā, Latvijas iedzīvotājiem kļuva pieejama brīva migrācija uz jebkuru Eiropas Savienības valsti. Tas arī ir viens ietekmējošiem faktoriem, kas Latvijā palielina darbaspēka migrāciju uz ārvalstīm. Iedzīvotāju skaita samazināšanās izraisa patēriņa samazināšanos. Darbaspēka trūkums bremsē tautsaimniecības izaugsmi. Darbaspēka migrācija ietekmē iedzīvotāju skaita izmaiņas Latvijā. Latvijas iedzīvotāju skaits no 2000.-2015.gadam ir strauji sarucis. Tas ir aptuveni par 400 tūkstošiem iedzīvotājiem. Latvijā masveida emigrāciju ietekmēja darba samaksas, pabalstu, sociālās drošības, izglītības iespējas, darba tirgus atvērtības iespējas atšķirības Latvijā un Eiropas Savienības dalībvalstīs. Ekonomiskā krīze 2008.gadā ļoti smagi ietekmēja Latvijas tautsaimniecību. Iekšzemes kopprodukts krīzes laikā samazinājās, nodarbināto skaits samazinājās, palielinājās bezdarba līmenis, samazinājās darba samaksa, palielinājās inflācija. Šie tautsaimniecības rādītāji ietekmēja darbaspēka migrāciju no Latvijas. Latvijas iedzīvotāji emigrēja uz valstīm ar augstāku labklājības līmeni, kas arī turpinās joprojām.

Vienlaikus jāuzsver, ka būtībā ģimeņu ar bērniem emigrācija ir daudz plašākas problēmas - bērnu nabadzības un sociālās atstumtības - simptoms, tāpēc tā vietā, lai tikai šauri orientētos uz emigrācijas samazināšanu un/vai atpakaļ migrācijas veicināšanu, galvenā uzmanība būtu jāvelta bērnu nabadzības un sociālās atstumtības riska samazināšanai Latvijā, piemērojot tādas instrumentus un pasākumus kā progresīvais nodoklis, nodokļu atlaides par

apgādājamajiem, minimālās darba algas paaugstināšana, sociālās mājas, valsts apmaksāti vai daļēji apmaksāti bērnudārzi, ēdienreizes skolā un mācību piederumi. Bērnu labklājības uzlabošana Latvijā ne tikai samazinātu emigrāciju, bet arī nodrošinātu pietiekami lielu, veselu un sociāli iesaistītu jauno nodokļu maksātāju paaudzi.

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## ENERGY EFFICIENCY FINANCING: INNOVATIVE MODELS AND STRATEGIES

**Julia Gernego**

PhD, SHEI “Kyiv National Economic University named after Vadym Hetman”,  
e-mail: IuliiaGern@ukr.net, Ukraine

**Oleksandr Dyba**

PhD, SHEI “Kyiv National Economic University named after Vadym Hetman”,  
e-mail: dyba\_m@ukr.net, Ukraine

**Abstract.** The article deals with the questions of energy efficiency financing. Particularly, the attention is paid to the role of energy efficiency financing within an innovative economy. It is proved that a financial aspect plays an important role in models and strategies of national innovative development implementation. The authors describe new approaches to the solution of problems of energy efficiency financing as well as to the possibilities for its increase in Ukraine.

**Keywords:** energy efficiency, financing, social investment, innovative economy, innovative strategies

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### Introduction

The world economy has benefited from widespread innovative development and global growth, on the one hand, and requires regular progressive changes and increased competition in main branches of industry within both developing and the most developed countries, on the other hand. One of the most important and largest opportunities for national economies innovative growth is represented by energy efficiency increasing. Despite energy costs reduce, households and businesses get the possibility to increase levels of their income. The economic growth is expanded. Moreover, such progressive changes enable more distributed jobs creation, domestic security enhancement and air pollution cutting.

Innovative enterprises experience shows that one of the major barriers to energy efficiency projects implementing is lack of their own financial resources. The financing policy becomes an important imperative to overcome financial barriers and to improve energy efficiency. Besides innovative entrepreneurs, public and private financial institutions, industry, banking and SME associations, energy efficiency industry experts and services representatives are among participants within innovative economies. In other words, innovative society requires additional investments that provide more resources directly to promote energy efficiency. In particular, an important step to close the energy gap is to develop energy financing strategies and models both on the national and entrepreneurs levels.

A variety of researchers estimate potential and factors for energy efficiency increase. For instance, theoretical basis of unrealized energy efficiency potential is connected with research of Brown (2001), Bressand (2007), Jackson (2009), Hynek (2005) as well as Ansar and Sparks (2009). The methodology of this paper is built on Kats, Menkin, Domm and DeBold (2012) and Antonini, Longo, Gianfrate and Copiello's (2016) vision of models and strategies of energy efficiency financing in the USA and Italy. The questions of energy efficiency

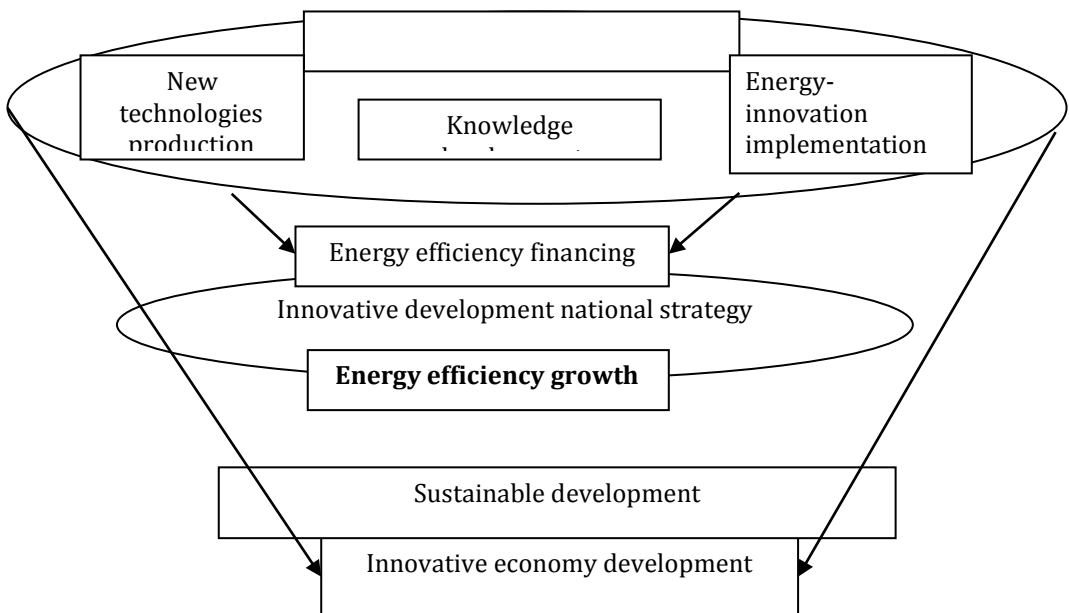
mobilising are also among the objects of international organizations’ applied research. A wide variety of factors, influencing energy efficiency and possibilities for its financing, are well researched and documented within the framework of the Organisation for Economic Co-operation and Development (OECD), The International Energy Agency (IEA) and the Energy Efficiency Financial Institutions Group activities.

The objective of current study is to consider different financing models and strategies as a factor in explaining the energy efficiency. We review the practical energy efficiency financing experience within different economies. The study provides different kinds of measures and activities which, when implemented, are able to reduce the financial barriers to energy efficiency.

**Energy efficiency financing within innovative economy**

Russell (2005), Naumoff and Shipley (2007) promote energy efficiency as a risk management tool because of the possibility of energy costs reduces due to the energy price volatility. Mills (2003) defines energy-savings insurance as a management tool and one among the risk transfer means. Goldman (2005) estimates the importance of energy service contracts as an instrument for further risk transfer in accordance with cooperation between producers and energy service companies. In spite of above represented researchers, from economic point of view, we define energy efficiency as one among the national strategies’ instruments for further innovative development. It includes knowledge and technologies financial support, encouraging less energy use to provide the same service.

As a result, social investment in energy efficiency provides both social outcome and financial return, boosts the economy in part of its sustainable and innovative development (Figure 1).



**Fig. 1. Energy efficiency as innovative development boost\***

\* Source: compared by author



Traditionally, investor seeks all possible ways to maximize the returns on their invested capital. However, in recent years, we observe a new trend, which shows, that the innovative development depends both on commercial and social impact.

Table 1

**Social investments within the innovative economy based on energy efficiency (EE) development\***

Explanation	Source	Innovative model
<p>Social investments are built on the strategic pillars (community health, education/workforce development, energy efficiency, local environmental efforts) ... The adoption of best practices in this area and their implementation support further achievement of results that benefit both communities and the energy industry.</p>	<p>Noble Energy. Sustainability report (2015)</p>	
<p>Social impact investment means an investment strategy that is gaining global traction.</p>	<p>Bertelsmann Stiftung (2016)</p>	

<p>Social investment is any investment activity which has an expectation of both a social outcome and a financial return, which would usually be below market rate. It represents a form of repayable finance that can be used for capital investment, revenue funding development, capacity building, or other ways of improving their sustainability.</p>	<p>Knowhow Nonprofit (2016)</p>	<pre> graph TD     SI[Social investment] --&gt; SO[Social outcome]     SI --&gt; FR[Financial return]     SO &lt;--&gt; FR     SO &amp; FR --&gt; SI_imp[Sustainability improvement]     SI_imp --&gt; IED[Innovative economy development]         </pre>
<p>Social investment is defined as contributions or actions, which can be taken to bring further benefits to communities and economies. Through this, it is important to create the possibility to deliver returns for such business and communities.</p>	<p>Cairn (2016)</p>	<pre> graph TD     SI[Social investment] --&gt; C[Contribution]     SI --&gt; A[Action]     C &lt;--&gt; A     C &amp; A --&gt; BCB[Benefits for community and economy]     BCB --&gt; SOFR[Social outcome and financial return for]     SOFR --&gt; IED[Innovative economy development]         </pre>

\* Source: compared by the author

The energy potential for further innovative economy development is hindered by barriers, including lack of available financial resources (Brown, 2001, Sorrell, 2004). Therefore, energy efficiency requires new forms of financial resources involvement, emergence of new financial resources combinations.

Social investments can take different forms to achieve the goals of particular types of sectors and organizations (Knowhow Nonprofit, 2016), particularly:

- in the form of a secured loan;
- traditional equities for organization with a share-holding structure;
- quasi-equities, which create the possibility for lenders to take their returns as a part of the organization's future revenue;
- facilities in the form of overdraft;

- social impact bonds, which are represented by investors, who put forward the capital required for project implementation, and are repaid by the commissioner (government) and are based on the social results of delivery organizations (mainly a charity);
- crowdfunding, which is represented by a large amount of investors, who are ready to invest money through online platforms;
- social investment tax relief, which is developed to support charities and social enterprises investment.

The energy efficiency innovative market requires more and more investment. At the same time, main economic and social goals will be achieved only in case of financial, particularly innovative, resources optimal combinations. Therefore, there are different kinds of energy efficiency financing models and strategies in separate countries.

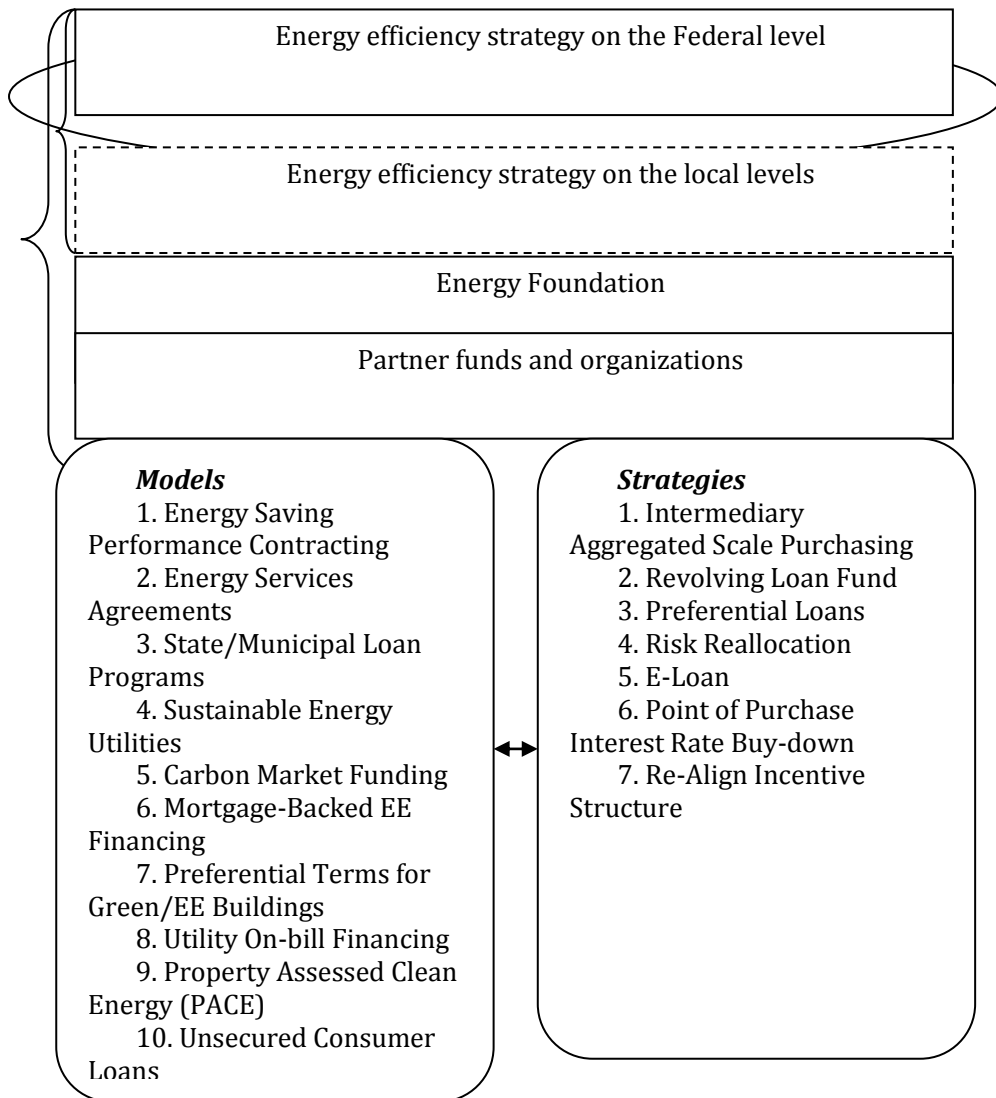
### **Energy efficiency financial support in different countries**

According to the Bertelsmann Stiftung (2016) research, the global social impact on investment market volume is nearly 11 billion euro, during the timeframe between 2012 and 2014 its volume is increased by more than 30 percent. Particularly, the priority areas for social investing within developing countries are micro-finance, financial services and energy. Therefore, attention should be paid to the fact that both the developing and the developed societies face problems finding new funding sources to meet basic economic and social objectives.

The United States economy is one of the most innovative active economies in the world. At the same time, the research shows that the national potential for cost-effective energy efficiency investments is nearly 150 billion USD a year. Furthermore, there is a possibility to save annually 200 billion USD for USA businesses and households representatives in case of energy efficiency investing activation. However, current level of energy efficiency financing is only about 20 billion USD per year that makes less than one-fifth its cost effective potential (Kats, Menkin, Dommu and DeBold, 2012).

Therefore, despite the progressive trends of national innovative development, there is so-called investment gap. We are able to describe energy efficiency financing as one among the most important and largest opportunities to expand USA economic growth and innovative development. The social investments concerning energy efficiency growth create the opportunity to strengthen the economy, increase the innovativeness, social responsibility and competitiveness of national businesses.

The achievement of the above mentioned goals is possible in case of state and private entities representatives' common involvement in the process of already existing possibilities for energy efficiency financing analysis and potential models and strategies understanding. For instance, Federal level energy efficiency activity includes a wide range of economic and tax incentives, including tax credits; granting approval to philanthropic and non-profit foundations; allowing non-profit organizations to develop income sources; Federal direct investments programs activation to encourage social investments in accordance with the main social objectives. Moreover, the energy efficiency policy depends also on the region (Lachman-Messer D., Katz E, 2012). In late 2010, the energy efficiency financing policy was also held by the Energy Foundation and Capital E, which has been cooperated with more than 30 private partners. The goal was to identify and develop mechanisms of energy efficiency financing for next three to five years (Figure 2).



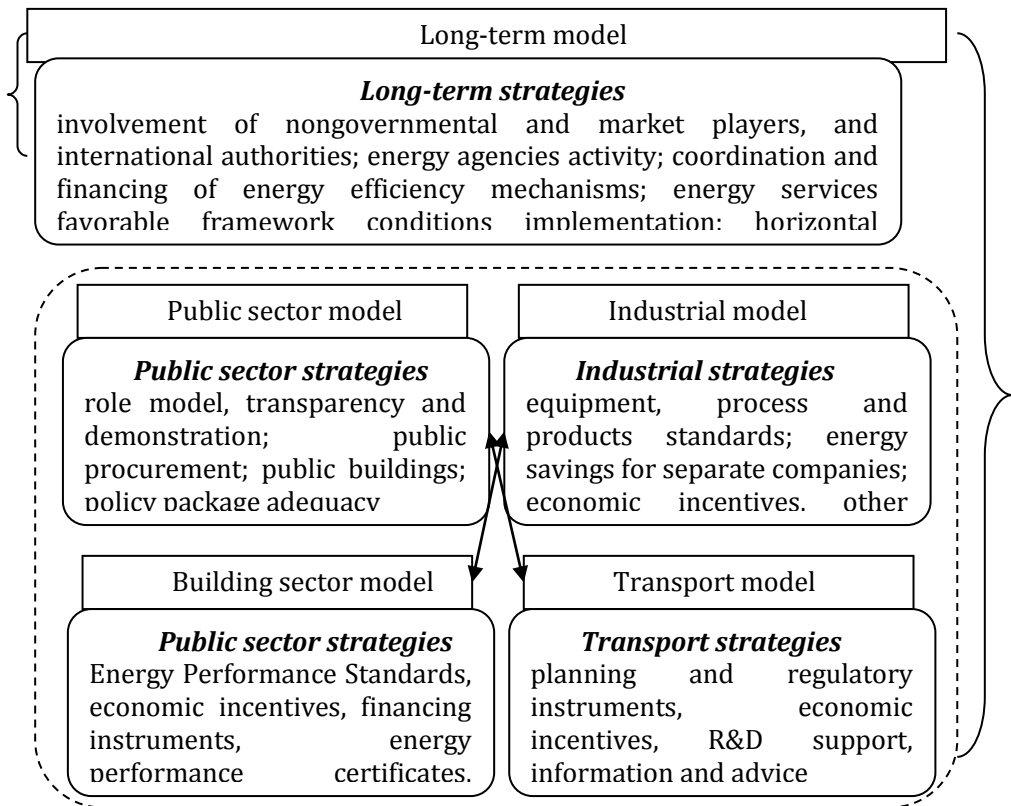
**Fig. 2. Energy efficiency models and strategies in USA\***

\* Source: compared by author based on (Kats, Menkin, Dommou and DeBold, 2012)

One of the most innovative economies in Europe is market economy in Germany. The main co-financing programs in energy efficiency sectors are held with participation of the Kreditanstalt für Wiederaufbau (KfW). Moreover, the social investment market in Germany is deeply influenced by the activities of the two prominent social venture capital funds (BonVenture and Ananda Ventures). At the same time, the main actor of energy efficiency financing is the state, because it is able to use required financial resources in order to achieve social goals. Nowadays, the existing state programs, which are developed by the Federal Ministry for Economic Affairs and Energy, support energy efficiency activity of business start-ups and social enterprises. The total annual social investment volume is growing. For

instance, the total increase of such kind of investment is about 60 percent in 2016 compared to 2015 (Country Report. Germany, 2016).

