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Management of innovative development the economic entities

Collective monograph edited by
M. Bezpartochnyi, I. Britchenko

Higher School of Social and Economic
Przeworsk (Poland) 2018

Zarządzanie innowacyjnym rozwojem podmiotów gospodarczych

Monografia zbiorowa
pod redakcją naukową
M. Bezpartochnogo, I. Britchenko

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The authors of the book have come to the conclusion that it is necessary to effectively use modern approaches the management of innovative development the economic entities in order to increase the efficiency of activity, to ensure competitiveness, to intensify innovation activity. Basic research focuses on assessing the innovation and investment potential of economic entities, analyzing the use of innovative technologies, diagnosing innovative activity. The research results have been implemented in the different models of formation the strategy of innovative development the economic entities, development of Internet communications, innovative restructuring management enterprises, introduction of innovative products and services in various spheres of the national economy. The results of the study can be used in decision-making at the level the economic entities in different areas of activity and organizational-legal forms of ownership, ministries and departments that promote of development the economic entities on an innovative basis. The results can also be used by students and young scientists in modern concepts and mechanisms for management of innovative development the economic entities in the context of efficient use the resource potential and improvement of innovation policy.

Reviewers (international scientific editoral board):

Mariana Mateeva Petrova – *DSc., Assoc. Prof., Director of Education Technologies Center, St. Cyril and St. Methodius University of Veliko Tarnovo, Bulgaria*

Remigijus Kinderis – *PhD, Assoc. Prof., Director Deputy for Strategic Development, Academic Council Chairman, Klaipeda State University of Applied Sciences, Lithuania*

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

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Contents

INTRODUCTION

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

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

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

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

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

Chapter 1

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

Dubnytsky Volodimir
Doctor of Economics, Professor
Naumenko Natalia
PhD, Associate Professor
Ovcharenko Olga
Postgraduate
Nesterenko Ivan
Postgraduate
Ukrainian State University of Chemical Technology (Dnipro, Ukraine)

FEATURES OF ENSURING INFORMATION SECURITY OF REGIONS: ASPECTS OF MODELING AND RISK ASSESSMENT

Introduction. The modern development of the world economy is characterized by the increasing dependence of the market on a significant amount of information flows. Despite increasing efforts to develop data protection technologies, their vulnerability is not only not decreasing, but also constantly increasing. Therefore, the urgency of the problems related to the protection of data flows and information security of the state, regions, industries, enterprises and the individual, is becoming increasingly stronger.

In the transformation period, Ukraine should implement a set of measures to bring the economy out of the crisis, which will guarantee economic security (including information) of a particular region. These activities should be carried out in all sectors of the economy. In determining the specific tools and mechanisms for ensuring information security in the region, it is necessary, along with ensuring economic security, to take into account the formulated threats to information and economic security, as well as to take into account the short-or long-term nature of the action of these threats and the possibility of their

prevention in this period. From this point of view, the priority is to increase the authority of local authorities, taking into account the decentralization processes, as well as the regionalization of decision-making mechanisms and the formation of economic and information policy within the regional economy.

Economic security of the region, in the context of the regional socio-economic system – is a set of current state, conditions and factors that reflect the stability, stability and sustainability of the economic development of the territory, a certain independence and integration with the economy.

The economic security of the regions is expressed in:

- ability to implement its own economic and information policy within the country and the current legislation;
- ability to respond to sharp geopolitical changes in the country and the world;
- ability to carry out major economic and information activities on urgent social, environmental, energy and economic emergencies in the region;
- the ability to consistently maintain compliance with the region's sound economic standards, which would make it possible to provide the necessary level and quality of life of the population of the region.

Information security management at the regional level takes an increasingly important place in the functioning of any organization – the subject of economic and information systems in the region, using modern technologies of collection, storage and processing of information. This process is based on periodic analysis of information risks, which allows to identify threats to information security, vulnerability of information system, including at the regional level, to implement appropriate measures to neutralize them and, as a consequence, to constantly monitor the status of information security in organizations of the regional economic and infrastructure facilities, taking into account previous experience and new threats and vulnerabilities.

The purpose of the risk assessment process in the conditions of the regional socio-economic system is to determine the characteristics in relation to the information system of the region’s organizations and specific territories and its resources (assets). On the basis of the data obtained, the necessary protection means can be selected. When assessing risks, at the level of the regional socio-economic system many factors are taken into account: the value of resources (including

information), assessment of the importance of threats and vulnerabilities, the effectiveness of existing and planned remedies and much more.

It should be taken into account that the main difficulty of the mechanism of obtaining risk assessments based on fuzzy logic in the conditions of the regional complex is to build a model for linguistic risk analysis of the system of information security of the region and its territories, but in practice, this mechanism is, according to A. Dudatiev, E. K. Baranova, an effective tool when other approaches to risk assessment within the region are unacceptable.

In this research, the authors developed a conceptual model of information security in the region and considered aspects of modeling structured risk assessment in the framework of the analysis of information security in the region.

Part I. Conceptual model of information security in the regional socio-economic system.

Currently, Ukraine and its regions are experiencing a difficult period of its development. Objectively, the emerging changes in the vast majority of spheres of public life are occurring with great difficulties. The transition to new forms of management in the context of contradictory legal framework, lack of evidence-based solutions, political instability, the global financial crisis, inertia of thinking have generated a number of problems, the aggravation of which puts at the forefront the problem of ensuring the economic security of the state and its regions, including the provision of basic components of security: food, industrial, environmental, energy, information, innovation, scientific and technical, investment, financial, social.

As noted by the authors, the first elements of the economic security and competitive intelligence appeared in society with the introduction of commercial relationships between entities [1, p. 7]. By this time, economic theory was limited to the functional behavior of the "man of economics", which makes a conscious and understandable, from the point of view of this classical theory, the choice in the market. But, somehow imperceptibly, the image of the "economic man" split – one of the partners of market relations knows something different than the other. Now: a lot of events and actions should be taken into account, which is not explained either by rational choice or completeness of information; there are a lot of studies that are called practical economics.

The sphere of economic security of modern business includes complex interrelations and interdependencies in the real sector of the economy, financial, social, environmental, energy and information systems, as well as investment, innovation, eco-energy and inflation processes, both at the level of regions and at the level of the state.

Danger – situation in which you may experience the phenomena and processes that can affect humans, cause material damage, it is destructive to act on the environment [2, p. 587]. The sources of danger are the conditions and factors that are fraught with them or in conjunction with other destructive nature. The dangers are natural, man-made and social. In the study G. S. Vechkanov proposed to distinguish the following concepts:

- a challenge is a set of actions that may not necessarily threaten, but they need to be responded to;
- risk is the probability of negative and undesirable consequences of the functioning of the subject;
- danger is a well-understood, but not an inevitable possibility of harm caused by the existence of factors that differ in damaging characteristics;
- threat is concrete and direct form of risk or a set of pre-conditions and factors creating danger to the public interest of the state and its regions, individual and national values and national way of life [3, p. 15].

From the point of view of the extent of the likely negative consequences of the danger can be: international (global and mega-regional); national; local (regional); private (business, family, individual). It should be noted that the social security system includes: geopolitical factors security; social security of the society in modern conditions; economic security (state, region and industry, individual); the information society and information security, eco-energy-social safety, technological and techno genic safety [3, p. 19].

In determining the concept of "economic security" for the levels: state, region, industry, enterprise, many researchers, among them can be identified studies for the level of the region [4; 5; 6; 7; 8], they considered different approaches to the interpretation of this problem, the main ones are the following:

1. Economic security of enterprises as subjects of economic and infrastructure complexes of the region. It is considered, first of all, as a problem of information security, which is provided in the form of a two-level system. The first level involves the preservation of the secrets of

the forces of security of the organization and the second provides for the formation of the psychological atmosphere of "vigilance and responsibility" of the personnel of the organization with the help of the so-called focal points appointed from persons of middle managers and use among the staff of the authority. Recognizing that the safety information is one of the important aspects of economic and information security of organizations of the region, it should be noted that reduction of a problem of economic safety of the organizations of the region only to the protection of trade secrets is a too simplistic solution to such a problem and does not take into account the entire spectrum of influence of the external environment as the main source of threats to the activities of the enterprises of the region [4].

2. The formation of market relations, changes in the functions of the state in the management of enterprises of the regional economic complex allowed us to consider the problem of economic security of enterprises much wider – as an opportunity to ensure its stability in a variety of, including in adverse conditions that develop in the external environment, regardless of the nature of its impact on the activities of the enterprise, the scale and nature of internal changes. Thus, the economic security of the enterprise is defined as "the protection of its activities from the negative effects of the external environment, as well as the ability to quickly eliminate different types of threats or adapt to existing conditions that do not adversely affect its activities" [5]. In essence, this interpretation identifies the concept of economic security with the concept of adaptation to the current conditions, and thus the vision of its development is lost.

3. Economic security is interpreted as "quantitative and qualitative characteristics of the properties of the company, industry, region, reflecting the ability of "self-realization" and development in the conditions of external and internal threats". Economic security of the enterprise and the region is determined by a set of factors that reflect independence, stability, growth opportunities, economic interests, etc. In this consideration, it is believed that the enterprises, organizations of the regional complex, and the threats of their activities are separate phenomena that are not related in nature. In reality, the threats arise in the same environment in which the enterprises themselves function as the subjects of the economic complex of the region.