Despite the existence of separate funds and organization, the models and strategies of energy efficiency financing are developed within national growth programs at the state level. The energy efficiency policy is based on improvements in the particular sectors. Particularly, the energy efficiency financing models and strategies are implemented within public, building, industry and transport sectors (Figure 3).



**Fig. 3. Energy efficiency models and strategies in Germany\***

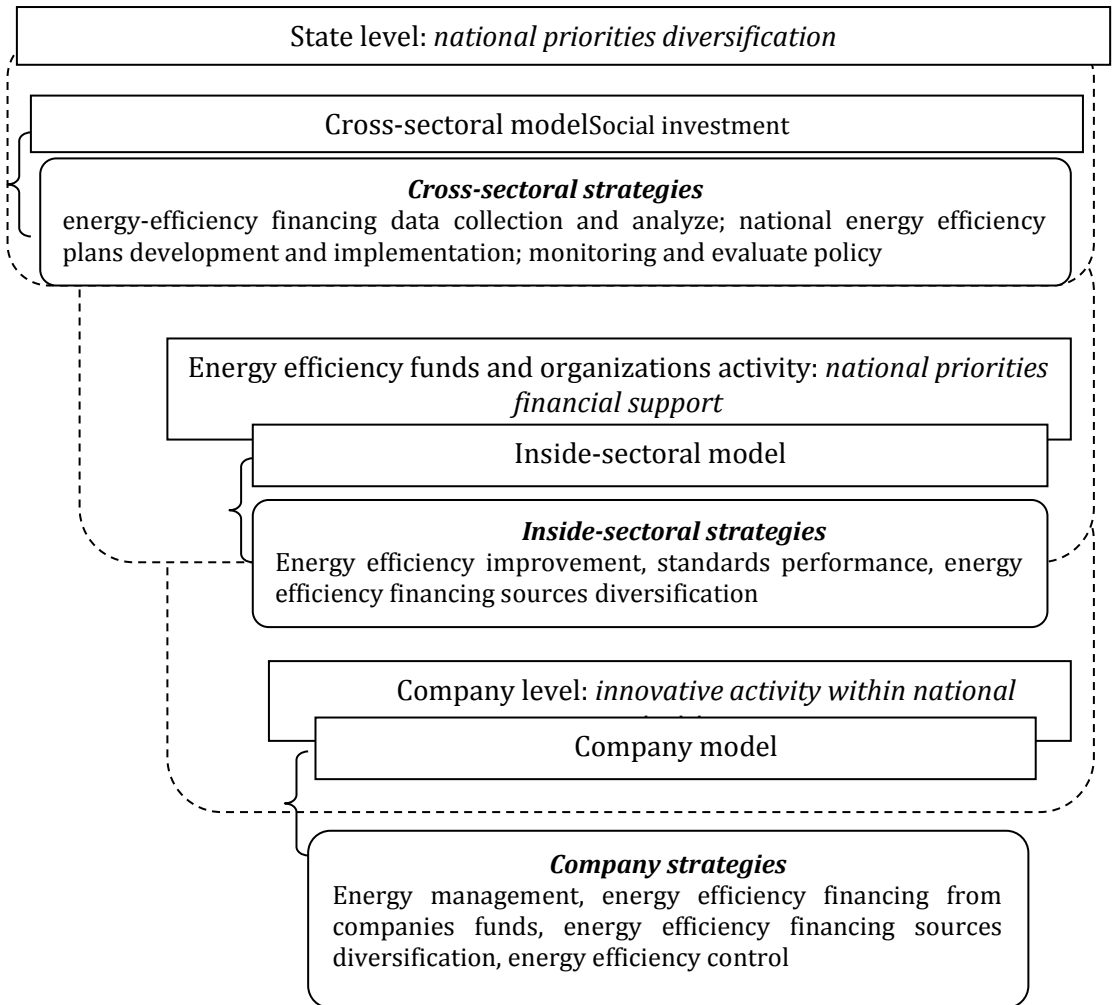
\* Source: compared by the author based on (Country Report. Germany, 2016)

### Possibilities of energy efficiency financing in Ukraine

According to the EBRD research, Ukraine still remains among the most energy inefficient countries in the world. Thus, the national energy intensity is three times higher than the average in Europe. The certain amount of energy used to produce each unit of GDP is inordinately high (EBRD, 2015).

At the same time, our country has a great potential for energy efficiency development. We agree with the EBRD experts' recommendations about energy efficiency financing in spite of the separate sector's needs, including possibilities to lower costs in the metallurgy, fuel,

power and chemicals sectors. The national models and strategies should combine the foreign experience with national peculiarities and goals of innovative development in Ukraine (Figure 4).



**Fig. 4. Energy efficiency models and strategies in Ukraine\***

\* Source: compared by author based on (EBRD, 2015)

### Conclusions and suggestions

According to the current tendencies and research of energy efficiency financing it is possible to make conclusion as to its important role within the innovative economies development. The main goal of energy efficiency financing is to increase both social and economic outcomes, which is possible only using all available sources combinations. The Ukrainian models and strategies should be combined despite the possibilities of sectoral

dialogue policy building, which is developed at the state level and implemented at the level of a separate company.

Due to the limited financial possibilities of separate companies, industrial companies cannot be expected to solve all various forms of access to finance issues on their own. There is a need to establish special energy efficiency funds and organizations, which will be intermediates between innovative development priorities at the national level and energy efficiency practice at the level of a separate company.

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**MODERN TRENDS OF THE INTERNATIONAL ICT MARKET'S DEVELOPMENT****Marina Leshchenko**PhD, Cherkasy State Technological University, e-mail: mari.leshchenko@gmail.com,  
Ukraine**Vladislav Pasenko**

PhD, Cherkasy State Technological University, e-mail: pasenko\_vlad@mail.ru, Ukraine

**Oksana Pasenko**Master's Student, Economics, Polonia University in Czestochowa, e-mail:  
k.pasenko@mail.ru, Poland

**Abstract.** The article deals with the main features of international ICT market formation and its development. The fundamental trends of ICT development in the global economy are determined. The ICT indicators indifferent areas of the world are given. The basic rates of technological support of ICT development are analyzed. The peculiarities of Ukraine's economy information development are defined; Ukraine's competitive advantages in the international ICT market are revealed.

**Keywords:** ICT, market, world economy, Internet, development, services, NRI, ranking.

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**Introduction**

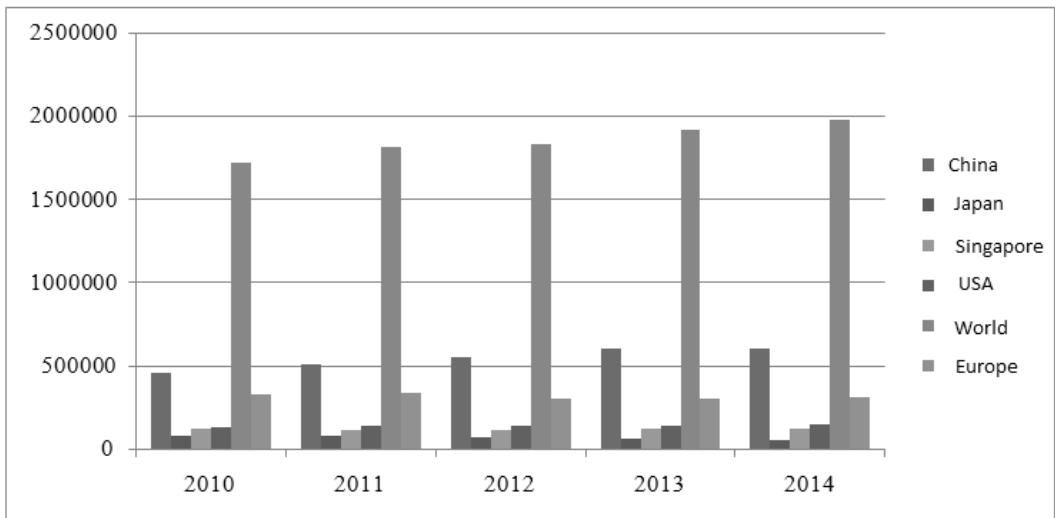
Nowadays, the information and communication technologies (ICT) are the basis for the development of any country integrated into the world economy. The potential benefits of ICT development include management efficiency and increase productivity, show the emergence of new export opportunities and efficient supply with software services in the information and communication technologies field, provide with information by the market terms, empower the distance education and improve service quality, especially in the services sector. In addition, modern ICT form the human capital of the country, which is the basis for creating the "information society". Modern ICT can offer countries with different levels of economic development an unprecedented opportunity to change their education system, adopt and fulfill more efficient political programs and provide their rapid implementation, expand the range of opportunities both for businesses and households.

Some countries consider ICT to be a major incentive to promote their social and economic development. By means of ICT, on the one hand, they can quickly make up the economic gap with world leaders and get huge returns on creating more wealth and jobs for highly skilled workers. On the other hand, some countries consider the development and use of ICT in the economy and society as a key component of the national strategy to improve living standards, increase knowledge and enhance their own international competitiveness.

**Main results**

The information technology sector has an important cascading effect on the global economy. Spending on worldwide information technology continues to grow. The market rose to US \$2,081.9 billion in 2014 and to US \$2,199.3 billion in 2015. Emerging markets are still the engines of growth for Worldwide IT spending, with strong trends continuing in markets such as India and Brazil in recent months. The weakest-performing geographies will be Western Europe and Japan, where slow economic growth is inhibiting IT spending while the United States market remains fragile in the context of political uncertainty.

Information technology is one of the most promising export sectors for many countries, which reached a big volume in US \$1979997.1 billion with respect to the total volume of exports in 2014. The world ICT market is growing steadily, although the pace of growth in small but well seen. Total sales of the global IT market during 2010-2014 years exceeded in the pre-crisis period, indicating that the market is recovering and demand for technology and services increased. In the first half of 2014, some areas of the world, such as China and Singapore, suspended the growth of their ICT export performance, and Japan's ICT exports decreased to US \$4.0503 billion. At the same time, in 2014, information technologies services exports of national economy were equal to about US \$800 million.



**Fig. 1. The volume of ICT exports in relation to total world exports, US million**  
(Statistics data base. World Trade Organization)

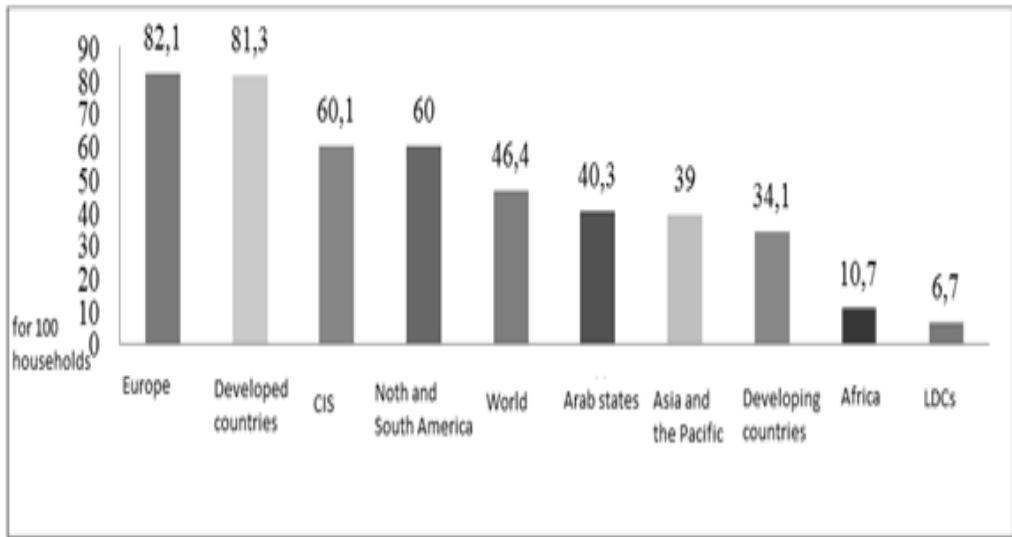
Information and communication technologies have become the main engine of economic development for any country in today's globalized world. Recently, the main market trends and ICT are:

- the increased number of information intermediaries who give information in modified forms under the client's relevant request;
- higher degree of information companies specialization according to the field of their activity: science, business, industry, law etc.;
- intense competition in the global information market between the US, EU and China.

Many new technologies and offers are disrupting the technology landscape. Mobile device innovations have made headlines for the past five years and, while mobile phones may no longer be a source of game changing innovation, suitable technology is. Cloud software, and even software hosting to an extent, have disrupted the normal purchasing patterns in the enterprise software market.

Many new enterprises that did not want to purchase traditional license software have been enticed into cloud purchases, and at the same time traditional enterprises are shifting to a hybrid approach to software, where cloud, hosted and license are all viable, co-existing options. Global IT is in a transition from the era of IT industrialization – where efficiency and effectiveness were the hallmarks – to the era of digitalization and digital business. Digital business is about the creation of new business designs by blurring physical and digital worlds. It is about the interaction and negotiations between people, businesses and stuff. It takes place when things begin to negotiate amongst themselves, as well as people and businesses do, thereby we see that we have entered an entirely new and disruptive world. In the past, people could control everything in business. In future, things will tell their own tales and thus will shift the way in which a business restricts its opportunities. Cognizant computing — the next phase of the personal cloud movement — will become one of the strongest forces in consumer-focused IT. It will also have an immense impact across a range of spending areas, including mobile devices, mobile apps, wearable, networking, services and cloud.

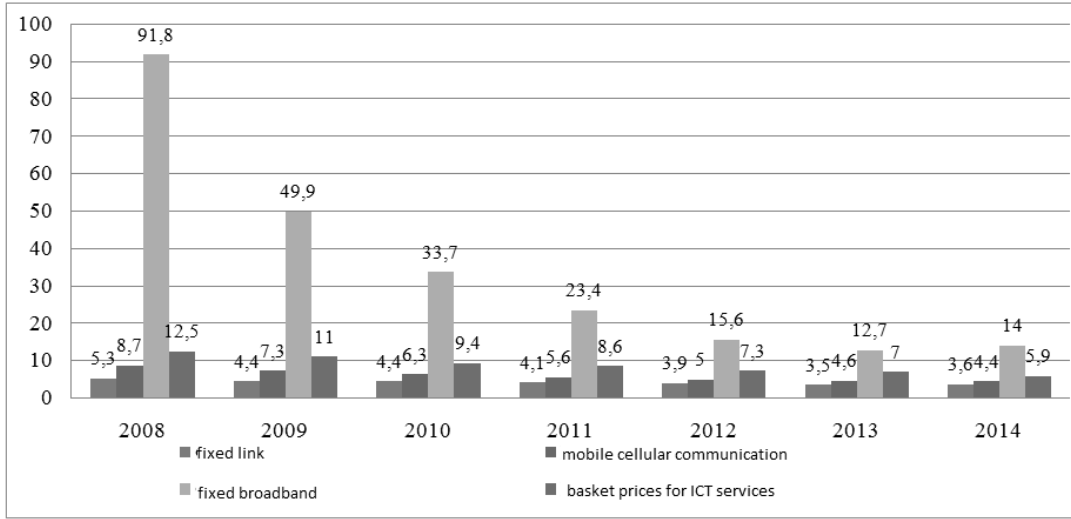
Bridging the digital divide between developed and developing countries is a priority for modern international community. The present level of Internet access in developed countries is much higher than in developing ones. In particular, there is a tangible lag in the least developed countries. The program "Connect 2020" aims to ensure that by 2020 at least 50 percent of households in developing countries and at least 15 percent of households in the least developed countries will have had access to the Internet. According to the International Telecommunication Union's (ITU) data, the foregoing time access to the Internet will have 45 percent of households in developing countries and 11 percent of households in LDCs. The current distribution of households with Internet access is shown by the following data (Fig. 2).



**Fig. 2. Households with Internet access, by region, %, 2015**  
(ICT Statistic. International Telecommunication Union)

Also, according to the "Connect 2020" agenda (Connect 2020 Agenda. ITU) by 2020 telecommunications ICT must become by 40 percent more affordable in price terms in comparison with the year 2012. Thus, must be reduced the existing gap between developed and developing countries in the access to ICT. It means that price for the use of telecommunications must be reduced by 4 per cent; consequently, the cost of broadband communications has to reach the level that does not exceed 5 percent of the people average income. ITU defines the ratio of prices for services of fixed and mobile telephony and broadband, to the average monthly income from the basket price for ICT services. The fact is, in recent years, prices for ICT services have become more affordable, particularly in LDCs (Fig. 3).

Since 2012, prices for mobile services have been reduced by 29 percent both at the local and the global level. In the same period there was also a sharp decline in prices for mobile broadband services. By early 2015 the economies of 111 countries (160 for which data were available) have fulfilled the target to reduce the cost of broadband services to a level that does not exceed 5 percent of the average income of their population.

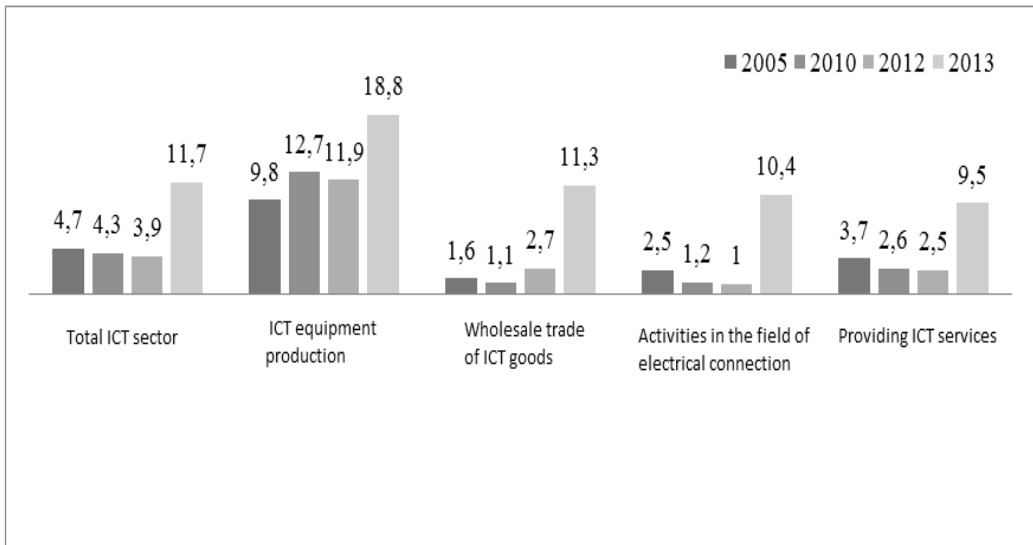


**Fig. 3. Value pricing of ICT services**  
(ICT Statistic.International Telecommunication Union)

However, in 22 developing countries, the price of broadband services still exceeded 20 percent of the average income. These data indicate not only that progress has been achieved in ensuring the acceptability in price terms, but that the continued decline in prices for performance targets for admissibility in the price requires the adoption of sustainable measures in the regulatory and political level, in particular in the developing countries.

Nowadays in order to solve problems in the field of information and communication technologies operational management applies the latest developments. These developments give growing possibilities for information and communication technologies improving.

Analysis of ICT in enterprises showed rapid development of research in the field of telecommunications that use ICT for external accounting information. As we can see it is a small proportion compared with other sectors (Fig. 4)



**Fig. 4. Organizations engaged in research and development in ICT, % of total number of organizations**  
(ICT Statistic. International Telecommunication Union)

The innovation activity's increasing in the economy is one of the main tasks of modern development. Modern economies trends show an increase in the market value of just those companies that use new technological knowledge. Today, ICT development has a significant impact on the structural and dynamic parameters of the economic system. As noted M. Porter, "...technological change is increasingly regarded as that having an independent value, and any technological innovation used by the firm is seen as a positive factor..." (Porter, 1998).

The share of companies that have used technology innovation during 2002-2013 tended to decline and stood at its lowest result in 2013. The least indicator of innovative ICT products produced by organizations with respect to the total amount of goods was recorded in 2012 and amounted to 3.9 % when compared with 2003, the figure was 11%. As for the cost of technological innovation, there is a tendency to increase. The main source of financing innovation is enterprise's own funds - 72.9%.

Digital cellular mobile systems of the second generation are growing rapidly worldwide. The biggest characteristic of the cellular mobile networks dynamics was recorded in 2015. Fairly rapid progress of mobile communications standard GSM, primarily due to its broad functionality and continuous improvement is based on the concept of interoperability "bottom-up" that does not require modification of the previous generation equipment for the new network sharing. GSM service area is the entire geographical area in which the user can access the network GSM. GSM service area increases as the new operators sign contracts that provide joint work on customer service. Currently, the GSM service area covers some gaps, many countries from Ireland to Australia and from South Africa to America.

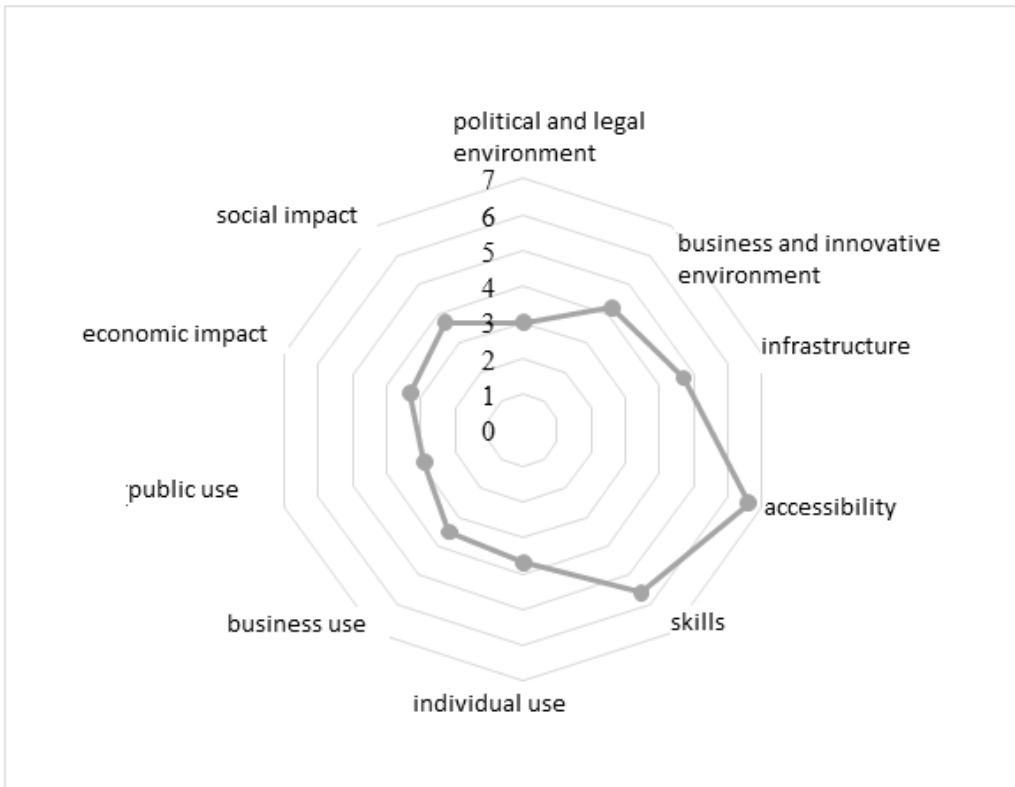
According to the given research of the extent and dynamics of the main indicators of ICT at the macro level, we can identify the following trends:

- the values level of "penetration rate of telephone communication" indicator Europe consistently holds a leading place;
- the number of mobile telephony subscribers is growing rapidly and steadily since 2001;
- dynamics of the mobile subscribers total number is characterized by a constant tendency for growth, relative decrease occurred only during 2009-2010, amid the financial crisis;
- indicators of spending on research in ICT grew rapidly in 2010, but last year reduced their growth;
- the main trend is the redistribution patterns of communication services towards increasing the share of more technologically advanced - mobile (from 2004), and computer (from 2010) ones.

According to the data indicated in the annual report of the International Telecommunication Union, the most effective countries in the ICT development index survey in 2015 are the Republic of Korea and Denmark. This result was expected, since these countries have very high overall evaluation index, they show high achievements in all assessments of the three main components of ICT. South Korea in recent years shows significant results in ICT development as provided by all indicators in 2015. In 2010, the data in terms of skills in the country were nearly 1.00 (100 percent), the result remained at the same level until this year. There were significant rises in scores on the proportion of mobile subscriptions cellular and international bands crossing the Internet for each user. Almost all households in the country have access.

In the current situation the main task for Ukraine is to increase the role of government in the ICT development as a driving force for improving the competitiveness and sustainable economic growth. To do this, we should use the competitive advantages of the country that already exist, and remove key barriers. To determine the main directions of improving ICT market in Ukraine we need to analyze the main determinants that shape the ICT environment. In our opinion, the key factors forming environment are ICT indices, which cover a considerable range of values.

The Networked Readiness Index (NRI) evaluated the driving factors and the degree of impact network availability and ICT in the country. This takes into account an equal role and responsibility of all "players" of society - individuals, businesses and government. ICT playing now a leading role in the development of innovation, productivity and competitiveness capacity diversify the economy and promote the business activity, thus contributing to raising living standards. After reviewing the results of the research on the index we can analyze the problematic aspects of the current policy and monitor progress in the implementation of new technologies (Fig. 5).



**Fig. 5. Components of Networked Readiness Index, Ukraine, 2015**  
(Measuring the Information Society Report 2015. ITU)

Business demonstrated a negative trend in the use of ICTs (76th place, minus 5 positions). This is due to the fact that Ukraine's economy is still dominated by low-tech industries, which are less in need of a high level of ICT use. The rate of the use of ICT by citizens gets better compared with the state and the business. Growth estimates for this part of Ukraine allowed rising to 12 positions per year in the ranking of 2012. According to some data, 5 years, the number of regular Internet users (people over 16) increased almost 3-fold, to 15 million people in 2012, and broadband - 10 times, to 7 million people. The increase in total Internet users contributed to a significant reduction in Internet tariffs and growth in sales of smartphones, especially in small towns and villages.

High demand for ICT by the population contributes to high technology devices used by the Ukrainians. And even though the delayed transition (licensing) protocol standard for 3G, mobile Internet consumption is increasing even if the use of the protocol 2G is more than 11 million. Subscribers (40% of the total base of subscribers) used the mobile Internet in 2012. The worst indicators for Ukraine received the first part of politicoand regulatory environment (125-th): effectiveness of legislative bodies is at 137-th place in the world, the effectiveness of the legal system to resolve disputes – 138-th place, the effectiveness of the legal system in appeals chewing regulations - in 135-th place. Traditionally, the country gets very low marks in protection of intellectual property rights, and in terms of piracy –97-th place in the world.



Lack of confidence in the protection of the rights and investment, corruption and "overregulation" of many processes (especially when starting a business) as well as the instability of the Ukrainian market, often discourage investors, which could spread the country's best practices for the development of information and communication technologies. Ukraine only occupies the low 111-th place in terms of ICT usage state.

The World Economic Forum in its Index notes that the Ukraine government has no clear plan for implementation and use of ICT to improve the country's competitiveness. As a result, low 122-nd place in terms of "value of ICT in State Policy" and the relatively low score ICT priority on the government's agenda (118-th).

Low assess of the business environment in Ukraine is due to limited free competition in the country (120-th), administrative difficulties with opening the business and high aggregate tax rate. According to business, modern technology in the country is not enough available (96-th), partly because of the inability to obtain financing for practical venture (innovation) projects and the low volume of public procurement of high-tech products (112-th place).

Ukraine's competitive advantage is very high percentage of coverage of higher education - almost 80% (9-th in the world). At the same time it remains a question mark quality, particularly the quality of business schools (116-th), which should prepare high-level managers and possibly future initiators of innovative businesses. The highest position in the world ranking Ukraine occupies partly by the availability of ICT (2-nd place). This is ensured by low tariffs for mobile services (9-th place) and tariffs for fixed broadband (9-th place).

So, at present Ukraine has good potentialities for the e-business development, including marketing communications online, at a high level business and citizens are ready to use Internet technology. In particular, in terms of availability, this estimates the cost of ICT using with a mobile phone or broadband Internet access. Ukraine also shows good results in terms of the ability to use the Internet - it takes the 35-th place with an index of 3.5, which is significantly above the average of this indicator in the group of countries with incomes below the average.

Ukraine is the worst taking on a group of sub-indices, covering the use of ICT by the state. This shows that Ukraine has not developed the system of ICT regulation and promoting the development of the state. The state regulatory environment in the area of e-business is poor, healthy competition is not developed. The government pays insufficient attention until ICTs as the engine of economic growth and innovation system, which has undergone a deep restructuring after the collapse of the Soviet Union, have not yet been completely reorganized. All this together with imperfect political and legal environment does not allow Ukraine to receive all the benefits of the extensive involvement of economic interests in the use of ICT.

### **Conclusions and suggestions**

The economic relations globalization, lack of information borders between states and therefore the rapid development of information society in developed and developing countries due to intense introduction of the latest achievements of science and technology in the field of ICT. They currently are inseparable part of the world community everyday life.

Information and communication technologies in today's dynamic development play a significant role in the growth of socio-economic and business environment in any country, positively affecting the rapid establishment of relations in trade, finance, transport, encourage active cooperation of influential international organizations.

ICT take priority among other sectors in the Ukraine's economy. This is confirmed by the analysis of its development — reducing resource input economy; they improve social standards of living, have positive impact on the trade balance, the diffusion of ICT in other sectors of the economy, outstripping economic growth. There is an urgent need to develop and implement a comprehensive state development strategy. The main elements of this strategy should be the improvement of the tax system sector, reforming the education system, infrastructure development and marketing of Ukraine as an interesting player in ICT with an attractive business climate.

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## CONSIDERATION OF SPECIFIC FEATURES OF ACTIVITY WHILE IDENTIFYING RISK FACTORS OF BUSINESS FINANCIAL SECTOR

**Tetyana Yakymchuk**

Associate Professor PhD, Kryvyi Rih Economic Institute  
SHEI «Kyiv National Economic University named after Vadym Hetman»,  
e-mail: iakymchuk\_tp@kneu.dp.ua, Ukraine

**Alla Levitskaia**

Associate Professor DSc, Comrat State University,  
e-mail: alla.levitskaia@inno-center.md, Republic of Moldova

**Abstract.** The article systematizes risk factors of the financial sector in Ukraine basing on the risk classification for the following groups: strategic, financial, legal, operational and reputational ones. It emphasizes that the financial sector risk factors are to be divided into those arising within bank and non-bank financial institutions, depending on their specific activity.

**Keywords:** risk management, financial sector, risk identification, risk factors.

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### Introduction

Key issue of corporate form of ownership development today is the increased level of risk. Corporate risk management is a systematic process of risk management of corporate ownership entity, which goes along with the most effective management decisions at all levels of management aimed at both reduction or avoidance of possible losses and obtaining benefits upon the occurrence of adverse events. Corporate risk management must be integrated into the overall control system of the company and its organizational structure, is to be effective, flexible and corresponding to external changes.

### Risk Factors Assessment for Banks and Non-Bank Financial Institutions

Numerous studies of corporate risk management have revealed the diversity of scientists' views on its stages. Thus, the researchers Khokhlov N.V. (Khokhlov, 2003) and A. Matviychuk (Matviychuk, 2005) distinguish the following stages: 1) risk analysis (identification, evaluation); 2) the choice of methods to influence the risk evaluating their comparable effectiveness; 3) decision-making; 4) influence upon risk (reduction, fixing, and transfer); 5) the monitoring and adjustment of results. At the same time Doba N.M. identifies only 4 stages: 1) the context of risk (determining strategic and tactical objectives); 2) risk analysis; 3) ranking and selecting risks; 4) influence upon risk (Doba, 2009). Mostenska T.L. and Skopenko N.S. offer more detailed research of risk management stages (Mostenska, Skopenko, 2010). They distinguish the following stages of risk management: 1) assessment of the economic situation, 2) problem diagnostics, 3) risks identification, 4) risk analysis, 5) determining the methods of influence upon risk 6) determining the methods of risk optimization, 7) the development of management decisions, 8) decision-making 9) influence

upon risk, 10) evaluation of the results.

The issue of distinguishing steps of risk management in financial sector is quite debatable. Thus, according to the methodology of National Bank of Ukraine there are four stages, Falyuta A.V. defines five stages (Falyuta, 2012), Kuzmak O.M., in his turn, considers seven of them (Kuzmak, 2011) and Makarenko J.P. studies only three (Makarenko, 2014).

The research of portfolio risk management in insurance deserves particular analysis. The process of the insurance of company risk management, according to Baranov A.L. and Baranova O.V., consists of the following stages: 1) risk identification; 2) risk assessment; 3) risk control (Baranov, Baranova, 2013). Osadets C.S. proposes the following sequence of risk management activities: 1) risk analysis; 2) risk control; 3) financing risk (Osadets, 2002). Sorokivska M.V. in her turn points out the necessity of recognising 5 stages such as forming setting goals, providing information support, identification and assessment, analysis of eligibility, choosing methods to neutralize risks (Sorokivska, 2012).

Summarizing approaches to the study of corporate risk management stages we should say that most scientists consider risk identification to be the first step because all further work will depend on its results. In its turn, the effectiveness of the results of risk identification is impossible without the systematization of its causes (factors).

Systematizing risk factors involves not only their classification according to types, but also defining interrelationship between them. In the process of identification of risk factors we assess conditions and causes of their occurrence, identify those activities of the economic entity which are potentially most risky. When identifying risk factors, special attention should be paid to the scope of their emergency, the degree of impact on the achievement of goals, the probability of the emergency of certain risk factors and their interrelationship. At the same time, interconnection and interdependence of different groups of risk factors determine the origin of the reasons that contribute to the risk exposures.

Risk management of financial sector differs significantly from risk management of other business areas. Therefore it is necessary to take into account their specific features (Yakimchuk, 2016). The scientists have made attempts to analyze risk factors in the banking sector (Falyuta, 2012; Makarenko, 2014) and insurance companies (Pikus, 2006; Bratyuk, 2014). In Ukraine the procedures of assessment and managing risk for banking financial institutions is determined by the existing legislature. Legal regulatory framework is the Guidelines on the organization and operation of risk management in banks of Ukraine approved by the NBU of 02.08.2004 number 361 and Guidelines for the inspection of banks' "Quantitative risk assessment system". Methodological guidelines number 361 provides the division into internal (endogenous) and external (exogenous) risk factors. It gives the opportunity to systematize groups of risk factors for banking institutions. Unfortunately, today there is no legal regulatory framework for classification of risks for insurance companies and other non-banking financial institutions in Ukraine. Thorough analysis of existing literature indicates the absence of a holistic approach to the classification of risk. It is difficult to use classifications proposed by scientists due to their complication and great number of subtypes. We believe that the comprehensive systematization of risk factors of the financial sector should take into account only the most important ones. Therefore, basing upon the studies for generalization and systematization of factors and sources of the financial sector risk of Sokolov D.V. (Sokolov, 2011), the author emphasizes the following groups as the most important: strategic, financial, legal, operational and reputational groups.

Banking institutions as leading subjects of the financial sector provide a wide range of financial services. Therefore, the risks are inherent to the very nature of their activities. Group

threats that can bring to the risk arising in banking are the following:

the strategic causes, which mean significant impact of public authorities on the conditions of activity; increasing competition among banks; unprofessional marketing policy of the bank; reduced demand for banking products and services; ineffective implementation of new banking products; frequent choice of inadequate conditions of the environment strategy of the bank; incorrect definition of the mission and goals of the bank; unsatisfactory state of implementation of strategic plans; the lack of an integrated approach to risk management; internal discrepancy between risk management and regulatory requirements; bad management;

the financial causes, meaning lower rates on the debt securities market; inadequacy and inconsistency of information exchange; unexpected fluctuations in exchange rates; change in intrinsic value of currencies; shortfall in income as a consequence of excess liquidity; borrowers' insolvency arising from failure to comply with the terms of the contract borrowing transactions with debt securities, etc; the failure of third parties to fulfil liabilities; large proportion of unsolved debts; the failure of banking institutions to fulfil their obligations; ineffectiveness of capital management; insufficient equity; not optimal dividend policy;

the operational causes, such as small size and scale of bank activity; early withdrawals of deposits; reducing balances on customers' current account; lower quality deposits; the change of the amount or time of payments on financial instruments on the part of a customer; speculative financial instruments; the increasing gap between assets and liabilities; adverse changes in the structure of bank assets; substantial reduction in the value of assets; asymmetrical revaluation rates for different types of assets and liabilities; inability to meet the needs of customers in cash; change in interest rates on term structure; interest rate policy of the bank; the wrong choice and evaluation of project; lack of confidence in the national currency; improper organization of operation procedures in contracting; imperfect system of internal control and internal fraud; the breach of health, safety and environment regulations; the disruption of functioning or safety of computer systems; inefficient processing of the bank; low capacity of the software systems of the bank; out-of-date software; interruptions in electricity supply; wrong staff policy; lack of staff motivation; errors caused by inattention, lack of concentration, wrong interpretation of information or lack of staff professional knowledge; external fraud;

legal causes, dealing with violating or not observing bank legal and regulatory activity; variability of legislation in the monetary and credit sphere; changes in tax laws; conflict between majority and minority of shareholders; non-notification or late notification of shareholders' general meeting; the change of the place and time of a general meeting after the official notification; imperfect internal procedures of registration and calculation of a quorum at a general meeting; limiting the rights of minority shareholders to obtain information as for activities of the bank;

reputational causes, such as non-transparent ownership structure; reducing the quality of customer service; ineffectiveness of Information Policy, the insolvency of the bank; lawsuits initiated by customers, shareholders and creditors; rumours, spreading negative information about the bank owners.