4. As part of the approach to the economic security of enterprises, as the economic complex of the region, the state determined by the influence of the external environment, it should be noted resource-

functional approach. The authors of this approach consider the economic security of enterprises of the economic complex of the region as "the state of the most effective use of corporate resources to prevent threats and ensure the stable functioning of the enterprise at present and in the future" [6]. In the resource-functional approach as the main directions of economic security of enterprises in the region are seven functional components: intellectual, human, financial, technical, technological, political, legal, environmental, information and power.

The research of the nature of the resource-functional approach to understanding the economic security of enterprises of the economic complex of the region, allows us to note its main advantage – comprehensive, as part of this approach examines the most important factors affecting the state of the functional component of the economic security of enterprises and organizations, studied the main processes affecting its provision, analyzes the distribution and use of resources of enterprises, economic indicators are considered, reflecting the level of the functional component of the economic security of enterprises, and measures are being developed to ensure the highest possible level of the functional component of the economic security of enterprises.

5. We should also say about the approaches to the economic security of the enterprise as a subject of the economic complex of the region, which can be called narrowly functional, i.e. considered from the position of a separate aspect of its activity [7]. In this approach, accounting is recognized as the main management function aimed at ensuring economic security, since it is accounting that creates information conditions for the effective use of resources, prevention of threats and financial security of the enterprise. However, the lack of the ability to combine narrowly functional areas, reduce the effectiveness of this approach.

The analysis of the considered approaches to the problem of economic security of enterprises as subjects of the economic complex of the region, allows us to draw the following conclusions:

- economic security of the enterprise consists of several functional components, which for each specific enterprise may have different priorities depending on the nature of the existing threats;
- the main factor determining the state of economic security is the company's possession of sustainable competitive advantages. These advantages should be consistent with the strategic objectives of the enterprise and ensure the economic viability of the enterprise and further in the whole of the economic complex of the region;

- economic solvency is a reflection of the relations between economic entities that allow them to effectively exist in business and adapt to the conditions of the external environment (signs of market solvency), to optimally use the production potential (signs in terms of production capacity), to ensure a balance between the external and internal balance (signs of financial solvency).

On the basis of the conclusions it is possible to formulate the most general definition: economic security of the enterprise as the main subject of economic and infrastructure complexes of the region is the presence of competitive advantages due to the correspondence of material, financial, personnel, technical and technological potentials and organizational structure of the enterprise to its strategic goals and objectives.

This definition highlights the fact that economic security is at the interface of economic and enterprise security and the entire economic complex of the region.

Modern methods of risk management can solve a number of problems of long-term strategic development of enterprises and organizations in the region. First, to quantify the current level of information security of enterprises of the economic complex of the region and the region as a whole, which in turn will require the identification of risks at the legal, organizational, managerial, technological and technical levels of information security.

It is understood that information security is the protection of information system and information resources from external and internal threats that impede the process of effective use of information by citizens, the state and society [1, p.16].

Secondly, the system of risk management at the levels of regional authorities, top management of the company may include security policies and plans to improve the corporate information security system to achieve an acceptable level of security of information assets of the company, the enterprise and regional organizations [8, p.114].

The problem of information protection is multifaceted and complex and covers a number of important tasks: data privacy, which is ensured by the use of various cryptographic methods and means; user identification based on the analysis of codes used to confirm their rights to access the system (network), to work with data and to change them (provided by the introduction of appropriate passwords, analysis of electronic signature). The list of similar tasks to be solved to ensure information security and information protection in modern systems of

data processing and transmission can be continued. The intensive development of modern information technologies, especially network technologies, creates all the prerequisites for this.

The rapid growth of the Internet along with a significant set of new features and services brings a number of new problems, the most unpleasant of which is certainly a security problem. Even a cursory analysis of the computer press shows that the problem of security and safety of information placed on the Internet or in the internal corporate Internet system is quite acute. Therefore, it is not surprising that all companies-manufacturers of software for the Internet are introducing into their products more and more advanced means of information protection. Internet and information security are incompatible by the very nature of the Internet. It was born as a purely corporate network, however, now using a single stack of TCP/IP protocols and a single address space unites not only corporate and departmental networks (educational, state, commercial, military, etc.), which are, by definition, networks with limited access, but also ordinary users who have the opportunity to get direct access to the Internet from their home computers. Serious failure LANs can paralyze the operation of enterprises the economic complex of the region, which leads to significant material losses [8, p. 114].

The main objects of information security at the enterprises of the economic complex of the region are: information resources with limited access, constituting a trade secret, other sensitive to accidental and unauthorized impacts and violation of their security information resources, including open (public) information presented in the form of documents and arrays of information, regardless of the form and type of their presentation; information processing processes in automated systems, information technology, regulations and procedures for the collection, processing, storage and transmission of information, scientific and technical personnel of developers and users of the system and its maintenance personnel; information infrastructure, including information processing and analysis systems, technical and software tools for its processing, transmission and display, including information exchange and telecommunication channels, systems and means of information protection, facilities and premises in which the sensitive components of the automated system are placed.

As the researches of V. I. Yarochkin [4], D. V. Mikhailova [8] show that in practice the functioning of automated information systems the achievement of 100% level of security is expensive and not always

appropriate, since even the most advanced information protection system cannot counteract the threats that may arise in the future, and the cost of comprehensive protection can be much higher than the cost of protected information resources.

A great help in building an effective information security system can be provided by mathematical modeling methods, with which you can choose the optimal set of security tools, as well as to simulate how the created information security system will be effective in the fight against the most common threats [6].

Information security assumes the absence of unacceptable risk associated with information leakage through technical channels, unauthorized and unintended impacts on the resources used in the automated system. The criteria of information security are confidentiality, integrity and future availability of information. At the same time, confidentiality means the property of information resources, including information related to the fact that they will not be available and will not be disclosed to unauthorized persons. Integrity is a property of information resources, including information that determines their accuracy and completeness [8, p. 115]. In turn, the availability of information is a property that determines the possibility of obtaining and using information at the request of authorized persons.

Information security of the regional socio-economic system is a set of measures to ensure the security of information assets of enterprises of the economic complex of the region. The solution of any individual issues (technical or organizational) will not solve the problem of information security in general, it can be provided only in the case of an integrated approach. It is focused on the creation of a secure environment for information processing in the corporate system, bringing together diverse measures to counter threats. This includes legal, moral, organizational, software and technical methods of information security. However, only mathematical modeling of the corporate network allows ensuring the effectiveness and reliability of the protection systems. The principle of building a system of security of information resources of the corporate network should be based on scientific prerequisites, science-based mathematical model that reveals the internal principles of the organization. On the basis of mathematical modeling it will be possible to build with guarantees of security concept of information security of the organization.

The concept is a methodological basis for the formation and implementation of the organization’s unified policy in the field of

information security (security policy), management decision-making and development of practical measures for its implementation.

The system of information security of objects and subjects of the economic complex of the region should be based on the following principles:

- forecasting and timely detection of threats to the security of information resources, causes and conditions that contribute to the financial and moral damage, disruption of its normal functioning and development;
- creation of conditions of functioning with the least probability of implementation of security threats to information resources and causing various types of damage;
- creation of a mechanism and conditions for rapid response to threats to information security and manifestations of negative trends in the functioning, effective suppression of attacks on resources on the basis of legal, organizational and technical measures and means of security;
- creation of conditions for the maximum possible compensation and localization of damage caused by illegal actions of individuals and legal entities and, thereby, the weakening of the possible negative impact of the consequences of information security violations.

When developing the information security model of the enterprise of the economic complex of the region, it is necessary to use international normative documents ISO/IEC 15408 “Information technology – security methods – criteria for assessing information security”, ISO/IEC 17799 “Management of the information security”.

When building an information security system of enterprises the economic complex of the region model is proposed (Figure 1.1), which describes a set of objective external and internal factors and demonstrates their impact on the state of information security at the facility. This model includes the following objective factors: threats to information security, characterized by the probability of occurrence and probability of implementation; vulnerability of the information system or countermeasures system, affecting the probability of threat realization; risk factor reflecting the possible damage to the organization as a result of the threat of information security – information leakage and misuse.

It is necessary to make as much as possible a detailed map of the information system of the enterprise, i.e. to describe where and what is the network equipment, which PC is connected to which port, and what

functions are performed on it, to determine the circle of persons who can work for specific PCs and their functional responsibilities. Describe the route and access rights to electronic documents. Analyze the information and develop mathematical algorithms to ensure information security of the organization, corresponding to the fundamental objectives of protection; information resources: availability, integrity, secrecy. During the analysis, you can determine: what kind of threat exists and its type, the object of the threat, from whom it can come and what method can be eliminated. This creates a dynamic model of object relationships in the system with attribute-based access control.