Insurance companies are financial institutions that face problems of managing numerous risks, which are divided into two groups. The first group is determined by the specific risky business environment, the second one represents deliberate taking responsibility for additional risks from other entities. The negative phenomena that generate the emergency of these risks are:

strategical, such as reducing real incomes; reduced demand for insurance services; the high level of competition; limited opportunities to conduct marketing research; inability or unwillingness to introduce new insurance services; unsatisfactory performance plans of insurance services; overstating profits in tariffs; imperfect investment strategy; poor management of the regional network;

financial, such as significant fluctuations in foreign exchange, credit and stock markets; undeveloped securities market; adverse changes in the financial condition of the insurance company regarding the violation of deadlines by customers or failure (partial execution) of obligations; volatility of cash flows; the insurers necessity to fulfil their obligations;

legal, such as changes of insurance licensing conditions; changes in the rules of insurance services; penalties from public authorities; ineffective control of public authorities; conflicts among shareholders; legal protection from access to customers' personal data;

operating, including lack of insurance operations; inability to launch proper agent network; faulty information flow; providing false information, concealing or distortion by customers; non-optimal tariff policy; overstatement of net rate; amateurish formation of risks portfolio; unreliable statistical basis for calculating tariffs; errors in the selection of underwriting risk; errors in the implementation of reinsurance policies; inefficient use of reinsurance mechanism; failure of reinsurers to fulfil liabilities; mismatch between capacity and structure of insurance risk portfolio; inaccuracy of calculating compliance of insurance reserves to taken obligations; the conflict between functional units of the company, in particular, the conflict between underwriter's and actuary's interests; unpredictable factors in the activities of third-party relationships; deterioration in asset quality; inefficient investment funds; limited choice of financial instruments in the portfolio; low quality front-office systems; errors in the staff activity (not making insurance payments received in cash by an insurance agent, etc.); the probability of risk for employees in calculating the tariff; dishonest personnel (espionage), psychological fatigue of employees; highly qualified staff reduction due to the optimization of management structure;

reputational, for example, the existence of negative information on the results of audits by the supervision and control; existence of facts of legalization or laundering the proceeds; lack of public information on the performance; rejection of insurance claims; low quality customer service; scandalous reputation of the owners; low corporate culture.

Activities of other types of non-bank financial intermediaries generate the appearance of risk, characterized by multidimensionality and multiplicativity. In Ukraine the activities of financial and investment intermediaries is carried out in high volatility. Potential threats to the risk groups are the following:

strategic threats, which include lack or decline of trust in these types of intermediaries; low level of financial literacy and investment culture of the population; decline in income per capita; economic conflicts with other countries, riots, acts of war, strikes; transparent competition; unfair competitors' behaviour; ineffective strategy development; lack of effective advertising campaigns; absence of prudence in the formation of investment strategy;

financial threats, such as depreciation of assets and investment income due to high inflation; high volatility in foreign exchange and stock markets; reducing the value of assets as a result of interest rates rising; decrease in the market value of securities, real estate; lack of reliable and liquid financial instruments; multiplicative factors (losses resulting from the deterioration of cooperating systems e.g. banking, insurance, stock market); for leasing companies it is lack of funds for the formation of reserves; low liquidity; reduction of long-term solvency;

legal threats, among them there are inadequacy and inconsistency of legislation (no clear mechanism for the transfer of pension assets from private pension fund to the insurance company or to the bank deposit account, insufficient regulation of pension savings accounts and pension life-long insurance contracts); lack of continuity of government in the implementation of certain types of financial intermediaries; inadequate legislation on preparation of investment returns; increase of administrative activity restrictions; insufficient legal protection of the market participants' interests; a significant number of regulatory and supervisory activities; for leasing companies it is imperfect legislative support mechanism for the securitization of assets; revocation or suspension of license;

operational threats, including profit shortfall due to the bureaucracy; incorrect practices on handling services, financial instruments, etc; discrepancy of product features and interests of customers; the lack of a broad network of investment services; dependence on the operation of third parties (asset managers, administrators, savers, consultants); failure of payment of investment income dividends; limited investment portfolio management; low investment diversification opportunities; incompetence of investment-making companies; errors in the analysis of trends and investment targets; inefficient operational management of the investment portfolio (incorrect economy and industry forecast, subject to price fluctuations of financial instruments); false definition of investment prospects; lack of control over volatility; investment in assets related entities; revenue shortfall due to the inability to perform obligations under the securities of mutual funds, numerous appeals demanding to repurchase securities of mutual funds, problems in the placement of pension reserves of private pension funds; late payment on private pension funds; suspension of work due to the software breakdown; disruptions in business operations and processes; wrong appreciation of candidates for the posts; conflicts between structural units of the mediator; inexperienced staff and lack of qualified professionals; lack of experience and knowledge of the staff; for leasing companies it is non-return or loss, damage and significant degradation of the leased object; full or partial insolvency of the licensee; impossibility of leasing object in the secondary market; lack of diversification of the portfolio of contracts; ineffective monitoring of the leasing object (no unscheduled inspections of leasing object, incorrectly folded schedule of inspections, etc.); unpredictable actions of third parties (intermediaries, insurance companies, banks, factoring companies, guarantors, etc.); fraud by participants of the leasing agreement; problems of vendor leasing object; early termination of the lease agreement; lack of enforcement of credit obligations by the licensee;

Reputational threats, first of all, the use of financial intermediaries in the informal economic circuits; fines, penalties charged by state agencies; damage to the reputation of the owners, the asset management company; lack of transparency and public information on the structure and efficiency of assets; default for customers (the existence of the facts of non-payment of investment income, non-return of accumulated pension funds, untimely redemption of investment certificates, failure to provide leasing facilities for use by a leasing company and claims of employees); negligence in meeting the obligations regarding customers; manipulative actions to guarantee the fund profitability; for a leasing company – loss of reputation of one of the leasing agreement participants; the spread of raider attacks; the conflict of owners' interest.

### **Conclusions and suggestions**

At present stage of the Ukrainian financial sector development the improvement of risk

management requires considerable attention. In order to solve the practical problems of risk identification and assessment this article proposes the systematization of risk factors for the financial sector teams distinguishing strategic, financial, legal, operational and reputational ones. The detailed analysis of causal risk characteristics of financial intermediaries gives the opportunity to determine possible consequences more accurately and develop relative measures for managing it.

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## MODELS OF CRISIS MANAGEMENT IN A CHANGING ENVIRONMENT

**Vera Chizh**

Prof. DSc, Cherkasy State Technological University, e-mail: vera-chizh@yandex.ru, Ukraine

**Valentina Gavrylenko**

Associate Professor PhD, Cherkasy State Technological University,  
e-mail: vali4ka14@mail.ru, Ukraine

**Abstract.** The article investigates and systematizes the factors affecting the occurrence of the crisis at the enterprise; considered the management models of production, logistics, marketing and investment activity of the enterprise, models of financial and of personnel management, which altogether provide the process of anti-crisis management and create conditions for the company withdrawal from the crisis and refine the efficiency of its activities.

**Keywords:** enterprise, anti-crisis management, model, production, logistics, marketing, finance, personnel.

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### Introduction

Modern economic development is inseparably connected with the process of globalization, which covers all spheres of life: social, political, cultural, economic. Active introduction of information technologies and systems in the activity of economic entities enhances communication connections and accelerates the processes of formation and transformation of the world community. Numerous financial crises, military conflicts complicate the geopolitical situation and significantly affect the economy of the countries. In this regard, the signs of the current economic situation are: instability, unpredictability, fierce competition, which affect not only the relationship of the enterprise with the external business environment, but also affect its internal processes. This causes the need for changing to avoid the crisis and ensuring stable development. Changes need to be controlled. The emphasis on traditional economic indicators and the use of standard management practices in a turbulent environment turned out to be insufficient for the development of enterprises, and new approaches and tools of management that predetermine the actuality of research in this direction are required.

### Development of enterprises's anti-crisis management principles and methods

The problem of improving the enterprise management is not new. The enterprises development from the position of society formation, the development of the theories of management is studied in the scientific works of such scientists as Ackoff (2002), I. Anosoff (1999), John Galbraith (1979), Daley (2002), P. Drucker (2008), Boris Karloff (2004), Mintzberg (2000), F. Taylor (1991), A. Fayolle (1992). Extensive scientific contribution to the methodology management of development of various socio-economic systems was brought by domestic scientists: A. G. Belous (2006), N. V. Vasuda (2014), V. M. Geyets (2000),

V. G. Gerasimchuk (1995, 2007), B. M. Danilishin (2004), B. A. Karpinski (2005), S. L. Pakulin (2016), V. S. Ponomarenko (2003), Y. V. Rayevneva (2007), S. K. Ramazanov (2009), I. I. Smachilo (2012) and many others. The works of these scholars are devoted to the formation and interaction of economic, social, environmental, corporate systems in a strategic perspective. Acknowledging the results of the theoretical and applied study of the crisis management issues in different socio-economic systems and at the level of the country's economy; it should be noted that in this direction there is still a number of unsolved issues. Further studies require the aspects related to the development of a conceptual approach of crisis management, which would ensure its effective activity in unstable conditions of the economy.

The purpose of this article is to develop models of enterprise anti-crisis management in a rapidly changing environment.

Certain risks and uncertainties affect the functioning of the enterprise in the market environment. In unstable economic environment the levels of risk factors and uncertainty increase the activity of the company may become ineffective. In order to prevent such outcome it is necessary to use a specific set of measures, models and methods that can help the enterprise to restore efficient operation, and together they constitute the basis of anti-crisis management. Anti-crisis management requires the formalization of enterprises as complex socio-economic system. Parameters of formalization can be purposes, legal and regulatory activities; resources; processes; structure; division of labor and distribution of roles, the external environment; the internal social and economic ties and relations. Using the control functions, the system that has the resources at the entrance, transforms them to the products or services and can adapt to changes.

In the general case the management process is a cyclical process in which, based on the modeling of the current state of the management subject, the goals are defined, the impact factors are explored, management decisions are developed and their implementation is controlled. Components of the management process are a problem and the staff.

It is in connection with a deviation from the planned state, which is noted in a specific moment or projected for the future, crises in enterprises can arise.

A combination of factors and conditions contributing to the emergence of a particular crisis situation, in the scientific literature is divided into two groups: internal factors and external factors. Analysis of existing approaches allowed us to organize the group factors that significantly affect the condition of the enterprise.

The internal factors which depend on the enterprises contain goals, development strategy, status of portfolio, structure of production and management, financial and human resources and quality of products. They form the enterprise as a system, the relationship and interaction elements of which ensures the goals achievement that it faces. Therefore, the change of one or more factors at the same time raises the need of making management decisions aimed at preserving the system as a whole organization and avoiding the crisis. Internal factors are well managed.

External factors form the environment in which the company operates and is characterized by high complexity, dynamism and uncertainty. They include the state of the economy, technological and social development, the political situation, the globalization of the world economy. External factors are poorly controlled, have an indirect effect on the business, so you need to consider the possible consequences of such influence. Analysis of the factors allows us to consider the problem in connection with the events that caused it, and

changes in the internal and external environment of the enterprise, and begin the search for the necessary solutions.

The basis for the development of management decisions can be considered as the model of enterprise management. On the basis of such models it is provided the enterprise activity planning or decision-making for management of the enterprise functioning. Planning tasks consist of determining the production plan, selecting the range of products, agreed planned targets with resources. In the analysis of enterprise functioning tasks, the issues of cost optimization, pricing, profit distribution, determining sources of functioning and acceleration of sales are solved.

In the terms of anti-crisis management the main requirements for planning and managing business are to ensure effective functioning, elimination and prevention of the crisis phenomena in all activities of the enterprise. These requirements can be reflected in the structure of models in the activities of the company: production, logistics, marketing, financial, personnel, organizational. According to these directions the model needs to contain appropriate mechanisms of activity of the enterprise, sources of their formation, the feedback between the output and sale of products and production resources.

In the general case the model of enterprise management can be divided into dynamic and static. The dynamic model includes the definition of the output, identification of necessary financial resources, the products pricing, calculation of necessary profit, the impact of deviations in prices of resources on production, the timing of technical systems conversion. Static models are the models of resource planning, load optimization of equipment and personnel distribution according to the type of work, the choice of the product manufacturing technology, planning the product range and demand for goods.

Management models should reflect the most essential regularities of resources transformation (material, financial, labor) of products manufactured by the enterprise, and reflect the profit obtained after selling. For each direction of activity of the enterprise should be developed separate models.

The dominant factor of stable activity of the enterprise is its production activity which depends on many other parameters. Variable and fixed costs of production relate to the parameters which the company's executives can actively influence with the help of improved manufacturing techniques (reducing material intensity, energy intensity, production specialization, mechanization and automation), labor productivity increase, changes in staff, salary conditions and the like. Monitoring these factors is important to ensure the efficient functioning of production.

Determination of the enterprise production output for some period is based on available cash and borrowed funds, information about the volume of goods produced for past periods and the proportion of its realization in the following periods, a price index, mandatory taxes and fees included in variable and fixed costs, wages. Determination of production volume allows to prepare in advance the options for rational solutions to emerging and projected changes in input prices, changes in own and borrowed funds, to adjust the plans of production, credit, changes in selling prices. This gives the possibility to predict the onset of the moments of production destabilization (the emergence of crisis factors) and to use anti-crisis management as the best form of anti-crisis management to prevent crisis in the enterprise. In the terms of inconsistency of costs and financial resources, the plan of production should be adjusted to decrease or reduce of costs because it can cause the insolvency. Model of volume production allows to predict the time of occurrence of crisis situations in the enterprise,

conditions of their occurrence and to take timely management decisions about the implementation of relevant anti-crisis measures.

Application of anti-crisis management in production includes the following activities: development of the production management goals, aimed to overcome the crisis in manufacturing and to provide the development of enterprises, assessment of possibilities of the established goals achievement in the enterprise operation in normal or restored mode, selection of the appropriate production strategy, its implementation and control.

The inefficiency of logistics management can also cause a crisis of production. Therefore, it is necessary to build adequate, effective models of enterprise logistic management.

Logistics management in the anti-crisis management of the enterprise is aimed at efficient solution of such tasks: processing, recording and storing information about stocks; development of decision rules that is the basis for setting the duration and size of orders needed to replenish inventory; development of a production financing strategy for future periods. These tasks are interrelated and their solution can be represented as a hierarchical system, the first level - the existence reserves and the reserves that will be created through the orders placement and backlog for customer orders. The second level is rules of decision-making that focus on real reflection of the current situation; the third level model - the system of logistic activities management of the enterprise.

Anti-crisis management is impossible without marketing management. From the point of view of anti-crisis management, marketing is seen as a concept of enterprise management, includes the following components: market research (product research; consumer research; a study of the basic parameters of the market; market research; market segmentation and selection aimed segment; determining the market size and the share of the enterprise market); range control (choice of commodity policy of the enterprise; the choice of marketing production type; development of the production program; scientific research work; forecasting the life cycles of products), sales management (the choice of forms and methods of marketing; program development costs; demand generation and sales promotion), advertising management (media and types of advertising; development of the marketing campaigns; planning of advertising budget), marketing management (developing marketing strategies; developing the marketing programs).

Effective management of marketing is based on marketing studies, which are a system of collection, summaries, analysis and forecasting of the data needed for the specific marketing activities at any level. Marketing research needs to be focused on single scientific requirements, based on the general theories, methodological principles and pursue common goals.

The main purpose of marketing research is information-analytical study of search and selection of the optimal economic decisions. To achieve this it is necessary to solve the following tasks effectively: collection, processing and review of information; assessment and analysis of market conditions; estimation, analysis and forecasting own opportunities of the enterprise; assessment and analysis of the opportunities and activities of competitors (percentage of competitors in the market segment, the profit share in the price); regular measurements of the market quantitative parameters and determination of its capacity; demand forecasting (forecast of the realized demand, insufficient demand); identification and assessment of commercial risk; information-analytical study of marketing strategies and marketing programs; information and analytical support of pricing strategies; identifying the preferences and views of consumers; evaluation of advertising effectiveness; the goods testing

(goods must correspond at least the average standard of the market); analysis of the effectiveness of trade; permanent control over the implementation of marketing programs. Thus, marketing research is the process of finding and effective solution of the problems connected with commodity policy of the enterprise and directly affects the performance of the enterprise as a whole.

It is proposed to use the method of logical-semantic modeling, in order to identify the problems of marketing management the sequence of which is given in the table 1.

Functioning in the external environment that is complex and multi-level structure, and receiving the necessary resources from it, it is impossible to ignore the processes occurring in it. The influence of external environment on business activities is different and is defined as the specific characteristics and internal capacity of enterprises. In any case, businesses need information about the existing threats or the opportunities that have been opened, analysis of the factors of direct action that will ensure the adoption of sound management decisions and the creation of an adequate impact on the environment.

Consumers are one of the main external influencing factors on the enterprise activity.

Their decisions determine the range of most preferred goods and services; dictate the prices they are ready to buy a particular product for, defining, thus, performance criteria for the enterprise of its activities. For the company functioning it is needed to analyse and respond regularly to the desires of their consumers.

Stable activity of the enterprise in a changing environment is impossible without innovative activities related to the creation, dissemination and application of products and technologies that are characterized by scientific and technical novelty and they satisfy public needs. In anti-crisis management the role of innovative activity of the company is quite important because it is used for creating the science intensity and competitive products it is the key to obtaining the profits, the exit from the crisis and further development of the company.

Innovative activity is connected with the involvement of various resources, including investment and the time for researches and development conducting, and for execution of design engineering works associated with large-scale production of new products. The anti-crisis management system of innovative activity includes the following: science, technology, economy and education. The lack of any component leads to the violation of the system integrity of the enterprise innovative activity, which reduces its effectiveness and impact on the system of the enterprise crisis management in general.

In anti-crisis management the financial management has a leading role, as the biggest part of the crises that arise at the enterprise, is tied with not effective finances management. At the same time, financial crises are the most manageable and allow for a short period of time to restore the effective functioning of the enterprise, using the methods of crisis management.

There are three basic components of anti-crisis model of the enterprise financial management: monitoring, analysis and planning of finances (assets and sources of their financing; the size and composition of the resources needed to maintain the economic potential of the enterprise and expand its activities; additional funding sources; system of monitoring the state and effectiveness of financial resources); management of enterprise financial resources (the necessary amount of funds; forms of providing the necessary funds (long-term or short-term loan, cash); availability and on-time provision of funds (interest rates, other formal and informal terms of the specific funding source); the cost of possessing this types of resources (interest rates, other formal and informal terms of specific source of

funds); the risk connected with source of funds); allocation of financial resources, the optimality of transformation of financial resources (material, labor, money); appropriateness and effectiveness of investments in fixed assets, their structure; the optimality in requirement calculation and use of working capital; efficiency of financial investments). In anti-crisis financial management of the enterprisethe task of providing enterprise financial resources is preferable.

Table 1

### Stages of logico-meaningful modeling in marketing management

Phase name	Maintenance phase
1. Acquiring a basic knowledge about the company, its products and markets..	Information gathering about the type and organizational structure of the enterprise, goals of its activities, products produced, pricing policies, channels and promotion methods of products, market situation (market trends, competition, customer loyalty), so the initial information is gathered to diagnose the problem
2. An investigation of the situation in which the company is, its goals and resources.	Determining the reasons on the basis of which the manager defines the problems that have emerged; examines the available resources that can be used to overcome this problem.
3. Clarification of the problem symptoms.	In-depth study of problems symptoms on the basis of market situations monitoring where the indicators of possible problems are the dynamics of sales, market share, profits, as well as the number of orders that come from dealers of the company, the level of consumer complaints, the state of competition.
4. Identification of possible causes of the problem.	The analysis of competitors ' actions, consumer behavior, changes in activity of the enterprise, changes in the external economic environment.
The actions to alleviate the manifestations of the problem.	Generate alternative approaches to solve the identified problems, which are based on actions to improve the use of certain elements of the marketing complex.
6. The definition of the expected consequences of these actions.	Determination of possible decisions impact taken not only on the problem which is solved, but on the anti-crisis programme as a whole. In addition, it is advisable to determine what additional problems can arise if the decision will not be implemented.
7. Assessing the adequacy of the information received.	The difference between the existing level of information and those which corresponds certain requirements, is the basis for defining the objectives of marketing research.

Anti-crisis management is impossible without personnel management. The HR model should contain the following components: provision of the company with appropriate staff with necessary qualifications, in the right quantity; training of workers in accordance with the adopted technology and organization of production; an objective assessment of the performance of each employee as a basis for effective labor motivation; the rights and

guarantees of social protection of each employee; security ensuring. To implement these tasks in the personnel management system generally, the functional subsystems of planning and marketing personnel are included, management of staff accounting, managing the employee relations, managing the staff development, each of which has its tasks and its range of responsibility.

In relation to these functional subsystems the management is managed based on the principles of enterprise management in general, management of separate functional and industrial divisions, general and line management.

These models create a general model of anti-crisis management that takes into account internal and external factors of occurrence of crisis situations and to avoid them.

Formation of anti-crisis management strategy in terms of dynamic economy incomplete and inaccurate information requires the development of a new method that allows the company to operate in an unstable environment. In this regard, we propose to use the method of the strategy formation of anti-crisis management based on the ability of the company to self-organization. Based on the ability of companies to self-organization, it is possible to move to a qualitatively new level of strategy formation for the enterprise to manage the enterprise and its processes of self-organization. In the process of self-organization the enterprise adapts to changes in the external environment and coordinates the strategy.

### Conclusions and suggestions

The preservation and expansion of enterprises requires to improve the use of management techniques. If in the recent past, these methods were focused only on the financial component of the performance, then over time it became an obvious failure of this approach. To prevent the crisis state of enterprises and increase the efficiency of activity is impossible without anti-crisis management. The basis of its implementation consists of, on the one hand, models of internal business processes management of the enterprise that optimizes the financial, material and human resources, on the other hand - model of marketing activity management of the enterprise, which takes into account the external environment. The formalization of proposed models will allow to quantify the results of management decisions to prevent the crisis of the company.

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## TRENDS AND PRIORITIES OF INTERNATIONAL INVESTMENT IN THE ECONOMY OF UKRAINE

**Iryna Yegorova**

Associate Professor PhD, Kryvyi Rih Economic Institute  
SHEI "Kyiv National Economic University named after Vadym Hetman",  
e-mail: izmyar@ukr.net, Ukraine

**Murteza Hasanoglu**

Associate Professor PhD, The Academy of Public Administration under the President of the  
Republic of Azerbaijan, e-mail: m\_hasanoglu@yahoo.com.tr, Azerbaijan

**Abstract.** The trends and priorities of international investment in Ukraine's economy have been identified. The basic directions of enhancing the inflow of foreign capital in Ukraine have been analyzed. The strategic ways of attracting and effectively using foreign investment for the economic development of Ukraine have been proposed.

**Keywords:** international investment, foreign investment, investment priorities, stimulating the inflow of foreign capital, strategic measures.

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### Introduction

International investment plays an important role in the structural changes of national economy and acts as a catalyst for international business development. A significant component of the implementation of the Association Agreement between Ukraine and the European Union on the path of gradual integration of Ukraine into European and world economic system is efficient attraction and use of international capital flows for the development of the national economy on the innovative basis. An inflow of foreign capital in Ukraine at the stage of revival and post-crisis development of the economic potential represents an opportunity to address such priorities: structural reform of the economy, technological renovation of production, increasing the production of consumer goods and overcoming dependence on imports. Therefore, consideration of international trends and priorities for investment in Ukraine's economy, which has accumulated a number of acute problems and has not created favorable investment environment, is very important. Despite the existing investment risks and lack of internal investment resources in the country, the intensification of the process of international investing can be considered one of the most reliable mechanisms for socio-economic transformation, financial support of the reconstruction and modernization of national production and the qualitative transformation of business activities towards export orientation and import substitution.

### International investment theory

For a long time, Ukrainian and foreign scientific economic literature has been dealing with an active discussion, analysis and improvement of various theoretical, methodological and methodical aspects of international capital movements, formation of a national policy of

attracting foreign investment, regulation of international investment, international investment strategy formation. Therefore, there is a relatively high degree of elaboration of issues related to structuring, motivation, objects, entities, assessment of the effectiveness of international investment, analysis of investment attractiveness of the countries, the impact of foreign capital inflows on the development of the national economy and the like. In particular, T. Mayorova, V. Nowicki, A. Peresada, S. Reverchuk, W. Sharp and others have focused on the theory of investment and international features of the investment process. I. Blank, G. Birman, S. Pivovarov, and S. Schmidt have carried out a thorough study of the issues of international investment management. Publications of V. Andriychuk, V. Bozhko, I. Matiushenko, A. Mokiy, M. Fleychuk and others are concerned with the forms and methods of regulation and stimulation of attraction of foreign investments; compliance with investment security; tools of national policy in the field of foreign investments and the nature of its influence on the economic development of the host country. I. Yegorova, Ya. Izmailov, E. Zabarna, A. Zadoia, Yu. Kozak, D. Lukyanenko, I. Sazonets, A. Sukhorukov, V. Tarasevych and others have analyzed the trends, issues, strategic goals and prospects of international investment in Ukraine's economy. However, due to the active search for strategic directions of reforming Ukraine's economy and strengthening the country's position in the global economy there is a need to improve the investment image of Ukraine and to revive foreign investment in key areas of the national economy, which requires the establishment of a systematic analytical framework. The development of measures to enhance the processes of international investment in the Ukrainian economy is only possible on condition of carrying out comprehensive analysis of trends in the intensity of foreign capital flows and the correct choice of priorities for investment of attracted international investment funds with the aim of getting the most value from them for the stabilization and development of the national economy in the future.

Thus, the aim of the study is to analyze the current status, to identify the trends, priorities and strategic ways of enhancing international investment in Ukraine for the development of the national economy.

### **Legislative framework and practice of foreign investment in Ukraine**

In the legislative field of Ukraine foreign investment is referred to as the value invested by foreign investors in objects of investment activity with the aim of obtaining profit or achieving social effect (The Law of Ukraine "On foreign investment regime", 1996). They can be:

- direct, if they are invested by a foreign investor directly in a particular company and involve the participation of the investor in the management of its activities;
- portfolio, if investment is made in securities with the aim of generating income (dividends), but does not provide actual control of the investor over the investee.

Since, according to Ukrainian legislation, a business entity of any organizational-legal form can acquire the status of the enterprise with foreign investments only from the date of admission of foreign investments on its balance sheet, provided that the foreign investment in its authorized capital is not less than 10 %, the majority of these enterprises are considered to be both the object and the result of foreign direct investment. So the share of investment of 10% is often considered to be sufficient to control the invested enterprise, using this percentage as a border (boundary) between direct and portfolio investment.

Ukrainian legislation has also defined a number of forms of foreign investment in Ukraine's economy, namely:

- partial participation in enterprises established jointly with Ukrainian legal entities and individuals, or acquisition of shares of existing enterprises;
- creation of enterprises wholly owned by foreign investors, branches and other subdivisions of foreign legal entities or acquisition of full ownership of existing enterprises;
- the acquisition of real estate or movables that are not prohibited by the laws of Ukraine, including houses, apartments, buildings, equipment, vehicles and other objects of ownership through direct acquisition of property and proprietary complexes or in the form of stocks, bonds and other securities;
- the acquisition of rights to use land and natural resources on the territory of Ukraine independently or with participation of Ukrainian legal entities or individuals;
- economic (business) activities on the basis of production sharing agreements;
- other forms that are not prohibited by law.

In the world economic theory and practice there are several types of foreign investors. They differ in the magnitude of resources managed, the nature and methods of investment decision-making. Among them:

- individual foreign investors, who carry out international investment independently (without intermediaries);
- institutional, that is, financial intermediaries that accumulate funds of individual investors and carry out a specialized international investment activity, as a rule, securities transactions (investment funds and companies, pension funds, insurance companies, mutual funds companies and banks);
- corporate investors, i.e. companies and organizations of various types of economic activities;
- Government as a specific foreign investor.

Defining goals, directions and volumes of investment abroad, foreign investors, to implement their intentions, attract a variety of participants of international investment activity on a contractual basis, i.e. individuals and legal entities that ensure the implementation of foreign investments as executors of orders or instructions of the investor.

In Ukraine, the legal regime of foreign investment is regulated by national legislation and international treaties of Ukraine, which are implemented in the national legislation, once approved by the Verkhovna Rada of Ukraine.

It should be noted that until recently, there were some problems in the Ukrainian investment practice regarding the definition of investment transactions related to intangible assets. In modern Ukrainian legislation there has been some expansion of the regulatory framework by means of defining intangible asset as the one that does not have tangible (physical) shape and structure, provides future economic benefits from its use and can be reliably estimated. There have also been some refinements with respect to investment in tangible and financial assets.

There are two major participants in the process of foreign investment: the donor countries, which are the main suppliers of capital to other countries and recipient countries, to which foreign investments are directed. The process of attracting foreign investment is generally regulated by the state to support the national interest and priority areas of the economy.

A team of experts of World Data Center for Geoinformatics and Sustainable Development (WDC – Ukraine) carried out a fundamental study of economic development of Ukraine (Zgurovskiy, 2015). As a result of their study, they identified the top five factors affecting the status and prospects of the Ukrainian economy that impede the inflow and effective use of the capitals of foreign investors in Ukraine. Among them:

- the imperfection of the tax system of Ukraine, which leads to the fact that at least half of its economy has been in the "shadow" for a long time. In 2014, the share of the shadow sector in Ukrainian economy reached 50%, in 2015. – 52%, and in 2016 – 47%;
- corruption, which pulls about 14-15% of the funds from the gross domestic product (GDP). In particular, in 2014, the level of corruption burden was estimated at 13.9% of GDP, in 2015- 14.0%, and in 2016 – 13,1%;
- the lack of pension reform and, as a consequence, the inability to get rid of the shortfall in the Pension Fund, which amounted to 7.5% of GDP in 2016. The deficit is covered by the expenditure side of the state budget;
- the problem of servicing the public debt, which arose from the fact that the largest payments to the IMF and the owners of government bonds of Ukraine for loans that were obtained back in 2008-2010, occurred in 2014-2015. This forced the government to resort to restructuring debt to external borrowers that led to the fall in ratings of solvency of Ukraine to critical levels of «Restricted Default» and «CCC». This, in turn, reduced the credibility of Ukraine as a reliable borrower and alienated potential foreign investors;
- high energy intensity of Ukraine's GDP, which is in need of funding and implementation of measures on energy, resource and material saving, hindering positive development in the national economy. Thus, Ukraine consumes 3-5 times more energy per \$ 1 of GDP compared to developed countries (Pasova, 2016 December 29, pp. 1, 4).

For Ukraine, the main emphasis in attracting foreign investments should be made on achieving positive structural changes and the maintenance of the investment component of economic growth (not by increasing external debt, but rather contributing to obtaining funds for its redemption). Based on the data of the Department for Attracting Investments of 15 October 2015, the main tasks for attracting foreign investment into the economy of Ukraine were formulated and published (Department for Attracting Investments, 2016), namely:

- preparing proposals for the formation and implementation of public investment policy, including management of national projects and state policy in the sphere of public-private partnership;
- drafting regulations in the areas of public-private partnership and investment, including public support (care), special regimes, industrial parks, free customs zones of industrial type;
- coordinating activities of Central and local Executive bodies on the formation and implementation of national investment policies, including management of national projects, state policy in the sphere of public-private partnership, preparation and implementation of projects that involve the attraction of foreign loans under state guarantees;
- maintaining the State Register of investment projects and project (investment) proposals, the State Register of investment projects in priority sectors of the economy, the State register of national projects and the Register of industrial parks;

- monitoring and analysis of the efficiency of state support of investment activity;
- providing assessment of economic efficiency of project (investment) proposals and investment projects, expertise and selection of investment projects requiring government support;
- preparation of proposals on creation, reorganization and liquidation of regional centers for investment and development to support investment development of regions and to provide subjects of investment activity with services related to the preparation and implementation of the investment project on the principle of a "single window" (regional centers);
- the implementation of methodological support of activities of the regional centers;
- providing information and consultation for the founders and managers of companies;
- coordination, monitoring and evaluation of implementation of national projects;
- ensuring the implementation of activities, including international, aimed at creating a positive investment image;
- preparation of proposals and ensuring submission of investment projects in priority sectors of the economy for approval by the Cabinet of Ministers of Ukraine with the aim of providing state support to investment activity entities that implement such projects;
- monitoring the implementation of the Law of Ukraine "On stimulation of investment in priority sectors of the economy to create new jobs" (The Law of Ukraine "On stimulation of investment in priority sectors of the economy to create new jobs", 2013, number 32, art.41);
- submitting proposals on the list of state property objects that can be conceded for approval by the Cabinet of Ministers of Ukraine;
- monitoring, compilation, and publication of the results of the implementation of public-private partnerships, including the assessment of the overall risk level of state partner in the agreements concluded within the framework of public-private partnerships;
- monitoring compliance with legislation in the sphere of public-private partnerships, including during the competitions for defining the private partner;
- preparation of opinions on the expediency of providing state support for implementing public-private partnership regarding state-owned facilities, its shape and volume or on the inexpediency of provision of state support;
- keeping records of contracts concluded under the public-private partnership (Department for Attracting Investments, 2016).

The list of priority sectors of the national economy, defined by the Cabinet of Ministers of Ukraine to promote attracting foreign investments, includes:

- 1) agriculture in the following areas: production, food storage, including baby food and biofuel production, with a focus on import substitution;
- 2) housing and communal services in the following areas:
  - creating waste treatment facilities (municipal, industrial and waste formed as a result of mining and processing of mineral resources and the production of electricity and heat);
  - construction, reconstruction and technical re-equipment in the field of heating, water supply and sanitation;
- 3) machine-building complex in the following areas: manufacture of new and import-substituting types of computers, electronic and optical products, machinery and equipment, electrical equipment, motor vehicles and other vehicles;

- 4) transport infrastructure in the areas: construction, reconstruction and technical re-equipment in the field of transport infrastructure;
- 5) resort and recreational sphere and tourism in the following areas: construction of resort-recreational objects and tourist facilities;
- 6) processing industry in the area of import-substituting metal production (The Law of Ukraine "On stimulation of investment in priority sectors of the economy to create new jobs," 2013, number 32, art. 41).

The Portal of World Data Center "Geoinformatics and Sustainable Development"(Foresight, 2016) presents nine clusters of the economy that are a priority for reform and economic development of Ukraine. They were identified using the methods of Delphi and SWOT-analysis. These economic clusters might be interesting for foreign investors and enable the country to successfully integrate into the European and international economy.

The agricultural complex has been ranked first by priority. By 2020, it will be able to contribute to GDP at the level of 19-20%, and by 2030 - at the level of 24%. Ukraine should produce and sell agrarian products highly processed and high value added (including high-quality organic foods that are expensive in foreign markets), preventing the export of unprocessed raw materials (corn, sunflower or rapeseed).

The second place goes to the military industrial complex (MIC). By 2020, it will be able to provide contribution to GDP of 15%, and by 2030, this contribution is expected to grow to 17%. After all, Ukraine is now among the ten largest arms exporters in the world, especially having mobilized its efforts after the beginning of antiterrorist operation in the East of Ukraine.

The cluster of information and communication technologies ranks third in terms of its attractiveness for foreign capital. By 2020, it will be able to contribute to GDP at the level of 9%, and by 2030 – at the level of 12%.

The fourth cluster of the economy, in terms of investment priority for the flow of international capital in Ukraine, is nanotechnology and creation of new substances and materials, for the development and implementation of which there are still scientific schools, powerful laboratories and plants in the appropriate area.

The fifth promising sector for attracting foreign investment to Ukraine is green energy, which will gradually replace hydrocarbons with the so-called clean sources. By 2020, this sector will be able to make a 5% contribution to the GDP, by 2030 - 8%.

The sixth cluster of the economy, in terms of its attractiveness for foreign investment, is high tech engineering with the expected contribution of 5% of GDP by 2020 and 7% by 2030. This cluster spans the space and rocket engineering, aircraft construction, turbine construction, shipbuilding and machine tools. Ukraine has retained a great potential in this industry, but there is a significant loss of foreign markets because of specific geopolitical and geo-economic losses of the country on the world stage.

The seventh cluster, in terms of its attractiveness for inflow of foreign funds, is the development of transit infrastructure. This low position of the industry can be explained by the low level of technological development. By 2020, transit infrastructure contribution to GDP is expected to reach 5%, by 2030. - 7%.

Ukrainian cluster "life science", which includes biomedical engineering, pharmacy, cell medicine and other sciences that increase life expectancy, ranks the eighth, penultimate place, in terms of its attractiveness to foreign investors. Despite the presence of traditionally strong scientific schools in the field of biology and medicine, Ukraine lags far behind developed

countries that make huge scientific and technological breakthroughs due to the large capital investment.

Tourism, ranks ninth in terms of the priorities of foreign investment in Ukraine because, in spite of having great potential, it lacks quality management, services and infrastructure (Pasova, 2016 December 29, pp. 1, 4 )

According to the State Statistics Committee of Ukraine, the leading areas of economic activity in Ukraine in terms of attracting capital investment in recent years are: industry, construction, information and telecommunications, agriculture, forestry and fishing, wholesale and retail trade, repair of motor vehicles and motorcycles, transport, storage industry, postal and courier activities and real estate (Foreign investments in modern economy, 2016).

The share of foreign investors in the sources of capital investment is about 4%. However, the main source of investment resources are own funds of enterprises and organizations, whose share is over 60%.

The specific objectives of some foreign investors already present in the Ukrainian investment market often contradict the implementation of priority programs of reforming Ukraine's economy. The structure of the national economy is responsive to the interest of foreign capital foremost in the implementation of projects related to the primary processing and exporting from Ukraine different kinds of raw materials, metals, coal, chemicals and chemical products, etc. to maintain the processing industries and employment in developed countries, including EU Member States. The reason for targeted allocation of capital is the interest of donor countries in the natural resources of the recipient countries to ensure a guaranteed supply of raw materials for their own companies.