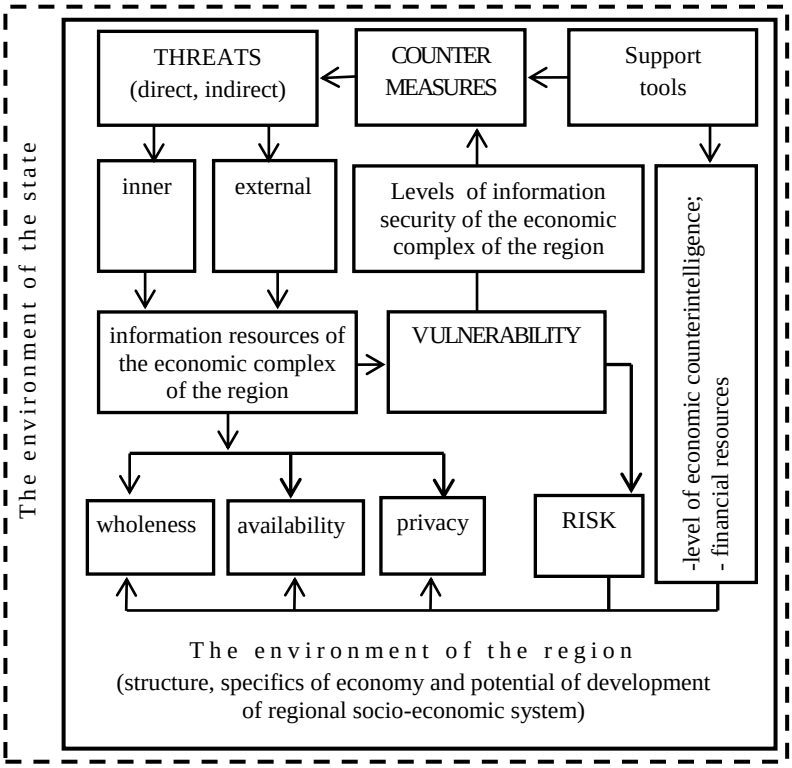

Figure 1.1 Conceptual model of information security of objects and subjects of regional social and economic system

The proposed approach to developing an information security policy for the enterprise level – the regional socio-economic system, allows to

fully analyze and document requirements related to information security, to avoid the costs of additional security measures, possible with a subjective risk assessment, to assist in the planning and implementation of protection at all stages of the life cycle of information system, to provide justification for the choice of countermeasures, and evaluate the effectiveness of countermeasures to compare various variants of countermeasures.

It should be noted that due to the multi-stage structure of the concept model of information security of objects and subjects of the regional socio-economic system, the introduction of a system of control and consolidation of responsibility for the factors and directions of the information security system, significantly reduces the risk of leakage of confidential information due to the human factor.

Part II. Aspects of structured risk assessment modeling within the framework of regional socio-economic system information security analysis

An approach to improving the functioning of any enterprise – a subject of economic and infrastructure complexes in the conditions of regional socio-economic system, achieving the goals and the development of the enterprise, as part of the system, which in most cases is reduced to the enterprise's leadership in a certain segment of the regional market, improving the efficiency of all production processes.

As noted by A. V. Dudatyev in their work, a modern information system and information technology play a leading role in solving the problems of increase of efficiency of all production processes in general [9, p. 207]. Ensuring the security of information system, information resources of enterprises and organizations of the regional socio-economic system, as well as all other resources, is one of the priorities for modern enterprises of the economic complex of the region.

The existence of a competitive information environment, i.e., environments in which there are special information and psychological operations on the part of potential competitors, the purpose of which is to minimize the effect or the destruction of their opponents, speaks of the necessity of providing comprehensive protection. Under the comprehensive protection refers to the decision by objectives: protection of own information resources, including through information security risk assessment and protection against negative information influence of competitors.

Information security management is taking an increasingly important

place in the functioning of any organization and enterprise of the regional socio-economic system, using modern technologies for the collection, storage and processing of information. This process is based on the periodic analysis of information risks, which allows to timely identifying the threats of information security, information system vulnerability, to implement measures for their centralization and, as a consequence, to monitor the status of information security in enterprises and organizations included in the regional socio-economic system.

The results of research of the problem of evaluation and maintenance or management of information security are presented in [10; 11]. In the given works the methods of risk assessment associated with information threats and is management at different levels of detail of complex systems are presented. In the work of T. I. Buldakova and D. A. Mikov, the problem of risk analysis of information security in the context of the implementation of the risk assessment methodology of information security in Matlab to identify the features of the implementation stage of information risk assessment in the overall analysis process [12].

Information risk analysis is a process of complex assessment of information system security with the transition to quantitative or qualitative risk indicators. At the same time, the risk is the probable damage, which depends on the security of the system. Thus, it follows from the definition that the output of the risk analysis algorithm can be either a quantitative risk assessment (risk is measured in money) or – qualitative (risk levels, usually: high, medium, and low).

Risk assessment is carried out using a variety of tools, as well as methods of modeling the processes of information security. Based on the results of the analysis, the highest risks are identified, which transfer the potential threat into the category of dangerous and therefore require additional protective measures. As a rule, for each such threat, there are several solutions to neutralize it. In assessing their cost and effectiveness, consideration should be given not only to the cost of equipment and software, but also to such circumstances as the cost of training staff to work with them, compatibility with software, etc.

At present, there is no single method of quantitative calculation of the risk values measured in the valuation. This is primarily due to the lack of sufficient statistical data on the likelihood of a threat. Currently, there is an active accumulation of data on the basis of which it would be possible to determine with acceptable accuracy the probability of the implementation of a threat. Unfortunately, the available reference books are based on foreign experience and therefore hardly applicable to the

Ukrainian realities. In addition, determining the value of the information resource (whether it is a physical server or files and database records) is also often difficult. For example, if the owner of the resource (assume that it is identified) can name the cost of equipment and data carrier, then specify the exact cost of the data in its custody it is almost unable.

Therefore, the most common is a qualitative assessment of information risks. Its main task is to identify risk factors, identify potential areas of risk and assess the impact of each type. Risk analysis is carried out by expert means.

The following factors are taken into account in the calculation of information risks:

1. Cost of resource (Asset Value, AV). This value characterizes the value of the resource. In qualitative risk assessment, the cost of a resource is most often ranked in the range from 1 to 3, where 1 is the minimum cost of a resource, 2 is the average cost of a resource and 3 is the maximum cost of a resource. For example, the server of the automated banking system has AV = 3, while a separate information kiosk designed to serve the client has AV = 1 in relation to the information banking system.

2. A measure of a resource's vulnerability to a threat (Exposure Factor, EF). This parameter shows the extent to which a resource is vulnerable to the threat in question. For example, from the point of view of the Bank, the resource of the automated banking system is the most accessible. Thus, the attacks with the purpose of implementing denial of service (Denial of Service, DoS) are of maximum danger. With qualitative risk assessment, this value is also ranked in the range from 1 to 3, where 1 is the minimum measure of vulnerability (weak impact), 2 is the average (resource to be restored), 3 is the maximum (resource needs to be completely replaced after the threat is realized).

3. The Annual Rate of Occurrence (ARO) shows how likely it is that a particular threat is likely to be implemented within a certain period of time (usually within a year) and is also ranked on a scale of 1 to 3 (low, medium, high).

On the basis of the data obtained, an estimate of the expected losses from a specific threat for a certain period of time (Annual Loss Exposure, ALE) is derived, which characterizes the value of the risk and is calculated by the formula:

$$ALE = ((AV \cdot EF \cdot ARO)) \quad (1.1)$$

After the initial risk assessment, the values obtained should be systematized according to the degree of importance to identify low, medium and high levels of risk. The technique of risk management involves several modes of action. Risk may be:

- assumption, i.e. the user agrees to the risk and related losses. In this case, the information system continues to operate normally;
- mitigation - certain measures will be taken to reduce the risk;
- transferred – compensation for potential damage will be assigned to the insurance company, or the risk will be transformed into another risk – with a lower value – through the introduction of special mechanisms.

Some methods additionally provide for another method of management – "abolition" (avoidance). It involves taking measures to eliminate the source of risk. For example, removing functions that generate risk from the system, or removing part of the system from service. However, in our view, such an approach is not constructive because, if the magnitude of the risk is large enough, the generating component is critical to the information system and therefore cannot be removed. At low values of risk this method is transform to a method of reducing the risk (mitigation).

The following is the ranking of the risks, and then identifies those that require immediate attention. The main method of managing such risks is to reduce, less often – transfer. Medium-level risks can be transferred or reduced on a par with high risks. Lower-level risks are generally accepted and excluded from further analysis.

The range of risk ranking is taken based on the calculation of their qualitative values. For example, if the magnitude of the risks calculated are in the range from 1 to 18, low the risks are in the range from 1 to 7, the average is in the range from 8 to 13, high – in the range of 14 to 18.

Thus, risk management is reduced to the reduction of high and medium-sized risks to low-risk values at which they can be accepted. The reduction of risk is achieved by reducing one or more components (AV, EF, SLE) by taking certain measures. This is mainly possible for EF and SL, since AV (resource cost) is a fairly fixed parameter. However, it may be reduced, for example, if the information stored on the server is confidential, but the check revealed that the stamp "confidential" for any reason can be removed. As a result, the cost of the resource is automatically reduced. In the Internet banking system, for example, the EF parameter can be reduced by fixing the liability of the parties in a contractual manner. In this case, it is considered that the

parties have been warned of the liability that may result from the violation of the rules of operation of the system, and thus the vulnerability factor is reduced.

The reduction of the SLE parameter, i.e. the probability of threat realization, can be achieved by technical measures. For example, if there is a threat of short-term power failure, installing an uninterruptible power supply reduces the likelihood of its implementation.

The risks that have arisen (remained) after the application of the management methodology are called residual risks, and they are used to justify investments in information security.

Risks are recalculated for all risks if they are assessed as high and medium.

In the course of the risk analysis, the most critical from the point of view of information security resources are identified, for each resource, the characteristic security threats are identified and the vulnerability of the resource protection system is assessed. On the basis of these and general statistical data, probabilistic characteristics of the emergence and implementation of information security threats are determined.

The purpose of the risk assessment process is to determine the characteristics of risks in the information system and its resources. On the basis of such data the necessary means of management information security are selected.

The risk assessment process includes several stages:

- description of facility and protection measures;
- identification of the resource and estimation of its quantitative parameters (the definition of the potential negative impact on the business);
- information security threat analysis;
- vulnerability assessment;
- evaluation of existing and proposed information security tools;
- risk evaluation.

On Figure 1.2 the concept model of the information security system construction in the conditions of the region economic complex subjects functioning is presented [13].

This concept model corresponds to the special regulatory documents on the provision of information security, adopted in Ukraine, as well as the international standard ISO/IEC 15408 “Information technology – protection methods – criteria for assessing information security”, ISO/IEC 27002 “Management of information security”, and takes into account the development trends of the domestic regulatory framework

on information security at all levels of economic and infrastructure complex in the region.

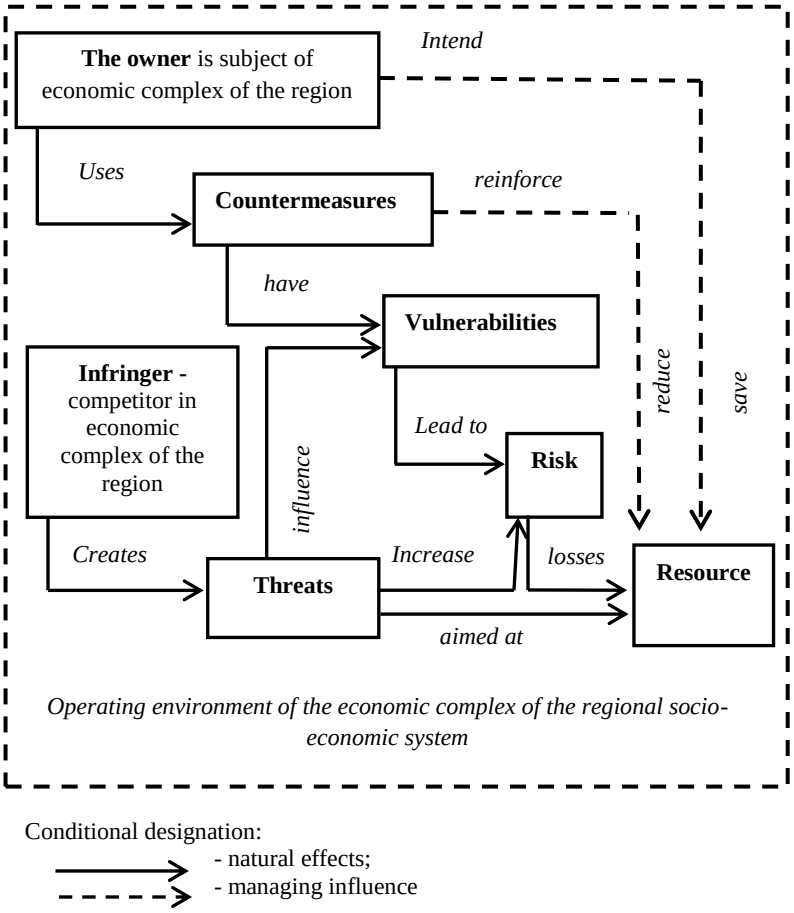

Figure 1. The concept model of a security system for subjects of the economic complex of the region

The presented concept model of information security for the environmental conditions of the economic complex of the region is a set of objective internal factors and their impact on the state of information security on the subjects of economic complex of the region, in the whole region, including the safety of material or information resources.

The following objective factors are considered:

- information security threats characterized by probability of occurrence and probability of implementation;
- vulnerabilities of the information system or countermeasures system (information security system) that affect the probability of threat realization;
- the risk factor reflecting the possible damage to the organization as a result of the threat to information security: information leakage and its misuse (the risk ultimately reflects the likely financial losses – direc or indirect).

In order to build a balanced information security system, it is initially planned to carry out an analysis of risks in the field of information security. Then, you determine the optimal risk level for the organization based on the specified criteria. The information security system (countermeasures) will have to be built in such a way as to achieve a given level of risk.

The following approach to the formation of the design process of the system of providing information security of objects of the economic complex of the region, consisting of stages:

- Building a security plan for an object that begins with building a security profile for that object. Some of this work has already been done in the course of risk analysis.
- Develop an organizational security policy that describes how to grant and use user access rights, and the requirements for users to be accountable for their actions in security matters.

The object's information security system will be effective if it reliably supports the implementation of security policy rules, and vice versa. The steps to build an organizational security policy are:

✓ introduction of the value structure and risk analysis into the description of the object of automation;

✓ define rules for any process of using this type of access to the resources of the automation object having this degree of value.

Within the framework of the proposed approach, the most important part of the risk assessment methodology is the fuzzy inference mechanism, which converts the input data into an output variable, i.e. into a risk assessment. Conceptually, the fuzzy inference mechanism is a sequence of operations on the input data in accordance with the parameters laid down in the set of production rules (Figure 1.3).

The main stages of fuzzy inference are:

✓ *Input of expert evaluations* provides a mechanism to display the

required information.

✓ *Fuzzification* is a procedure for finding the membership functions of the input variables used terms based on the initial data.

✓ *Aggregation* is a procedure for determining the degree of truth of conditions for each of the fuzzy inference system rules.

✓ *Activation* is a procedure for finding the degree of truth of each of the sub-conclusions of the fuzzy inference rules.

✓ *Accumulation* is a procedure for finding the membership function for each of the output linguistic variables of a given set of fuzzy inference rules.

✓ *Defuzzification* is the procedure of finding the crisp values of the output variables; best fits the input data and the basis of production rules.

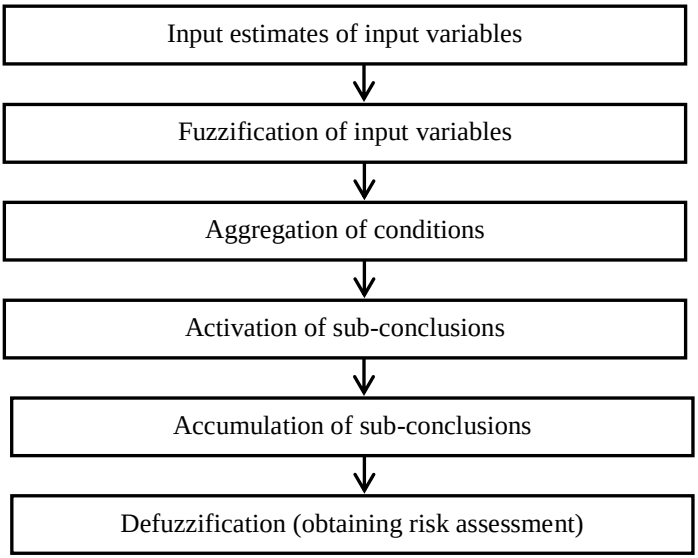

Figure 1.3 The concept of algorithm of fuzzy inference mechanism

The implementation of the fuzzy inference mechanism is to use a known or to develop a new algorithm for processing data.

The following is an example of the practical use of the fuzzy inference mechanism to obtain a risk assessment.

Suppose that with the help of production rules of fuzzy logic it is necessary to reproduce the mechanism of risk assessment is presented in Table 1.1 (recommendations of the NIST 800-30).

Table 1.1

The dependence of the risk probability and damage

Probability	Damage		
	High	Medium	Low
High	H	M	L
Medium	M	M	L
Low	L	L	L

Table 1.1 corresponds to the following production rules:

1. IF the Probability Is High and the Damage Is High, THEN Risk = H (High);
2. IF the Probability Is High and the Damage Is Medium, THEN Risk = M (Medium);
3. IF the Probability Is High and the Damage Is Low, THEN Risk = L (Low);
4. IF the Probability Is Medium and the Damage Is High, THEN Risk = M (Medium);
5. IF the Probability Is Medium and the Damage Is Medium, THEN Risk = M (Medium);
6. IF the Probability Is Medium And the Damage Is Low, THEN Risk = L (Low):
7. IF the Probability Is Low and the Damage Is High, THEN Risk = L (Low);
8. IF the Probability Is Low and the Damage Is Medium, THEN Risk = L (Low):
9. IF the Probability Is Low and the Damage is Low, THEN Risk = L (Low).

The output mechanism will contain two inputs: one for entering the probability estimate, the other for entering the damage estimate (Figure 1.4).

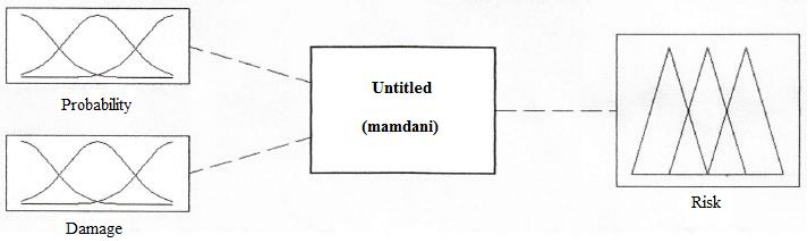

Figure 1.4 The structure of the inference engine (Matlab)

The membership functions for all three scales are set using trapezoidal functions (Figure 1.5). The mechanism itself is shown in Figure 1.6.