At the same time, companies that have certain technological advantages and development prospects, scientific and technical potential and skilled workers are of particular interest to many foreign investors. Unfortunately, while Ukraine is committed to gain access to modern technology via foreign direct investment, Western companies are trying to implement technologies that have already passed half of their life cycle and are not competitive on world markets. Simplicity of consumers of the Ukrainian market provides the opportunity to prolong the life of obsolete and non-profit in the Western market goods. Competitive global corporations are not focused on the development of national production of goods in Ukraine; they are focused on global export strategy. Besides, not very favorable investment climate and high investment risk in Ukraine cause low credibility of Western businessmen. Those foreign investors who are already working in the domestic market of Ukraine are in no hurry to solve the problems and challenges of their Ukrainian partners.

To develop effective measures to improve the interaction of Ukrainian business with foreign investors, we offer to systematize the objectives of foreign investors in Ukraine and the problems they face (Table 1).

Analyzing the dynamics of foreign direct investment in Ukraine and direct foreign investment from Ukraine for 2010-2015 (Table 2), we can argue that the growth in the inflow of foreign capital in Ukraine took place before 2013.

As can be seen from the above data, with the aggravation of the crisis phenomena in the economy in 2014 there was a reduction of foreign investment by 21.05%, and in 2015 – by 5.54%. This was caused by negative macroeconomic factors: the deterioration of the investment climate in the country through the unstable economic situation and the suspension of industrial production in the East of Ukraine as a result of active hostilities in the area.

However, the outflow of capital from Ukraine to other countries was insignificant. Moreover, the volume of direct foreign investments from Ukraine in the period from 2013 to

2015 underwent a gradual reduction (by 3.39% in 2014 and 1.89% in 2015). For the whole period of socio-economic crisis, the outflow of capital from Ukraine was 25.33%, or 14207,5 million USD. National data was calculated without data from the temporarily occupied territories of the Autonomous Republic of Crimea and Sevastopol, as well as part of the zone of the antiterrorist operation.

Table 1

**The objectives of foreign investors in Ukraine and the problems they face**

<b>The objectives of foreign investors in Ukraine</b>	<b>The problems foreign investors face in Ukraine</b>
1. Obtaining high profits when creating enterprises for producing products, which Ukraine lacks, or the domestic prices for which are high enough	1. Unstable legislation of the recipient country and the imperfect mechanism for implementing existing legal provisions in practice
2. Using relatively cheap (but skilled) labor and raw materials	2. Lack of guarantees for protection of rights of foreign investors because of the high level of corruption, including corruption in the court system
3. Involving Ukrainian enterprises in technological chains of foreign companies for the purchase of Ukrainian supplies of raw materials and semi-finished products	3. The lack of transparency in licensing procedures
4. Acquisition of potentially effective Ukrainian enterprises (typically export oriented) at a low price in order to obtain a high level of profit after limited investments in creation of distribution system, implementation of marketing activities and improvement of the product range	4. Inconsistent, frequently changing tax and customs policy
5. Promotion of their production on the domestic market of Ukraine by investing in the establishment of sales networks, service companies and assembly plants	5. Inadequate insurance coverage of international investment and business activity in Ukraine
6. Using outdated or environmentally harmful equipment which cannot be used in developed countries	6. The lack of visa-free border crossing with EU countries
7. Investment of funds of Ukrainian origin, under the guise of foreign ones, to have more opportunities to protect the capital from the authorities	7. Poor infrastructure, relatively weak banking and financial system
8. Obtaining high profits through energy efficiency and energy saving technologies	8. Economic and political instability



**Compiled by the sources:** (Kozak, Lukyanenko, & Makogon (2004, pp.130-135); Bilotserkivets et al. (2012, pp.185-189); Sukhorukov, Sobkevych, (2015, March, pp. 193-205); Yegorova, Matukova, Izmailov, Kutsenko, Matsyura, (2010, pp. 171 189)).

Table 2

**Dynamics of foreign direct investment to Ukraine (foreign capital inflows) and direct foreign investment from Ukraine (outflow of capital) for 2010-2015, mln. USD**

Indicators	Years					
	2010	2011	2012	2013	2014	2015
Foreign direct investment in Ukraine (foreign capital inflows):	44708,0	49362,3	54462,4	58156,9	45916,0	43371,4
- the amount, mln. USD;						
- absolute growth to the previous year, mln. USD;	+4681,2	+4654,3	+5100,1	+3694,5	-12240,9	-2544,6
- relative increment to the previous year, %	+11,70	+10,41	+10,33	+6,78	-21,05	-5,54
Direct foreign investments from Ukraine (foreign capital outflow):	6871,1	6898,0	6481,9	6575,3	6352,2	6232,0
- the amount, mln. USD;						
- absolute growth to the previous year, mln. USD;	+647,8	+26,9	-416,1	+93,4	-223,1	-120,2
- relative increment to the previous year, %	+10,41	+0,39	-6,03	+1,44	-3,39	-1,89

Source: Foreign direct investment from the world economy in Ukraine (2016)

Ukraine remains in the list of 30 countries that are looking to raise capital. However, in recent years, Ukraine has failed to obtain the required level of foreign investments and use them effectively for structural change and economic development (Zadoia, Tarasevych, 2012, pp. 188).

In the ranking of investment attractiveness of the countries of the World International Business Compass for 2015, published by BDO, Ukraine climbed 20 positions in a year in the ranking and was on the 89 place, being among the countries that showed the best growth per year, on a par with Belarus and Latvia. In 2014, our country ranked 109. ( State investment in Ukraine, 2016).

The largest foreign investors in Ukraine in recent years are: Cyprus, Germany, Netherlands, Russia, Austria, Virgin Islands, and Belize (Tab. 3).

Large capital inflows in Ukraine (approximately 40% of total foreign investments) from three offshore zones – Cyprus, Virgin Islands and Belize, which have been going on for a long time, have a certain explanation. After all, the founders of Cypriot firms that invest in Ukraine are Ukrainian citizens who accumulate capital withdrawn from Ukraine to Cyprus. Offshore operations occur, as a rule, because there is a possibility of illegal export of capital. That's why; part of invested foreign capital must be regarded as return of funds of national investors for investment purposes, bypassing the existing legislation. Moreover, Ukrainian

capital is invested in the same countries: Cyprus, Russia, Latvia, Virgin Islands, Poland and other countries.

Table 3

**Foreign direct investment (equity capital) from the world countries in the economy of Ukraine for 2011-2015**

Investor countries	The amount of foreign direct investment by years, mln. USD					In % to the total 01.01.2016
	2011	2012	2013	2014	2015	
Total	49362,3	54462,4	58156,9	45916,0	43371,4	100,0
including:						
Cyprus	12645,5	17275,1	19035,9	13710,6	11744,9	27,1
Germany	7386,4	6317,0	6291,8	5720,5	5414,3	12,5
Netherlands	4822,8	5168,6	5561,5	5111,5	5610,7	12,9
Russian Federation	3594,5	3785,8	4287,4	2724,3	3392,1	7,8
Austria	3423,1	3401,4	3257,5	2526,4	2402,4	5,5
UK	2508,2	2556,5	2714,1	2145,5	1852,5	4,3
Virgin Islands	2230,7	1884,9	2493,5	1997,7	1798,9	4,1
France	1744,0	1765,3	1825,8	1614,7	1528,1	3,5
Switzerland	1607,0	1600,1	1325,4	1390,6	1364,2	3,1
Italy	1043,1	1106,2	1267,8	999,1	972,4	2,2
USA	965,9	1015,9	1055,6	862,3	698,9	1,6
Poland	960,3	936,7	991,1	831,2	785,9	1,8
Belize	875,5	916,4	845,4	642,4	547,2	1,3
Other countries	5555,3	6732,5	7204,1	5639,2	5258,9	12,3

Source: Foreign direct investment from the world economy in Ukraine, 2016

The largest multinational companies investing in Ukraine are: Mittal Steel, Siemens, Volkswagen, Jabil Circuit and Electronics, Sony, Panasonic, TNK-BP, Coca-Cola, Cargill, Carlsberg, Sun Interbrew, Kraft Foods, Nestle, Phillip Morris, Reemtsma, Raiffeisen Bank, Erste Bank, HVB, ING Bank, BNP Paribas, EFG Group, McDonalds, Metro, Cash & Carry, Billa and others (Molchalova, 2012, pp. 6-11).

Among regions of Ukraine the largest share of foreign investments as of 01.01.2016 comes to the city of Kyiv (22733 million USD), Kyiv region (1653,8 million USD), Dnipropetrovs'k region (7758,7 million USD), Donetsk region (2550,4 million USD), Kharkiv region (1726 million USD), Odessa region (1432,5 million USD) and Lviv region (1374,9 million USD) (The investment climate in Ukraine, 2016).

Thus, the main trends of international investments in the Ukrainian economy include:

- due to the high level of investment risks strategic foreign investors are reluctant to invest in Ukraine, taking a wait and see attitude;
- the uneven distribution of foreign investment in individual areas of Ukraine, their concentration in industrial centers of Ukraine;

- the decline in foreign investment due to the deterioration of the socio-economic situation in the country and the fall of the investment attractiveness of the regions in the East of Ukraine due to combat actions on the territory;
- the concentration of foreign capital flows in sectors and economic activities with insignificant payback period;
- the orientation of the part of foreign investors to the development of production of goods and services, with which the world markets are almost saturated;
- limited amounts of foreign capital investment aimed at its rapid rotation or at benefit from the investment brokerage operations due to lack of reliable safeguards to protect the rights of foreign investors;
- insufficiently developed system of insurance of foreign investments;
- lack of transparent mechanisms for tax and other motivated forms of stimulation of inflow of foreign investments into the country;
- problems in the banking sector of Ukraine's economy, which cause poor use of financial market mechanisms for joint investments.

Ukraine has taken some positive steps aimed at improving the investment climate and competitiveness of the national economy, namely:

1. the legal framework for investment and development of public-private partnership has been established, guarantees of activity for investors, economic and organizational basis for implementation of public-private partnership in Ukraine have been legally defined;
2. the application of national treatment to investment activities of foreign investors in Ukraine, i.e. a level playing field for foreign and domestic investors;
3. foreign investments in Ukraine are not subject to nationalization;
4. to improve the protection of foreign investments, the Law of Ukraine of 16.03.2000 number 1547 ratified the Washington Convention of 1965 on the Settlement of Investment Disputes between States and Nationals of Other Countries;
5. the intergovernmental agreement on promotion and mutual protection of investments with more than 70 countries has been signed and ratified by the Verkhovna Rada of Ukraine (The investment climate in Ukraine, 2016);
6. sixteen inefficient regulatory restrictions have been canceled to stimulate investment;
7. the system of land lease has been harmonized; the deadlines for registering businesses of no more than two days have been set; issuance of permits through the centers of administrative services has been implemented;
8. the Action Plan on deregulation and the simplification of the regulatory framework, aimed at elimination of excessive administrative regulation of economic activities and creation of favorable conditions for business has been approved;
9. the ineffective certification in the agricultural sector and mandatory monitoring the implementation of special conditions of subsoil use, opening significant opportunities for corruption have been canceled;
10. the adaptation of Ukrainian legislation to the European legislation and appropriate protection of minority shareholders has been ensured;
11. the validity and transparency of decisions on financing public investment projects, efficient use of public funds and the impact of public investment projects have been ensured;
12. plans for the implementation of certain acts of EU legislation in the field of intellectual property have been approved;

13. to confirm compliance of Ukrainian technical regulation system with the EU requirements, a unified legal and institutional framework for the development, adoption and application of technical regulations and conformity assessment procedures has been established ;

14. guidelines to ensure transparency regarding the activities of entities of public sector of economy have been approved;

15. the monopoly position of the SE "Ukrecoresursy" has been eliminated;

16. the Procedure for drafting, approval and monitoring the implementation of the financial plan of a business entity of the public sector has been introduced;

17. the basic standard for deduction of share of profit used for dividend payments by results of financial and economic activity in 2014 of economic companies, whose authorized capital includes state corporate rights, was approved;

18. the conditions to conduct high quality and independent audits of the largest state companies have been provided;

19. the business intelligence module, which provides citizens with online access to information about the procurement ([bi.prozorro.org](http://bi.prozorro.org)), has been launched to the public along with community organizations and business;

20. a help-desk ([help.vdz.ua](http://help.vdz.ua)) to support customers and participants of public procurement, which enables constant, fast and professional support on issues of public procurement, has been launched;

21. state support of implementation of investment projects in priority sectors of the economy, in particular, by the exemption of import duty on importation of a specified list of goods required for such projects, and the postponement of VAT payment (60 days) in respect of the imported goods on the basis of promissory notes, has been provided;

22. state support for the creation of industrial parks and implementation of projects within these parks has been provided;

23. media support for the formation of positive investment image of Ukraine by means of production and distribution on the Internet, including official web-sites of embassies of Ukraine abroad, information materials called "Invest Ukraine open for U!", the video "Invest Ukraine!", issue number 2 of video blog featuring Minister of Economic Development, which is devoted to the creation of a favorable investment climate and so on., has been provided.

However, these positive steps have not been sufficient to radically increase the investment attractiveness of Ukraine in the international capital market.

Therefore, we propose a set of policy measures to attract and effectively use foreign investment for the economic development of Ukraine:

- taking into account the experience of attracting foreign direct investment in Central and Eastern Europe to prevent the possibility of adverse effects as a result of implementing foreign investors' investment strategies that may not meet the national interests of the host country;
- the formation of a clear strategy for increasing the investment attractiveness of Ukraine in accordance with the selected scenario of the national economy development in future;
- long-term invariance of the main legislative provisions regarding the conditions for making foreign investments in Ukraine, focusing on the liberalization of the investment regime and guarantees of protection of foreign investments;

- using selective (differential) approach to tax and other kinds of international investment stimulation given the scale of foreign capital inflows, types, forms, investment areas and economic development priorities of Ukraine;
- carrying on systematic implementation of the initiated reforms aimed at deregulation and simplification of business conditions, creation of favorable investment climate, investor protection and development of public-private partnerships;
- providing political and socio-economic stability in society, focusing on negotiations to end armed conflict in Eastern Ukraine;
- the implementation of a consistent anti-inflationary, monetary, foreign economic policy and competent regulation of the exchange rate to create international competitive advantages of Ukraine;
- the radicalization of the fight against crime and corruption in economic and investment spheres;
- the cessation of the undue diversion of capital from the country;
- conducting a comprehensive reform of the judicial and law enforcement systems;
- active development of information support in the field of international investments;
- creation of favorable conditions for inflow of foreign capital in the sectors of national economy, where it is necessary and expedient to introduce innovative and energy-efficient technologies, to create new jobs in certain areas and regions of Ukraine;
- carrying on the practice of concluding intergovernmental agreements on the promotion and protection of international investments and avoidance of double taxation;
- participation in international events to demonstrate investment opportunities in Ukraine;
- development of efficient financial, banking, insurance and other infrastructure for foreign business and investment.

### **Conclusions and suggestions**

Based on careful consideration of the legal framework, the analysis of statistical information and a systematic review of the existing scientific views on the implementation of international investment into the economy of Ukraine we have found out that:

- the major factors that hinder attracting foreign investments in Ukraine are: imperfect tax system of Ukraine, corruption, lack of pension reform, the problem of servicing the public debt and high energy intensity of GDP in Ukraine;
- foreign capital flows should be directed at achieving positive structural changes and providing investment component of economic growth;
- the priority sectors of the national economy that require foreign investment at the government level are : agro-industrial, housing-and-municipal, machine-building complex, transport infrastructure, resort and recreational sphere and tourism, the processing industry;
- According to the rating presented on a portal of the World Data Center "Geoinformatics and Sustainable Development", the agricultural complex is ranked first in terms of its attractiveness for foreign investors and at the same time priority for reforming the economy of Ukraine, the military-industrial complex is ranked second, information and communication technologies - third, nanotechnology and the creation of new substances and materials - fourth, green energy - fifth, high-tech engineering -

- sixth, the development of transit infrastructure - seventh, cluster "Life Sciences"-eighth and tourism - ninth;
- according to statistics, the largest amount of foreign investment is in industry, construction, information and telecommunications industry;
  - the share of foreign investors in the sources of financing of capital investments in Ukraine is about 4%;
  - the objectives of a certain part of foreign investors that are already present on the Ukrainian investment market, often come into conflict with the implementation of the priority programs of reforming Ukraine's economy;
  - despite not very favorable investment climate in Ukraine, foreign investors often face the following challenges: unstable legislation of the host country and the imperfect mechanism for implementing existing legal norms in practice, failure to protect the rights of foreign investors due to the high level of corruption, lack of transparency in licensing and license procedures, inconsistent, frequently changing tax and customs policy, insufficient insurance coverage of international investment and business activity in Ukraine, the absence of visa free travel with EU countries, poor infrastructure, relatively weak banking and financial system, economic and political instability;
  - the largest foreign investors in the Ukrainian economy in recent years are: Cyprus, Germany, Netherlands, Russian Federation, Austria, virgin Islands, and Belize;
  - Ukrainian capital is invested in almost the same countries: Cyprus, Russia, Latvia, Virgin Islands, and Poland;
  - starting in 2014 there has been a downward trend in foreign investment flows in Ukraine and the structure of international investment has not been perfect either;
  - a number of positive steps in the investment field taken by Ukraine have been insufficient to dramatically increase the investment attractiveness of Ukraine in the international capital market.

The proposed set of strategic actions is expected to enhance the efficiency and impact of national investment policy to improve the amount and quality of international investment, effective use of resource potential and development of economy of Ukraine on innovative basis.

Further study of this issue should be aimed at forming and justifying a strategy of enhancing the inflow of foreign capital into the economy of Ukraine to implement structural reforms and provide a new impetus to the economic development of Ukraine based on the experience of the countries of Central and Eastern Europe.

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## MODELLING THE PROCESS OF FORMING THE POTENTIAL OF ECONOMIC DEVELOPMENT OF AN INDUSTRIAL ENTERPRISE

**Oleksandr Yemelianov**

Associate professor PhD, Lviv Polytechnic National University,  
e-mail: Oleksandr.Y.Yemelianov@lpnu.ua, Ukraine

**Anastasiia Symak**

Associate professor PhD, Lviv Polytechnic National University,  
e-mail: anastasiia.v.symak@lpnu.ua, Ukraine

**Oksana Zarytska**

Senior lecturer PhD, Lviv Polytechnic National University,  
e-mail: oksana.l.zarytska@lpnu.ua, Ukraine

**Abstract.** The work is a study of patterns of forming the potential of economic development of industrial enterprises. The essence and components of the potential of economic development of an enterprise have been defined. A model of forming the potential on the basis of building a hierarchy of factors, that constitute it, has been offered.

**Keywords:** potential, economic development, formation, an industrial enterprise, factor.

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### Introduction

In a dynamic market environment, which is defined by a high level of competition, ensuring an adequate level of economic efficiency requires that enterprises implement measures of their economic development. At present, many industrial enterprises of Ukraine are characterized by poor financial condition, including low business activity and profitability. One of the reasons for this phenomenon is that the owners and managers do not fully imagine possible directions of their economic development. Therefore, development of measures of economic development of industrial enterprises requires prior assessment of the potential of such development, which, in its turn, should be based on modelling the formation process of this potential.

### Essence and Components of the Potential of Economic Development of an Enterprise

The question of estimating the value of economic potential of an enterprise and its individual components is the subject of many scientific studies. In particular, scientists provide a detailed analysis of the nature and components of the economic potential of enterprises (Bilokonenko, 2012; Vasylykivsky, 2014), present approaches to its evaluation (Lesyk, 2014; Hovorostov, 2011) and management (Tolpezhnikov, 2012).

Separate emphasis should be also laid on publications dedicated to the issue of evaluating and managing strategic business potential, as it is this kind of economic potential of business subjects that characterizes possibilities of their economic development. Thus, T. Kalinesku et al. offered a comprehensive approach to establishing an efficient mechanism of



forming the strategic potential of an enterprise (Kalinesku, 2007), and A. Maslak and L. Kvyatkovska developed methodological foundations for evaluating this potential (Maslak, 2012).

Regarding the direct study of the potential of economic development of entities, the problem of its evaluation is also in sight of a number of scientists. Namely, V. Kuntsevych suggested a method of measuring the financial component of the potential (Kuntsevych, 2004), and R. Feshchur and M. Tymoshchuk made a successful attempt to systematize indicators of its assessment (Feschur, 2006). At the same time, researchers pay particular attention to the necessity to establish the most generalizing indicator for measuring the economic potential of enterprises, including the potential for their development. In this regard, a number of scientists, including I. Maksymenko and V. Bokiyy (Maksymenko, 2008), justify the importance of applying the indicator of the market value of enterprises as an integral indicator for evaluating their economic opportunities.

To understand the nature of the potential of economic development of an industrial enterprise with consideration of the approach to determining the total economic potential of an entity stated by Lesyk L. (Lesyk, 2014), we will consider its two varieties, namely: 1) the existing economic potential of an enterprise by a chosen objective (objectives) and activities, which means the total of available resources and competences of employees, that enable the company, under certain conditions of the environment, to achieve the best (usually the maximum possible) quantitative level of the selected objective (objectives) of the activities; 2) strategic economic potential of an enterprise by a chosen objective (objectives) and activities, which means the total of its existing and possible to be attracted resources and competences of employees, that enable the company an opportunity, under a certain condition of the environment, to achieve the best (usually the maximum possible) quantitative level of the selected objective (objectives) of the activities.

Then the potential of the economic development of an enterprise by a chosen objective (objectives) and kinds of activities will be a combination of additional resources and competences of employees, attraction of which will enable the enterprise to move from its existing to strategic economic potential by a selected objective (objectives) and kinds of activities. Accordingly, evaluation of the potential value of economic development of an enterprise requires prior determination of the size of its existing and strategic economic potential.

Difficulty of forming the potential of economic development of an industrial enterprise is conditioned by the presence of a number of components of this potential. In particular, there should be distinguished extensive potential development and intensive potential development of an enterprise.

An important kind of intensive potential development of an enterprise is the potential for its innovative development. In its turn, the formation of potential of innovative development of an industrial enterprise requires availability of its three major subsystems of the overall system of such formation, in particular: potential building subsystem of product development, the operation of which will ensure transition of an enterprise to making new and improved products; potential building subsystem of technical and technological development, the operation of which will ensure implementation of new advanced types of equipment and technological processes at an enterprise; potential building subsystem of management development, the operation of which will ensure implementation of advanced methods of managing an enterprise, above all, new and advanced competences in the area of managing the resource provision of economic activity. In its turn, each of the three subsystems of the

overall system of potential building of innovative development of an industrial enterprise should include two components, namely: a subsystem of developing innovations by an enterprise itself, and a subsystem of searching and attracting respective innovations developed by third parties.

In addition to the system of potential building of innovative development of an industrial enterprise, the enterprise should also have a functioning system of potential building of its economic development, which has non-innovative nature. This system should consist of three subsystems: subsystem of upgrading worn-out main means; subsystem of adjusting a production program of an enterprise by including additional products which do not belong to innovative ones, and a subsystem of managing other factors of economic development of an enterprise that are not innovative, but contribute to qualitative changes in the economic potential of an entity.

It should be noted that the company can develop, at least – partially, extensively, when its financial results grow due to the increase of the resources used. Accordingly, in addition to the system of potential building of intensive economic development of an industrial enterprise, there should also be a system of potential building of extensive development. This system should consist of three subsystems: a subsystem of increasing the volume of production resources to meet the growing demand for the products of the company; a subsystem of implementing measures for an enterprise to enter new markets, and a subsystem of managing other factors of extensive economic development of an enterprise.

### **Conceptual Bases of Forming the Potential of Economic Development of Industrial Enterprises**

Consideration of patterns of building potential of economic development of enterprises should be carried out on three main levels, namely: on the level of resource support of economic activity; on the level of ability of enterprises to efficiently manage their available resources, and on the level of ability of enterprises to achieve specific results of implementation of their economic opportunities in accordance with the pre-set objective of their economic activity.

Consideration of the process of building the potential of industrial economic development on the third of the mentioned levels allows making the most comprehensive description and performing a quantitative assessment of the results of this process. In particular, we should point out the fact that growth of economic opportunities of an enterprise in the context of achieving its certain objectives may require not increase but reduction of certain types of resources. However, growth of economic potential of an enterprise almost always requires some new competence or improvement of the existing competence, what concerns managing resource support of economic activity. At the same time, the result-objective approach to evaluation and formation of the economic potential of an enterprise is characterized by a certain level of relativity, as, depending on the set goal, the required directions and amount of changes in the resource support of an enterprise may be different. Taking it into consideration, there is possible a situation, in which growth of economic potential of an enterprise by one goal will be accompanied by a decrease in its value by another goal. In this regard, important is the correct choice of goals, the achievement of which will be ensured by the growth of economic potential of an enterprise, in particular, the goal should be sufficiently general.

Considering the above stated facts, one of the main principles of evaluating the potential of economic development of an industrial enterprise is the principle of selecting the main objective of its activities, which requires prior justification of the main objective of the activities of an enterprise that will be achieved in the course of implementing its total economic potential. In particular, taking into account long-term effects of economic activity of an enterprise requires consideration of the indicator of market value of an enterprise, maximization of which will represent one of the main goals of its operation, which, in its turn, allows the use of this indicator to measure the total economic potential of an enterprise in the long run. However, the rate of the market value of an enterprise, as an indicator of evaluating the potential of its economic development, does not take into consideration the volume of investments into this development. Therefore, the most generalizing indicator of evaluating the potential of economic development of an entity is the difference between the expected value of the market value of an enterprise after the growth of its economic potential, and the sum of the present value of the market value of an enterprise and the size of the required investment into implementation of measures to increase the economic potential of a business subject.

Important principles of estimating the value of the potential of economic development of an enterprise, using a target approach should also include: the need for quantitative measurement of the value of the set goal, that, in accordance with the chosen goal, requires a specific indicator to evaluate its achievement; taking into account the availability of lower-level objectives, i.e. the existence of hierarchy of objectives of an enterprise; taking into account possible limitations to achieve the set objectives, including restrictions on available, and possible to be attracted, volumes of production and financial resources; choice of parameters for controlling the process of achieving the respective objectives of an enterprise, i.e. indicators, whose change in value influences the respective target functions; determining how to regulate parameters for controlling the process of achieving the objectives of an enterprise (including such methods as standardization and optimization of the value of these parameters).

Thus, quantitative evaluation of the potential of economic development of an enterprise should be based on prior selection of a target function, the extreme value of which, that the company can reach with existing and possible to be attracted amount of resources, will emerge as a result of quantitative measurement of economic opportunities of an entity.

### **Building a Model of the Potential of Economic Development of Industrial Enterprises**

Considering the above stated facts, modelling of the process of forming the potential of economic development of an enterprise should take into account the following main aspects:

- objectives of the activities, which the company sets in the course of implementing the measures on ensuring economic development;
- availability of various types of economic development of an enterprise, each of which requires to be taken into account separately;
- hierarchical nature of potential of economic development of an enterprise, which is reflected in the presence of multi-level mechanism of the factors that ensure the formation of this potential;
- the need for additional resources, which the company must acquire in order to realize the potential of its economic development. Overall, it is a set of additional resources and also competences in the field of managing economic resources, attraction of which will

enable an enterprise to move from its existing to strategic economic potential by a chosen goal of activity, and will be the basis for the potential of its economic development;

- uncertainty and risk, that are inherent in most types of economic activities, and significantly influence the process of making decisions on implementation of measures on economic development of an enterprise.

Taking this into consideration, the indicator of evaluating the potential of economic development of an enterprise must be represented by the following formula:

$$P_{ed} = V_{e1} - V_{e0} - I, \quad (1)$$

where  $P_{ed}$  – indicator of evaluating the potential of economic development of an enterprise;  $V_{e1}$  – expected market value of an enterprise after implementation of a program of measures on its economic development;  $V_{e0}$  – market value of an enterprise before implementation of a program of measures on its economic development;  $I$  – the required amount of investment into implementation of the program of economic development of an enterprise.

Thus, if there are several versions of implementing the program of measures on economic development of an enterprise, the best one should be chosen according to the criterion of maximizing the indicator (1).

If we consider a generalizing indicator of evaluating the potential of economic development of an enterprise in the short term, in this case it is advisable to use an indicator of excess profits, that is, the difference between the value of the income of the enterprise and the product of investments into it and the rate of their profitability. Under such conditions, the indicator of evaluating the potential of economic development of an enterprise in the short term period should be represented by the following formula:

$$P_{eds} = (P_1 - I_1 \times E) - (P_0 - I_0 \times E), \quad (2)$$

where  $P_{eds}$  – indicator of evaluating the potential of economic development of an enterprise in the short-term period;  $P_1$ ,  $P_0$  – income of an enterprise before and after implementation of the program of measures on its economic development, respectively;  $I_1$ ,  $I_0$  – amount of the investments made into an enterprise (value of its fund) before and after implementation of the program of measures on its economic development, respectively;  $E$  – rate of investment profitability.

The basic idea of forming the potential of economic development of an enterprise, under proposed in this paper approach to implementation of the mechanism of such formation, is that the selected generalizing indicator of evaluating the potential of economic development of an entity consistently falls into a hierarchy of lower-level indicators. At each stage of such specification some indicators-factors, that determine the value of these indicators, are considered as variables that need optimization (or finding their extreme (minimum or maximum) values)), while other suchlike indicators-factors may be taken as constants and may be analyzed at the next stage (by isolating the lower-level factors that influence them). Under these conditions, with the increasing number of levels of the described hierarchy,

accuracy of evaluating the potential of economic development of the enterprise under study will also increase.

It should be mentioned that in future there will be considered a case of building a hierarchy of indicators-factors of the potential of economic development of an enterprise without possible limitations on the volume of its activities. Such consideration will not fundamentally alter the proposed approach to modelling the process of forming the potential of economic development of an enterprise. In addition, one should take into consideration the fact that the vast majority of industrial enterprises in Ukraine currently produce output, which is well below their capacity.

Taking into account the above stated facts, let us consider the individual components of the model of forming the potential of economic development of an enterprise, if we select an excess profit indicator as a generalizing indicator of its activity. Then this indicator can be represented as:

$$P_e = P_{op} + P_{ot} - (A_n + A_e) \times E, \quad (3)$$

where  $P_e$  – excess profit of an enterprise;  $P_{op}$  – operational activity profit of an enterprise;  $P_{ot}$  – profit of an enterprise from other activities;  $A_n$  – available assets of the enterprise, necessary for performing its economic activities;  $A_e$  – assets of an enterprise that are excessive for performing its economic activities.

It should be noted that the expansion of excess profit value of the enterprise in the expression (3) allows setting reserves of its growth through disposal of excessive assets of an enterprise or, for example, by renting them out.

In its turn, indicator  $P_{op}$  may be represented as:

$$P_{op} = \sum_{i=1}^n (P_i - c_i) \times Q_i - C_F, \quad (4)$$

where  $n$  – number of kinds of products that a company produces or can produce;  $P_i$  – the price of  $i$ -type of products without indirect taxes;  $c_i$  – proportional variable costs of producing units of  $i$ -type products;  $Q_i$  – natural sales volumes of  $i$ -type products;  $C_F$  – fixed costs of an enterprise on the entire value of its production program.

Assuming that cost indicators in (4) are constant, then maximization of the value of this expression can be achieved through improved structure of the production program of an enterprise, i.e. optimization of values  $Q_i$  (and  $P_i$  if change of the natural sales volumes of production of an enterprise influences the price level for it).

Indicators  $c_i$  in the formula (4), in its turn, may be represented as:

$$c_i = \sum_{j=1}^{n_j} P_{ij} \times b_{ij}, \quad (5)$$

where  $n_i$  – number of types of production resources, necessary for producing  $i$ -type products;  $P_{ij}$  – price for a unit of  $j$ - type of resources, necessary for producing  $i$ -type products;  $b_{ij}$  – physical expenses of  $j$ - type of resources fro producing  $i$ -type of products.

If we consider the expression (5) in isolation, that is, as a target function of a lower level, the increase in the value of excess profits of the enterprise apparently requires its minimization. To this end, there should, in particular, be ensured reasonable prices for production costs and equity of indicators  $b_{ij}$  to the consumption rate of the respective resources. However, it should be noted that these norms are not constants and they depend on several factors, including the level of organizing production at an enterprise and the technology used. By expanding  $b_{ij}$  indicators into indicators that determine their value, it is possible to set reserves for decline in the value of norms of production resources. The same applies to the indicators for resource prices, as their value within certain limits can be changed by an enterprise too (for example, by choosing a supplier of materials and rationalizing costs related to their supply).

In general, expansion of a generalizing indicator of evaluating the potential of economic development of an entity into separate components that characterize the influence of certain factors on it, ultimately will lead to the question as how to identify the best parameters of managing the resources of an enterprise (including its production, as it is a resource of sales activities of an entity). The main parameters should include the following: resource volume, its consumer characteristics, resource prices and the level of managing them. As such type of managing usually requires relevant costs of its implementation, it appears necessary to optimize these costs. It should also be taken into account that the enterprise resource planning, including improvement of its consumer properties, often requires additional resources of an enterprise, including innovative (these include staff development innovation, research laboratories, etc.). Under these conditions, maximizing of the generalizing indicator of evaluating the potential of economic development of an enterprise will require managing these resources as well.

Thus, the hierarchy of factors influencing the generalizing indicator of evaluating the potential of economic development of an entity may consist of a fairly large number of levels, but this number for any enterprise is always limited (because there is a limited number of types of resources that it uses or can attract extra). It should be also noted that the results obtained at a lower level of the considered hierarchy can influence the results of the corresponding calculations at a higher level. For example, the reduction of an indicator of specific variable costs, calculated by the expression (5) may lead to changes in the results of optimization of the production program of an enterprise, the criteria of which are described by the formula (4). In this regard, justification of the best indicators–factors that determine the value of the generalizing indicator of evaluating the potential of economic development of an enterprise should be made starting with the lowest level of the hierarchy of these factors and gradually moving to its highest level.

Summarizing the above stated facts, we can conclude that the process of forming the potential of economic development of an industrial enterprise should be based on prior selection of a certain target function, the extreme value of which will act as a result of quantitative measurement of additional economic opportunities of an entity. At the same time, achieving the extreme value of the target function of the highest level will require acquisition

of extreme values of target functions at lower levels. In other words, the target function of a higher level will represent a functional from lower-level target functions. Under these conditions, the most favourable, in terms of ease and accuracy of calculation of the value of potential of economic development of an enterprise, is a situation in which the extreme value of the chain of the target functions hierarchy are defined sequentially from the lowest to the highest level. If this is not possible, the achievement of the extreme value of higher-level target function will require simultaneous optimization of the values of lower-level target functions.

It should be mentioned that a number of well-known models of optimization of some parameters of the activities of an enterprise are the target functions of a quite low level. For example, the model of managing current material stock in case of their equal consumption is based on pre-established planned annual volume of needs in materials and, consequently, the planned volumes of production. However, these amounts in general can act as the results of optimization calculations. At the same time, the aggregate minimum annual material storage costs and supply organization costs as a criterion for optimization of current stocks of materials are a non-linear function of annual manufacturing of the production. So, in general, the optimization of the volume of manufacturing production should be carried out simultaneously with finding the best size of current stocks of material at an enterprise.

### Conclusions and Suggestions

1. The potential of economic development of an enterprise by a selected objective (objectives) and kinds of activities is a combination of additional resources and competences of employees, attraction of which will enable the enterprise to move from its existing to strategic economic potential by a selected objective (objectives) and kinds of activities.

2. It is reasonable to isolate the potential of extensive development and the potential of intensive development of an enterprise. An important kind of the potential of intensive development of an enterprise is the potential for its innovative development. In its turn, formation of the potential of innovative development of an industrial enterprise requires availability of its three major subsystems of the overall system of such formation - namely – subsystems of forming product, technical and technological development and management development.

3. Modelling the process of forming the potential of economic development of an industrial enterprise should include expansion of the generalizing indicator of evaluating the potential into a hierarchy of lower level indicators. At each stage of this particularization some indicators-factors, that determine the value of these indicators, are considered as variables that need optimization (or finding extreme values), while other indicators-factors can be viewed as constants and can be analyzed at the next stage (by isolating the lower level factors that influence them). At the same time, with the growing number of levels of the described hierarchy of indicators, accuracy of evaluating the potential of economic development of the enterprise under study will also increase.

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## ENTERPRISE HUMAN CAPITAL MANAGEMENT IN THE CONDITIONS OF INNOVATIVE ECONOMY

**Olga Nikolaichuk**

PhD, Kryvyi Rih Economic Institute  
SHEI “Kyiv National Economic University named after Vadym Hetman”,  
e-mail: olganicolaychuk@rambler.ru, Ukraine

**Ganna Matukova**

Associate Professor DSc, Kryvyi Rih Economic Institute  
SHEI “Kyiv National Economic University named after Vadym Hetman”,  
e-mail: dana-00088@yandex.ua, Ukraine

**Abstract.** The article identifies the key challenges of human capital development of domestic enterprises. The comparative analysis of innovative and traditional approaches to human capital management is performed. The organizational and economic mechanism of the enterprise human capital management in the conditions of innovative economy is grounded.

**Keywords:** human capital, management, organizational and economic mechanism, innovative enterprise.

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### Introduction

The development of market relations in the era of post-industrial economy is accompanied by fundamental changes in the structure and interaction of elements of the productive forces of the new technological mode of production. Today the enterprise success increasingly depends on human capital. In modern conditions the intellectual abilities of humans contribute to the economic growth. The world experience shows that the new knowledge in the developed countries providesthe GDP growth at 80-95%.

The human factor is the main productive force of a society and the foundation of the concept of management. In modern life conditions, knowledge, skills, working skills, experience, personnel initiative are of particular importance, along with financial or industrial capital. In the process of the development of innovative production the main element is a worker with a high professional, intellectual and creative level, human capital is the main factor of the innovative production based on the generation of new knowledge.

The works of many domestic and foreign scientists (among them are the works of M. Armstronh, L. Bord, W. Bukovych, P. Drucker, I. Mesholam, I. Nonaka, M. Hylb, B. Henkin, O. Yehorshyn, A. Kibanov, Y. Maslov, V. Maslov, A. Kolot, D. Bohynya, N. Havkalova, A. Grishnova, I. Petrovaand others), are devoted to the problems of management of human resources and capital.