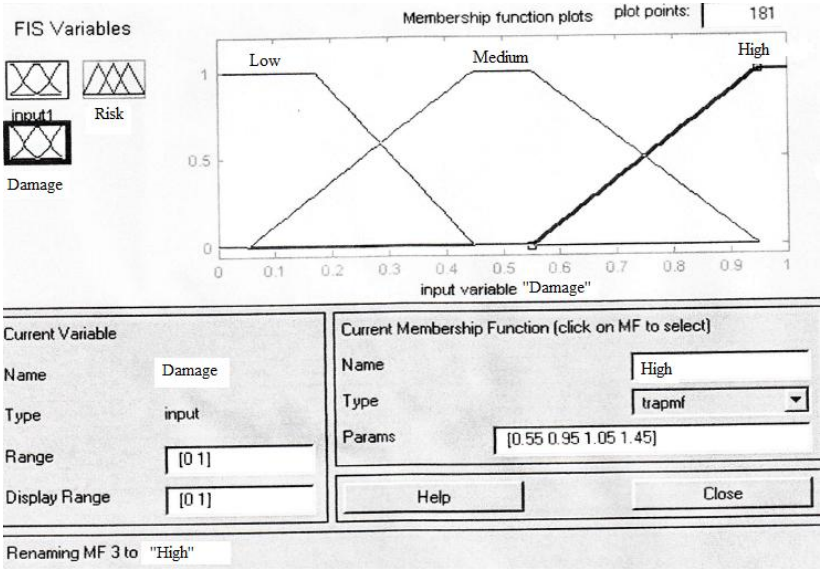

Figure 1.5 Type of membership functions (Matlab)

As input values, we set the probability value to 0.683 and the damage value to 0.741. The type of input variables after fuzzification is shown in the left and middle column in Fig.6. The right column shows enabled decision rules, it also clearly presents the procedure of defuzzification (weighing) and the final risk assessment. The output variable is the estimated risk value, which in this case is 0.57.

This example is given to understand the method used and does not demonstrate all its advantages, which will be manifested as the number of inputs increases, the number of gradations of the scales used and the complexity of the output rules.

Conclusion. According to the results of the research, a number of main conclusions can be drawn.

1. The analysis of scientific works of a number of domestic and foreign scientists, experts on the problem of information security at the levels of: state, regions, enterprises (considered in the context of objects and subjects of the regional socio-economic system) showed that due to

the significant expansion of the current practical use of information technology (in particular Matlab), the development of methodological foundations of the management security systems of the organization, the enterprise – as a subject of the economic complex of the region is paid more and more attention.

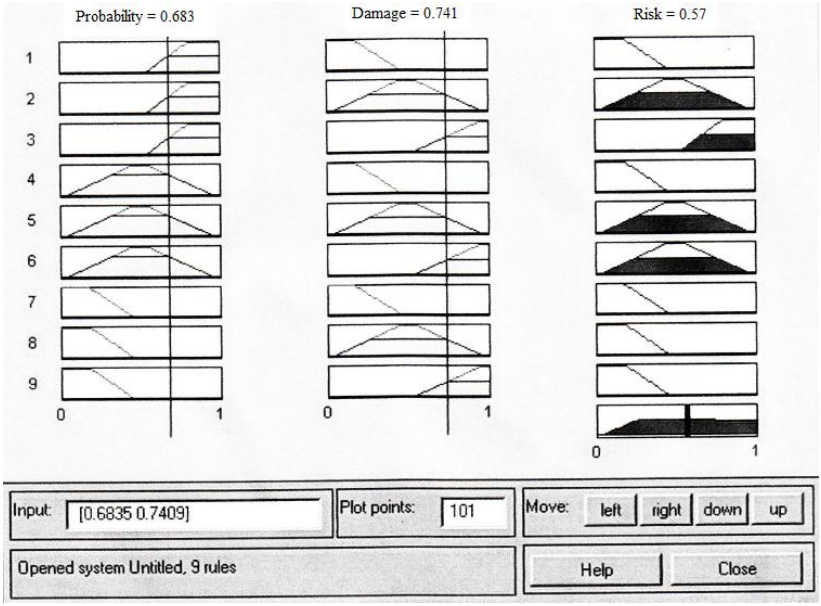

Figure 1.6 The inference engine (on the output values)

2. For the level of the regional socio-economic system developed by V. A. Glotenko 2-level system of factors (threats) in the context of ensuring the information security determines the required degree of security, which is based on 3 components: administrative, procedural, software and technical [14]. According to the authors, it is necessary to take into account the 4-level system of is factors at the level of the regional socio-economic system, namely: 1) unintended subjective threats; 2) deliberate subjective threats; 3) man-made threats; 4) natural threats, and at the same time to highlight the following factors of information security:

- threats of information support of the state policy and regional economic policy;
- threats to the development of the national information industry, in

order to reduce the level of information security of the regional socio-economic system, including means of information, telecommunications and communications;

- threats to meet the needs of the domestic market and the output of the regional economic and industrial complex of the regions to the world market;

- threats to ensure the accumulation, safety and effective use of national and regional information resources within the framework of the regional socio-economic system.

3. The necessity of further development of risk assessment methodology, number and sequence of risk assessment methodology stages on the basis of fuzzy logic production rules (including in the context of risk assessment methods NISI and GRAMM as particular cases arising from the general rule).

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Kozureva Olena
Dr. in Economics, Professor, Head of the Department of Management and Administaration
National University of Pharmacy
Khaustova Viktoria
Doctor of Economic Sciences, Associate Professor
Research Centre of Industrial Problems of Development of NAS of Ukraine
Novikov Dmytry
PhD in Economics, Associate Professor
O.M. Beketov National University Of Urban Economy in Kharkiv (Kharkiv, Ukraine)

FORMATION AND EVALUATION OF COMPANY'S INNOVATIVE POTENTIAL

Formulation of the problem. The analysis of global trends in economic development and the factors influencing it convincingly proves that nowadays innovative processes are of prominent character and their role is constantly growing. The innovative development of the enterprise is an important direction of the latter's activity. This cam be confirmed by such concepts as "innovation potential", "innovation activity", "innovation".

The transition of industrial enterprises to the innovative development model is closely correlated to the problem of the innovative potential formation.

Setting objectives. Such issues, related to the general theory of innovations, as the development, analysis and evaluation of the innovative projects effectiveness, the formation of the company's innovation development potential, have been researched by a range of domestic and foreign scientists, in particular: M. Porter, B. Santo, R. Waterman, J. Schumpeter , A. Amosha, A. Alimova, Y. Wish, V. Zarubi, E. Galushko, A. Galchinsky, V. Gejets, S. Glaziev, N. Goncharova, A. Grinova, V. Grinova, G. Dobrova, P. Zavlina, S. Ilyenkova, S. Ilyashenka, O. Kuzmina, I. Lukinova, V. Medinskii, L. Melnyk, L. Neykova, O. Posil cinema, P. Pererva, R. Fatkutinova, D. Chervanova, M. Chumachenko and others.

At the same time, non-sufficiency of development of a complex of issues related to the problem in question should be metioned. Therefore, further research is required to improve the theoretical and methodological provisions regarding the formation and evaluation of the innovative potential of the enterprise.

Presentation of the main research material. The effective innovations implementation is an imporatant factor of economic growth and positioning the domestic economy in the global economic system. It promotes social and economic development, as well as plays a leading role in solving economic, environmental, social and cultural problems. In this regard, special attention is paid to the analysis of a complex of issues concerning companies' innovation activity and, in particular, the innovation potential as a system indicator, characterizing the level of enterprise's efficiency in implementing innovation development model.

Thus, in modern conditions under the innovative potential of an enterprise its maximum opportunities to generate high innovative activity should be understood.

The analysis and generalization of well-known literature and practice approaches to defining the structure of the innovative potential of certain subject of business, have lead to the opportunity to make their comparative description (Table 1.2).

Taking into account the proposed approach to defining the essence and content of the innovation potential, it has been found out that the innovation potential of the enterprise should be considered with regard to two elements: material resources of innovation activity and intellectual potential (Table 1.3). Each of the above elements has specific usage and development objectives, is subject to various factors and, depending on the level of development, may be credited to the strengths or weaknesses of the enterprise.

Table 1.2

Comparative description of approaches to defining the structure of the company's innovative potential

Authour, work	Innovation potential components
Kanyigin Yu.M. [1]	Intellectual, educational, personnel, technological, and technical
Kozyrieva O.V. [2]	Intellectual, investment
Luzin A.E. [3]	Organizational structure, technology, organization of work, management style
Gromeka V.I. [4]	Scientific, educational, management, technical
Halushko Ye.S. [5]	Personnel, informational and methodological, material and technical, organizational and managerment
Goldshteyn G.Ya. [6]	Research, marketing, production, management
Korenkov O.V. Kosenko A.P. [7]	Scientific, production, personnel, material and technical, informational
Ilenkovoy S.D. [8]	Research, design, technological, production, commercial
Fathuddinov R.A. [9]	Marketing, research, organizational and technological, industrial
Lapin E.V. 10]	Research, techno-technological, marketing, financial
Popov E.V. [11]	Industrial, patent and license, technological, financial, organizational and management
Novikova I.V. [12]	Innovative resources: personnel, scientific and technical, production and technological, financial and economic; Catalysts (favourable conditions): motivation, innovative culture

Thus, the concept of innovative potential of the enterprise can be defined. It implies combined capacity of the functional components of the potential to qualitatively change the enterprise as a system in the implementation of its own strategy.

Implementation of the enterprise's innovation potential as an integral system can only be achieved through the development of components of its internal environment and through creating potentials of other relevant components, their analysis and evaluation. Subsequently, it possible now to determine the reserves of implenting innovative potential, is an integral part of the planning and forecasting system.

Table 1.3

The main components of the enterprise's innovation potential

Innovation potential	Components of the evaluation object
Material potentional	
Potential of general assets (technical and technological basis of innovation activity)	Basic and auxiliary research equipment; research, design and production technologies; computer security; vehicles; buildings and constructions, transmitting devices; library fund
Financial potential (possibilities of material and financial support of innovation activity)	Industrial stocks, goods; Promissory notes received; Receivables; Current financial investments; Cash and cash equivalents; Other current assets
Intellectual potentional	
Potential of intangible assets (intellectual support of innovation activity)	Patents; Copyright, design rights; Trademark; Trademarks, service marks.
Marketing potential (market basis of innovation activity)	Marketing experience; the image of the enterprise; customer base; commitment of consumers; portfolio of orders; franchise agreements; license agreements; partnerships with contracting parties.
Management potential (readiness of management system for innovation activity)	Organizational culture; Management concepts; Communication networks; Information Technology; Quality of innovation management.
Personnel potential (staffing of innovation activity)	Educational level; Level of qualification; Professional skills; Psychometric characteristics

In order to obtain substantiated conclusions, the indicators of innovation potential, as noted above, are divided into groups according to the types of functional potentials (Figure 1.7).

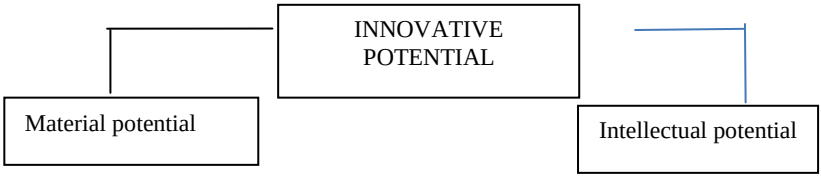

Figure 1.7 The components of the enterprise's innovation potential

The analysis of the comany's innovative potential begins with calculating the values of local indicators of the material and intellectual potential functional components. Basing on taxonomic analysis of the calculated values of local indicators, one determines the complex indicators of the material and intellectual components of the innovation potential, then – taxonomic indicators of the direct material and intellectual potential, and finally – the integral indicator of the innovative potential of the enterprise(Figure 1.8, 1.9).

As noted above, the innovative potential of an enterprise is a value that has a complex multilevel hierarchical structure. It can be represented as an interconnected set of potentials of different order.

Thus, in general, the innovative potential of an enterprise can be represented as a function that has a dependence on several variables:

$$IP = f_1(P_{mat.}, P_{int.}), \quad (1.2)$$

where: $P_{mat.}$ – material potential of the enterprise;;
$P_{int.}$ – intellectual potential of the enterprise.

In their turn, the material and intellectual potentials of the innovation potential consist of various local potentials that form the lower level of the potential hierarchy.

According to the proposed innovation potential structure, the material element has the following functional dependence:

$$P_{mat.} = f_2(P_{prod.}, P_{fin)}, \quad (1.3)$$

where: $P_{prod.}$ – production potential of the enterprise;
$P_{fin.}$ – financial potential of the innovation potential's material element of the enterprise.

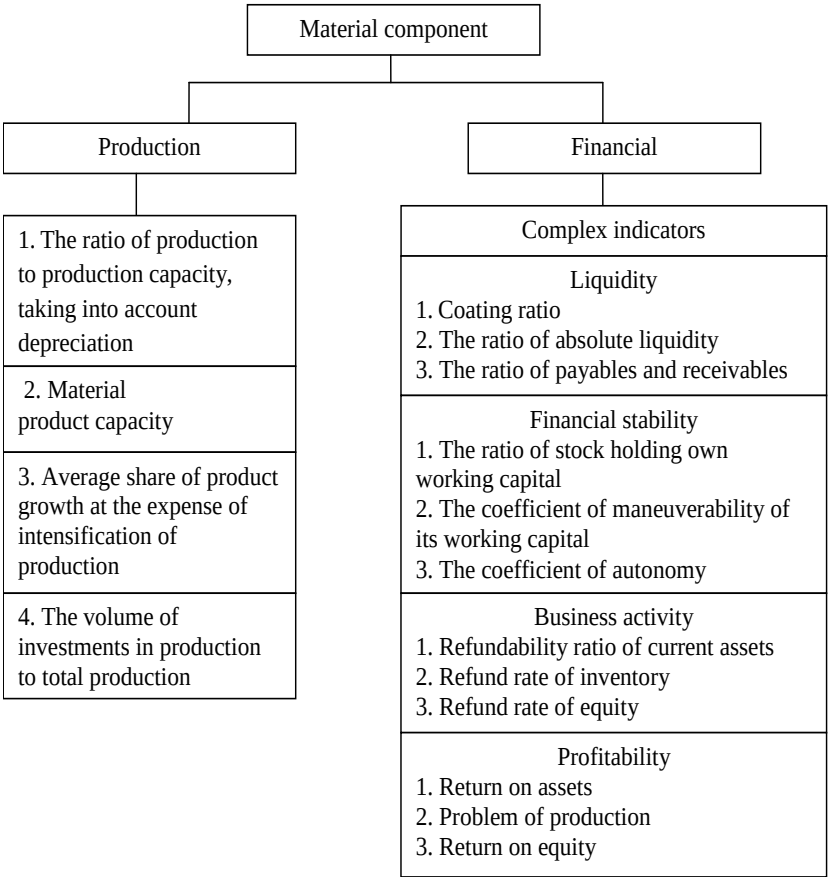

Figure 1.8 The system of indicators used to assess the material potential of the enterprise

The intellectual element of the innovation potential, taking into account the proposed local elements, has the following functional dependence:

$$P_{int.} = f_3(P_{pers.}, P_{intan.}, P_{mark.}, P_{man.}), \quad (1.4)$$

where: $P_{pers.}$ – personnel potential of the enterprise;
$P_{intan.}$ – potential of intangible assets of the enterprise;
$P_{mark.}$ – marketing potential of the enterprise;
$P_{man.}$ – management potential of the enterprise.

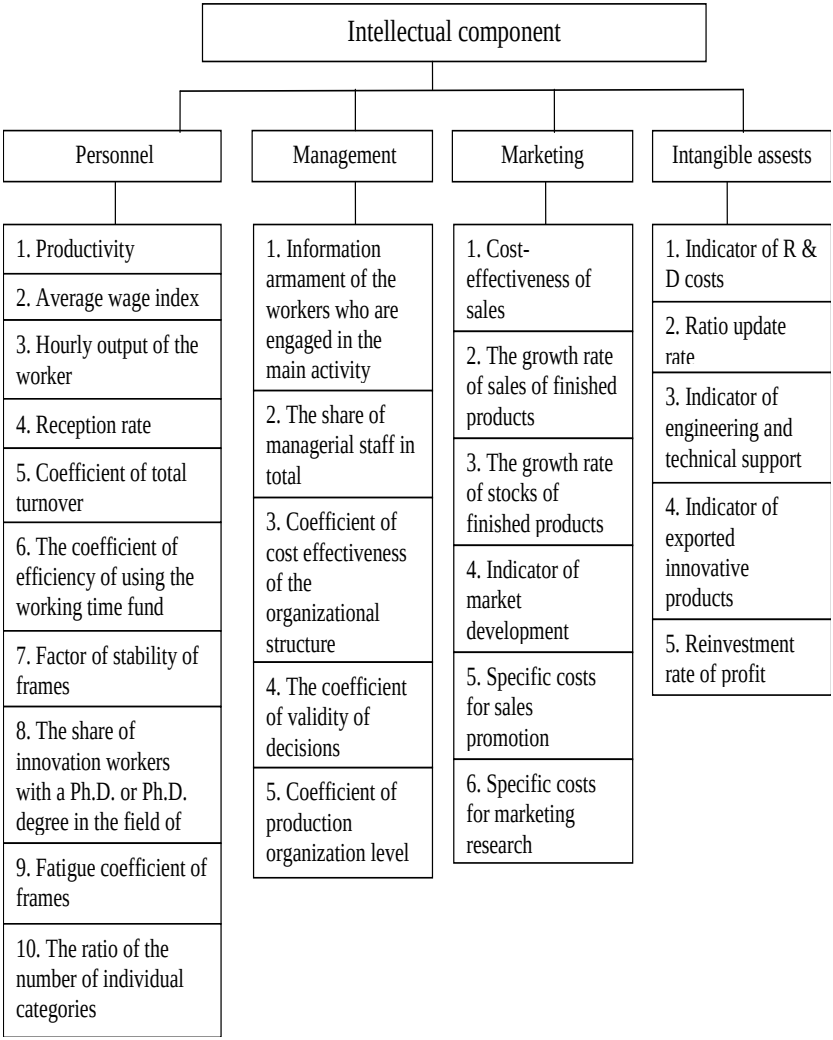

Figure 1.9 The system of indicators used to assess the intellectual potential of the enterprise

The smallest structural elements in the innovation potential assessment are local indicators (coefficients). The function of potentials dependence of the average innovation potential hierarchy can be expressed as follows:

$$P_{man.} = f_4(P_1, P_2, P_3, P_4, P_5) \quad (1.5)$$

where: P_1 – informational knowledge of the workers engaged in the main activity;

P_2 – share of managerial staff in total;

P_3 – coefficient of cost effectiveness of the organizational structure;

P_4 – coefficient of decision validity;

P_5 – coefficient of production organization level.

The dependence will be similar with regard to local indicators of production, financial, personnel, marketing potentials and the one of intangible assets (Figure 1.7).

Table 1.4 provides for the results of the summary calculations of conditional enterprise in accordance with the taxonomic method of analysis. Graphics of the results is presented in Figures 1.10-1.11.