At the same time the aspects of the formation of an effective organizational-economic mechanism of the human capital management at domestic enterprises in conditions of the innovation of economic relations aren't properly disclosed in the scientific researches. Considering the aforesaid, the aim of the article is the theoretical and methodological substantiation of methodical approaches to the formation of the organizational and economic

mechanism of the enterprise human capital management.

### **Problems of efficient use of human capital at domestic enterprises**

The experience shows that at domestic enterprises there are many unsolved issues of effective using of human capital, accompanied by a loss of competitiveness, not only at the international level but also at the local level. The research of many scientists and practitioners indicate the problems in the management of human capital. Specifically, I. Petrova (2013) indicates such features of activity of domestic services of HRM:

- personnel work isn't compared with the strategic goals of the enterprise management;
- enterprise managers don't realize that the human capital is the highest value, so they reluctantly invest in programs of the staff development;
- professional qualification and demographic structure of HR specialists are imperfect. Only one third of them have higher education and even fewer have higher education in the special field of training. Most of these professionals have entered or will enter a retirement age, that indicates slow recovery and insufficient inflow of young workers in these subdivisions;
- the number of employees of personnel services is insufficient. In industrial organizations HR staff is on average 0.3% of the total number of employees, in construction organizations - 0.5%. In many organizations where the number of employees exceeds 1,000 people, only 1 - 2 managers work in personnel services. The fewest number of all professionals engaged in the recruitment and placement of personnel, in the calculation of one enterprise, is in the system of domestic services and in the agricultural sector - 1 person;
- HR staff limit their activities by introduction of personnel documentation, reception and dismissal of employees, regulation of labor relations in accordance with labor law, which is often disrupted;
- other issues of personnel policy (payment, organization, personnel safety and health, legal matters of labor relations) belong to different separated subdivisions, that does not allow to develop an unified personnel policy of the organization;
- many important HR functions have not yet been implemented in Ukrainian organizations. Among them: strategic workforce planning, integrated assessment of activities, quality management, the formation of compensation packages, team building, and development of organizational culture (Petrova, 2013).

Today many Ukrainian enterprises have problems which are related to the management of human resources which consist in limited understanding of the social role of organization by its employees and especially by its senior managers. The staff is seen as costs to be cut, but not as the main resource of the company, proper management and development of which largely determines the success of the entire organization; managers do not understand the motives of behavior of the employees, existing problems, primarily related to the complexity of determining the effect of the invested funds in its development. In the absence of clear guidelines, the administration is busy performing routine tasks, rather than consistently implementing the mission and the strategy of the enterprise, which hinders the implementation of the most important measures, the effect of which is not immediately evident; the perception of staff as a key resource of the organization consists in a misunderstanding of the difference between the human and other types of resources.

The disadvantages of managers are their inability to determine motives of employees,

the most important needs and problems at some point, and also the lack of proper attention to them, which leads to deception of expectations of employees and their dissatisfaction (Balabanova, 2011).

This leads to the lack of clear long-term goals of the organization and consequently, to the lack of staff understanding of higher levels of personnel managers. Staff misunderstanding of their social role and rejecting of responsibility for their actions lead to a clash of interests of managers and workers who wish to improve their situation.

One reason for the neglect of the development of the staff is that training within the enterprise requires its own funds, which is lacking in the enterprise. Another reason for the lack of training in the enterprise is the reluctance of managers to spend money on training because of a possible change in the latest work, the actual fear of losing the money spent. Also, there remains insufficiently developed issues on optimization cost in managing the development of personnel in the context of the research studies of the mechanism and structure of expenses on innovative activity of enterprises, which combines their functional areas, such as marketing, production, and organization structure (Balabanova, 2011).

In Ukraine there is no working model of personnel management. To create an effective model of the management of human capital at domestic enterprises, let's analyze foreign experience of its formation (table 1).

Table 1

### Models of management of human capital of enterprise

Criterion	Japanese	American	Western European
1	2	3	4
Staff recruitment	Lifetime hiring	The short-term hiring of employees according to the qualification and professional qualities of the candidate of predictable position	Involvement of workers with the necessary experience, skills and qualification
Availability of staff adaptation	Widespread using of social and professional adaptation	Innovative tools of staff adaptation, in particular, such as mentoring and coaching.	Adaptation of new employees is important. It includes a package of normative documents which regulate order of measures regarding the adaptation of new employee and people for whom these measures are implemented.
Learning	The concept of continuous learning. Learning on the job (mostly directly at the workplace)	Various forms of learning, the main among them - informal learning, workplace learning, continuous learning, self-education	Internal and external training, self-learning, professional or problem-oriented learning which is designed for specific target groups.

1	2	3	4
Responsibility	Collective	Individual	Collective
Attestation and assessment of results of activity	Assessment of long-term implementation	Using multifactoral methods of an assessment of personal contribution of employees. Assessment of short-term results	Systematic assessment of the results of staff activity which provide strict regulation and formalization of all steps, procedures and assessment forms
Motivation	The system of remuneration which is based on the duration of workexperience. It is based on informal interpersonal relations	Using of various forms of financial motivation	Remuneration system consists of a base (unchanged) and additional (variable, depending on various factors) parts. The system of moral incentives for workers is practiced widely
Management structure	Flexible, non-standard	Strictly formalized	Strictly formalized
Type of management	Management "bottom-up"	Management of "top-down"	Management "bottom-up"
The nature of management decisionsmaking	Making decisions by consensus (collectively - the principle of unanimity)	The individual nature of decision making	The individual nature of decision making
Loyalty of staff	Loyalty to enterprise	Loyalty to profession	Loyalty to enterprise

Source: compiled by authors on the basis *Grigoreva, 2015; Lysak, 2011; Lysak, 2013.*

Today in the domestic practice of HR management there is an intersection of different models, in particular, Japanese, American and Western, each model is focused on the principles of using the national character of the staff, the account of specific community development conditions of countries, psychological and socio-cultural factors. The models are of considerable interest for Ukrainian scientists.

The analysis of various human capital management models shows that the Western European model is closely intertwined with the American - the nature of managerial decision-making, responsibility, management structure, personnel performance evaluation and wages are almost identical. The policy in respect of recruitment in Japanese companies and the methods of production are significantly different from the Western European and American. The advantages of the Japanese model of management is the rapid increase in the qualification of employees, strong sense of community, high employee loyalty to the company, the ability and willingness of managers to take into account long-term consequences of their decisions.

However, the mere copying of foreign methods of work with the staff without considering the peculiarities of the domestic enterprises can give a significant negative effect - both economic and psychological.

### **Criteria of innovative and traditional approach to human capital management**

In modern times the intensification of innovative processes, widespread information and computer technologies, the intellectualization of labor, globalization of the economy objectively lead to the transformation of the contents and structure of the human capital, the nature of the impact of its assets on economic development, making adjustments in the process of its formation, accumulation and conditions of sale. Accordingly, the priorities in the management of human capital change (table 2).

Table 2

### **Comparative analysis of the criteria of innovative and traditional approach to human capital management**

Parameters for comparison	The traditional approach	The innovative approach
1	2	3
Purpose	To satisfy the existing needs of the organization	To satisfy new needs which were formed
Controllability	High controllability, organizational management structure is stable, hierarchical, clear separation of management functions	Low controllability, automated flexible structure, there is no clear division of management functions
Making decisions	Problems are standard, decisions are made with delays in response to emerging problems	Prediction, search and analysis of problems
Style of management	Stability	Encouraging for the initiative and creativity, promotion ideas, motivation of staff to change
The relationships in the organization	Competition and rivalry for the best seats	Interaction, organizing of creative teams on generating ideas that pursue common goals
Motivation	Clear perspective, authoritarianism	Encouraging innovation entrepreneurship, creativity
Payment	Individual, piecemeal, no bonus	No bonus, bonus, grade
Result	Keeping management at the same level	The transition in management to a new level

Source: compiled by authors on the basis of Gildingersh, Potemkin, Poskotinova, 2009.

Based on the comparative analysis of the parameters of innovation and the traditional approach to human capital management, we can determine the specifics of innovative human capital management in the organization. This specifics lies in the development of areas of formation, development and use of high-quality human capital, motivation and stimulation of innovative behavior of personnel in creating a favorable innovative climate for full professional, intellectual and creative impact of employees on the innovation process.

The approach to human capital management is based on the continuous improvement and the search for new methods of management, the creation of conditions in which to develop the intellectual abilities of personnel, the implementation of management techniques, the research for new forms of communication with the external and internal environment.

Among the basic requirements to human capital in terms of innovative economy we can define the following:

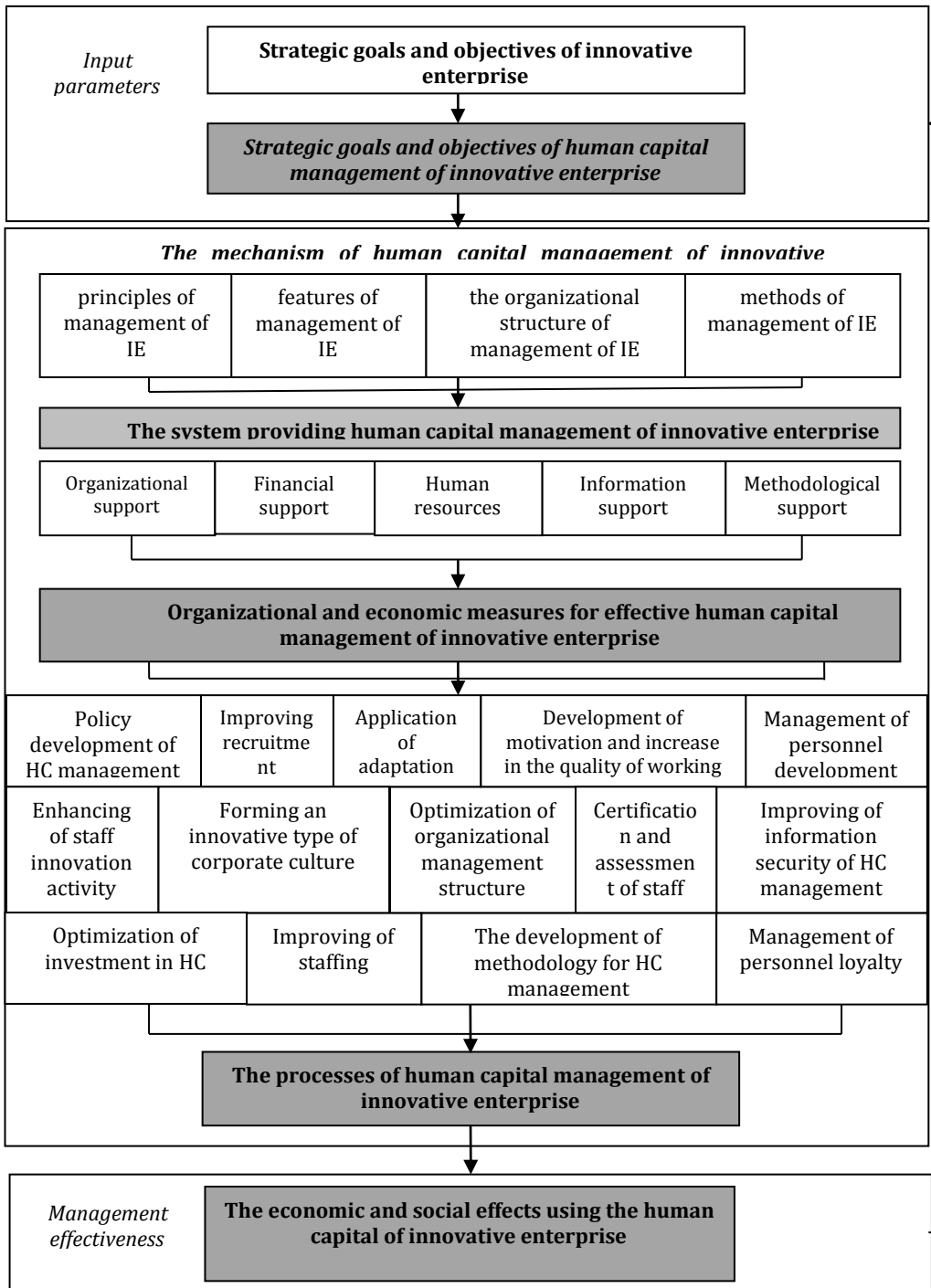
- adaptability to constant changes in a science and technology sphere, an economic system;
- the ability and willingness to raise the professional level, to retrain and continue education;
- a system of incentives to improve the professional level;
- creativity and entrepreneurship;
- the availability of stimulation of an innovative activity.

The human capital management system is an integral part of the whole system of the enterprise management. The purpose of this system is the timely provision of innovative processes with staff with necessary skills, knowledge, high intellectual and creative abilities.

However, in the innovative economy the enterprise needs are increasing, so the amount and quality of human capital should also keep growing to meet the necessary requirements of the innovative development. At the same time, the system of human capital management cannot be separated from the reproductive process of the enterprise. It's the human capital which ensures the implementation of the innovation process, so the human capital management system should be included in the innovation cycle of the company.

### **Organizational-economic mechanism of human capital management in innovative company**

The organizational-economic mechanism of the human capital management of the enterprise in the innovative conditions should be viewed as a subsystem within the developing enterprise. To adjust value principles and resource components it is obligatory to introduce the feedback that makes this mechanism more management adaptive in relation to the changing economic environment. The author's approach to building the organizational and economic mechanism of the human capital for innovative enterprises is presented in Figure 1.



**Fig. 1. Organizational-economic mechanism of human capital management in innovative enterprise**

Source: authoring

Thus, organizational and economic measures to promote the human capital management of the innovative enterprise include the following components:

- 1) the improvement of the process of hiring employees, i.e. to hire workers with creative thinking and experience of participation in innovative projects using headhunting, screening, recruiting, etc.;
- 2) the application of modern methods of adapting personnel;
- 3) the management of personnel development using innovative approaches (coaching, self-learning, training, case studies, e-learning, etc.)
- 4) the certification and assessment of staff (focusing on the results of the work or the capabilities of employees);
- 5) the development of motivation considering innovative approaches using material and non-material incentives. To enhance the process of performance and to achieve economic benefits the innovative and motivational strategies should be introduced using the following tools: individual (salaries, allowances, bonuses, and promotion), group (corrective coefficients for research groups) material non-cash (labor and social benefits), moral (awards, certificates, colleague respect, career promotion) incentives;
- 6) the innovative activity boost and formation of personnel innovation culture aimed at the development of inner enterprise, the formation of an effective mechanism for generating ideas and their accumulation, the development of innovative communications;
- 7) the optimization of investment in human capital;
- 8) the application of measures to create and maintain staff loyalty.

### **Conclusions and suggestions**

Thus, the research has allowed us to build the organizational and economic mechanism of the human capital management of the innovative enterprise. The prospects for further research in this field is to build an effective organizational and economic mechanism for enterprises of different sectoral focus.

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THE EXAMPLE OF THE DESIGN OF MATERIALS**NEW ECONOMIC SYSTEM OF SOCIETY DEVELOPMENT****John Sitdson**

Ph.D., University, e-mail: js@gmail.net, Poland

**Abstract.** The article deals with the information economy as a new economic system wherein information and knowledge are the main products. It is proved that a central component of an economic system is work with information and use of information systems in the process of management. The author substantiates the requirement for the search of new approaches to the solution of problems of development of institutional structures of information economy.

**Keyword:** knowledge, information, system, information economy, management.

*DOI: <http://dx.doi.org/10.23856/xxxxxxxxxxx>*

**Introduction**

Global growth of information and telecommunication technologies, on the one hand, and also the necessity of development of scientific knowledge in the area of theory, methodology and practice of informative approach of study of information economy and society, on the other hand, determines topicality of consideration of the process of formation of information economy. Information turns into a strategic resource and factor of acceleration of scientific, technical and technological development and becomes a part of the real economy.

**Subtitle of the body**

It presupposes the conceptual comprehension of the process of establishment of an informative and technological method of production and related to it forming of an information paradigm in a modern economic science.

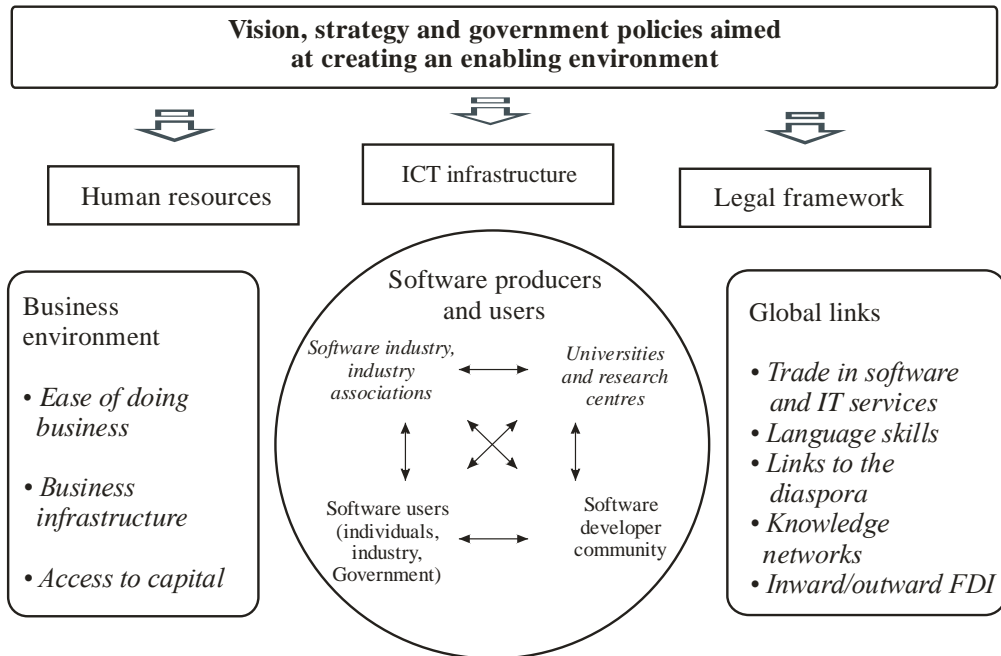
The evolutionary process of the establishment of information society is represented in researches of P. Drucker, who used a notion “information revolutions” (Drucker, 1989). He worked out the theory of the stages of development, which allows deeper understanding of the logic of establishment of information economy.

The term “information economy” was first used in 1976 in works of Mark Porat, an employee of the Stanford Centre and designated by him as a cluster of industries, engaged in the production of modern databases and facilities which provide their application and functioning (Porat, 1978). He is given the credit for introducing a distinction between the primary and secondary information sector of economy. A primary sector, according to his opinion, can be estimated quantitatively, while everything is much more difficult with the secondary one.

The Revolution in the development of information technologies allowed to talk about a global network, which materialized the globalization of economy. New information technologies, in fact, are not simply becoming the instruments of application, but also the processes of development. The system-oriented analysis of the information economy with due

regard to the forming informative paradigm of the economic theory requires additional consideration.

**Figure. 1. A national software system (Information Economy Report, 2012)**



### Conclusions and suggestions

Conception of information economy includes fundamental definition of information society. It's defined as a system of connections and relations between individuals, which appear in the process of interchange of information concerning social and economic activity. Information economy is simultaneously defined as a system of public relations, wherein the information is a basic productive resource.

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