Table 1.4

Summary results of the enterprise's innovation potential calculation

Indicator name	Years				
	2013	2014	2015	2016	2017
Complex value of production potential	0,3636	0,212	0,4341	0,4522	0,4904
Complex value of financial potential	0,2728	0,32554	0,21458	0,49864	0,52962
Complex value of material potential	***0,2986***	***0,3709***	***0,4404***	***0,4301***	***0,4689***
Complex value of personnel potential	0,4873	0,4208	0,5037	0,5237	0,5803
Complex value of marketing potential	0,5288	0,6169	0,6248	0,8981	0,9108
Complex value of management potential	0,3586	0,4258	0,5333	0,4112	0,4077
Complex value of intangible assests	0,2492	0,3347	0,3771	0,4442	0,4774
Complex value of intellectual potential	***0,3733***	***0,4925***	***0,5167***	***0,5781***	***0,6318***
Integral coefficient of innovation potential	**0,3256**	**0,4265**	**0,4523**	**0,5305**	**0,5805**

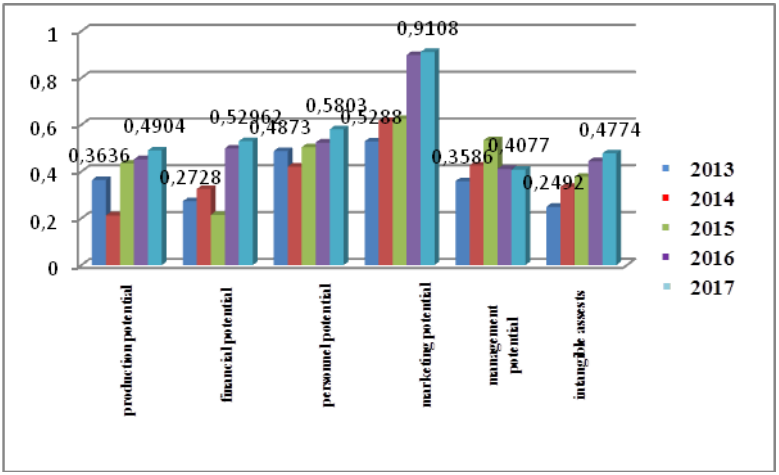

Figure 1.10 The dynamics of complex indicators of material and non-material elements of the company's innovation potential

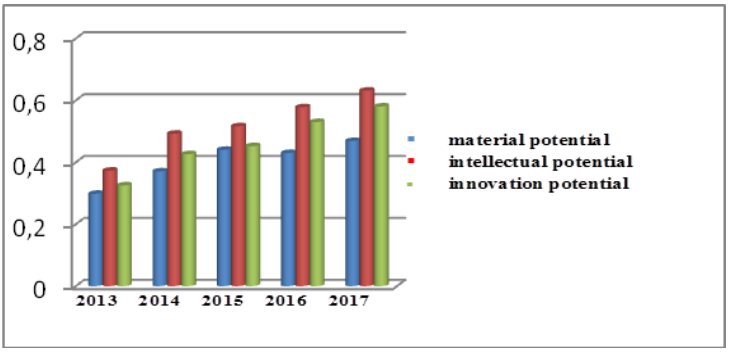

Figure 1.11 The dynamics of the enterprise's innovation potential and its elements

To crown it all, according to the above example, the positive trends in changing the value of the innovation potential integral indicator are observed at the enterprise. However, the usage of the potential in question is incomplete. Complex indicators of production and financial potentials are the lowest values in the structure of the material component. Among the intellectual element, the lowest values are observed in the complex index of intangible assets. In general, it can be concludedlude that intellectual potential has a better level of formation and usage than material one.

Taking into account the positive tendency of approaching the value of innovation potential to "1", there is a reserve for its increase and optimization of use.

Conclusion. The innovation potential, determining the level of innovation opportunities of all economic entities, has been proved as the basis for innovation activity.

The comparative characteristic of approaches to the definition of company's innovative potential structure has been presented. The innovation potential has been defined as readiness to perceive innovations and to ensure their implementation and further effective use.

The innovative potential of the enterprise is proposed to be considered with regard to two components: material resources of innovation activity and intellectual potential. Each of the above elements has specific use and development objectives, is subject to various factors and, depending on the level of development, may be credited to the strengths or weaknesses of the enterprise.

Realization of the enetrprise's innovation potential as an integral system can only be achieved through the development of components of its internal environment, their analysis and evaluation.

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Mohylevska Olga
PhD in Economics, Associate Professor
Kyiv International University
Romanova Lidiya
Doctor in Economics, Professor
Inter-Regional Academy of Personnel Management
(Kyiv, Ukraine)

MANAGEMENT BY MODERN BUSINESS IN STRATEGY OF INNOVATIVE DEVELOPMENT

In the last quarter of the 20th century, mankind entered a new stage of its development, in particular, the stage of building post-industrial, information society, which was due to the socioeconomic revolution occurring in the contemporary world. It is known that each of them is based on certain specific technologies, manufacturing technology systems and relations of production [6]. Innovation-based economy represents a society economy based on knowledge, innovations, continuous perception of new ideas, willingness to implement them in various spheres of human activity [11].

Formation of an innovation-based economy must become a strategic line of Ukraine's development in the first quarter of the 21st century. The innovative type of development is based on targeted search, preparation of developing and implementing knowledge-intensive innovations enabling to improve social production performance effectiveness, raise the level of satisfaction of the needs of society, and

formation of innovative business. At the same time, the major problem of its formation and effective development resides in solution of scientific methodological and organizational-technological issues related to development, creation and mastering of automated integrated design and production systems creating customer value of innovative products within a single marketing chain.

The growing role of innovation processes in the economy leads to increased dynamics of economic systems and the whole replenishment cycle. This entails blurring of inter-branch boundaries, diversification of supply and demand and sensitizes innovation firms to penetration into new industries and new markets. Fundamental scientific and technological innovations contributing to the emergence of a new economic growth model are strategic management objects [8].

Innovativeness is in principle inherent in entrepreneurship. It is known that this phenomenon has undergone significant changes in its historical development. Entrepreneurial activity has been defined as a combination of production factors, creative abilities and managerial skills aimed at deriving profit from mediation [4].

Such representatives of the Austrian school as W. Sombart, J. Schumpeter, F. Hayek, L. Mises and others laid the basis for the modern understanding of entrepreneurship, its crucial role in the economy regarding entrepreneurship as a complex phenomenon. According to J. Schumpeter, the object of entrepreneurship consists in innovative activities with respect to a combination of resources, performance of managerial functions in production of goods and services for purposes of profit and satisfaction of social needs. In the tenets of J. Schumpeter's theory of innovation and theory of entrepreneurship, he provides insight into innovations and the new role of the entrepreneur in the innovation process holding that "innovation is the essence of simultaneous manifestation of two worlds, the world of technology and the business world" [5]. From J. Schumpeter's point of view, innovation means the meeting of an idea and an entrepreneur. He calls innovations a new combination of factors that can be implemented in five areas:

- introduction of a new product, a new quality of the existing product;
- introduction of new methods of production, new methods of commercial usage of appropriate goods;
- opening up of new markets;
- conquest of new sources of supply of raw materials; and
- carrying out new organization [of any industry].

In economic literature, researchers with good reason add infrastructure innovation to the foregoing. Making his contribution to the understanding of innovation activity, P. Drucker wrote that it has a social value determining a shift in the usual way of thinking and lifestyle [3]. From this perspective, innovation activity represents an effective combination of technology and organization with entrepreneurial ethics, culture.

Entrepreneurship is defined as a complex socio-economic phenomenon that includes:

- the function of implementing continuous changes as a condition for society development;
- specific activities involving creation of new opportunities, creative destruction of stereotypes:
- an entrepreneurial environment; and
- an entrepreneur personality, style, type of his thinking and behavior [9].

Consequently, formation of innovation business systems requires an appropriate level of scientific-and-technological advance, creation of conditions in the internal and external environments, including the cultural one, and the presence of entrepreneurs as creative remarkable individuals.

Such an approach corresponds with the methodology of system description of innovations within a market economy based on international standards. In compliance with international standards, innovation is defined as a result of innovation activity embodied in the form of:

- new or improved products or services introduced into markets;
- new or improved manufacturing processes; and
- new ways of manufacturing organization used in actual practice.

This definition does not fully reflect the managerial aspects of “process innovations”. For manufacturing companies in the industrial market, the management process innovation implies introduction of new production methods and technologies, which secure advantages in the form of cost reduction, quality improvement, reduction of the timing cycle, product development and supply time or opportunities for broad unification of products and services thereto. The management process innovation will remain vitally important for growth of a company because it is, pure and simple, impossible to introduce a product or strategy innovation without improving the process.

Scientific, technological, technical, social and organizational,

managerial, as well as cognitive innovations embodied in scientific knowledge, inventions, and know-how serves as essential components of innovation business systems. At the same time, new technologies lie rightly at the center of the system of innovative transformations. Most authors define technological innovations as a complex system whereby an idea or an invention turns into an object of commercial activities [7].

Manufacturing entrepreneurship is the most complex business type; it includes material production, activities involving services delivery, information support, and creation of spiritual values.

Consequently, the need for innovative development of production imposes new requirements on the content, organization, forms and methods of management activity, which dictates the emergence of a special type of marketing management intended to manage the processes renew all elements of the production systems.

In the early 21st century, there is a growing need to have a deeper understanding of the essence, regularities, and specifics of innovation processes. Elaine Dundon, a renowned expert in innovation management, developed along with her colleagues a general definition of innovation that comprises four key components: creativity, strategy, implementation and profitability [10].

Creativity is treated in this context as an ability to generate new ideas, and using a strategy the degree of novelty and utility of a new idea to an organization development is identified. During implementation of new ideas, they are concretized in the form of new goods and services. It should be noted that many creative and potentially innovative ideas become oftentimes devalued because of a high risk, accordingly, the chance to create a new successful business model is lost. Profitability means maximum enhancement of the value of a final product and services derived from implementation of a new and useful idea. The concept of profitability can differently manifest itself in practice, namely as a financial benefit, as improving morale of the staff members and corporate solidarity, or as a contribution to life of society [12].

Successful development of society systems depends on periodically occurring innovation processes. The emergence of innovations is of a wave-like nature, when one innovation is replaced by another, more effective, ensuring continuous development of a social system. Eminent Russian economist and sociologist N. Kondratiev significantly contributed to formation of the concept of wave-like development of socio-economic systems. His name is associated with the discovery of

long waves ("Kondratiev's major cycles") of economic conjuncture. Long-wave cycles of economic development and technological development cycles are in cause-and-effect relationship. Every economic recession and succeeding depression result in an innovation process requiring new technologies and thereby encouraging yet another wave of technological upsurge. N. Kondratiev held that prior to the ascending wave of a major cycle engineering inventions come out finding use in industrial practice and prompting reorganization of production relations [13].

Austrian economist J. Schumpeter followed N. Kondratiev. The central tenets of his theory consist in the following: scientific and technological advance determines the economic development dynamics; achievements of scientific and technological advance are implemented through heavy capital investments in science and engineering; transition to a new cycle creates conditions for significant economic growth; concurrently, there is reproduction of labor-power at a new knowledge and skill level; while the educational system develops [14].

Soviet scholar Y. Yakovets continued studies of the cyclic nature of production assuming that "Mass transition to new areas of engineering in the leading production branches, i.e. concentration within a relatively narrow interval of time of partial technological revolutions, which, complementing and deepening one another, gradually encompassing all main areas of human labor activity" [2].

S. Glaziev, developing N. Kondratiev's long wave theory, described the new, sixth wave of development of socioeconomic systems. In his judgment, artificial intelligence systems, global information networks and integrated high-speed transport systems should be considered as the starting point of the rise of the sixth techno-economic paradigm. Flexible automation of production will be further developed. Even greater intellectualization of production, transition to a continuous innovation process in most branches and to continuous education in most professions will occur. The transition from "consumer society" to "intellectual society" where requirements for quality of life will take on paramount importance will come to the end.

Automated design systems, which, along with marketing and technological forecasting procedures, will enable to move on to automated management of the entire product lifecycle based on the so-called CALS (Continuous Acquisition and Life-Cycle Support) technologies, which will become dominant production development management culture, will be further developed. The concept of *CALS*

technologies adopted in most industrially developed countries represents a technology of using a common information area based on international standards for information interaction of all participants in the product lifecycle – product developers, customers and suppliers, service personnel [16].

Operation of all units of the innovation process and an effective process of commercializing scientific research results require creation of adequate conditions favorable for innovation-based business development.

It should be noted that it is necessary to take account of the specifics of marketing management of industrial enterprises during formation of innovation business systems in the industrial market. In particular, the management team of an enterprise develops a strategic course of development and expects all staff members to follow it; functional interdependence of all departments determines their direct relation to the corporate strategy, while interdependence of the buyer and seller calls for strategic partnership with customers, formation of affiliate networks, which are built, among other things, on personal contacts of the manager and personnel [17]. P. Kotler [18] indicates a need to form affiliate networks that can be built at a high level of culture and based on confidence.

An enterprise must also have additional opportunities in order to create competitive advantages their crucial components being competence based on skills, knowledge, and abilities of the manager and specialists [19]. C. Prahalad and G. Hamel regard competences as the motive force of new business. Literature includes with components of the core competencies that give competitive advantages to an enterprise a combination of knowledge, know-how, development and use of innovations, abilities of the company's employees, including the enterprise's values, culture and philosophy, software, organizational structure, brands, patents, technology, basic and management business processes, relationships with customers and other persons concerned [20].

The present, rich in new opportunities, was dubbed "the era of metacapitalism". According to a number of authors, metacapitalism is a new model of doing business in a postindustrial economy; it is actually an experimental environment that encourages free testing of new ideas not only in products and ways to promote them but also in methods of doing business on the whole [21].

It is no secret that many contemporary enterprises, especially those

operating in the sphere of high technologies and owning well-known brands, increasingly frequently abandon activities requiring real or, as they say, physical capital. They renounce production reassigning it to partners in countries with cheap labor and focus on sales, marketing, advertising and market research. All of these are obvious manifestations of the new way of doing business peculiar to the era of post-industrial economic development [7].

High technologies fit in well with the existing business processes, become a cause of fundamental revision of the entire strategy and tactics of a company's operation in the market. It is important to realize that theory and practice of metacapitalism is also relevant to Ukrainian industrial enterprises anxious for success. Globalization of the world economy makes wonder about own development prospects. According to J. Schumpeter, innovation is a new unit, "new combination" of conditions and factors of production the entrepreneur implements [1]. The emergence of resource management technologies ERP (Enterprise Resource Planning), an integrated application software package for all spheres of activity, has enabled quite a number of large companies to create an excellent model for organization of internal processes, as well as encouraged standardization in many sectors of economy. As state-of-the-art technologies have advanced financial performance of traditional companies have turned out to be lower than that of startup companies successfully applying latest business solutions. Thus, conservative industrial companies notable for sizable own physical capital are becoming recede into the past. New-generation business models increasingly fewer focused on physical capital appear to replace them. Production is farmed out to external partners; instead, emphasis is placed on building brands. Companies owning a famous trademark become the center of a system of relations where raw material, OEM, service, and personnel suppliers find their place. Personnel of an investment company can represent groups of specialists and managers working in different parts of the world connected through high-power telecommunications networks. Such a company is in fact a systems integrator, a mechanism for joining efforts of many business process participants for profit maximization. Consumer is the object of its main interest.

Customer becomes the center of the entire system of economic relations; therefore, Ukrainian industrial corporations need, in our opinion, to concentrate their efforts on development of the CRM system (Customer Relationship Management), as well as on meeting individual

customer requirements to build successfully their brands. Experts refer to companies with little capital closely cooperating with a network of external partners and owning at the same time a powerful brand as "a value added community" [2]. A business model where a company is largely spared from production processes and is able to devote the lion's share of resources to customer relationship management and development of new products right now is the most promising one. In the short run, it may prove the only one possible for most economically developed countries.

With the advent of the new age, the world economy began to actively change forcing yesterday's industry leaders compete with aggressive market participants of a new breed and develop along quite new lines enjoying information technology advantages to withstand increased competition. Contemporary high-tech companies turn into an intellectual center for production cycle integration and in increasing frequency abandon activities requiring physical capital. Such companies become carriers of a new business philosophy. The innovative business model of the industrial market based on Internet technologies of interaction among industry companies actively reshapes world markets restructuring the entire "supplier-consumer" relationship chain.

Making the following strategic decisions becomes relevant:

- continuous investment activities in the processes of development, production and promotion of commodities;
- extension of outsourcing to production;
- transformation of a brand leader into a systems integrator with a wide network of external entities.

Competitive advantages due to simple possession of production capacities gradually recede into the past, instead a need arises to lead in own market niches at the brand level. Added value creation groups provide market creation mechanisms in real time, which will enable buyers and suppliers to boost product liquidity and improve the current industrial market.

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Vovk Olena
PhD, Associate Professor, Department of Artificial Intelligence Systems
Voytsekhovska Viktoriya
PhD in Economics, Associate Professor, Department of Business Economics and Investment
Zahoretska Olena
PhD in Economics, Associate Professor, Department of Business Economics and Investment
Lesyk Lilia
PhD in Economics, Associate Professor, Department of Business Economics and Investment
Pashkevych Volodymyr
PhD, Associate Professor, Department of Electronics and Information Technology
Symak Anastasiya
PhD in Economics, Associate Professor, Department of Business Economics and Investment
*Lviv Polytechnic National University (Lviv, Ukraine***)**

THE SYSTEM APPROACH TOWARDS THE MONITORING OF WASTE BASED ON CIRCULAR ECONOMY IN UKRAINE

Introduction

The problem of growing industrial and domestic waste is becoming more and more relevant each day, both for developing countries as well as for the developed ones. For example, 55% of the total European waste in 2014 was sent to a waste batch or burned down, which led to the release of toxic and dangerous substances that pollute air and water, to the destruction of valuable resources and the loss of numerous jobs in the areas of repair and re-use various kinds of products. According to the Organization for Economic Co-operation and Development (OECD) forecasts by 2050, our planet may lose two-thirds of the flora and fauna, and the conservation of territories will be irreversibly disturbed in areas in size comparable to Australia (OECD, 2016).

In the process of solid waste (SW) recycling, experts often encounter the problem of generating aggregate information on one or another type of SW in order to decide on further actions on SW, including the use of organized recycling. The accumulation of non-recycled solid waste, in turn, leads to a deterioration of the environment, negatively impacts health of people and the economy.

In this regard the issue of increasing the efficiency of recycling, creation of appropriate criteria for the proper monitoring by use of automatic technical means, creation of appropriate markings and processing technologies is relevant.

Literature review

Nowadays the traditional economic model is being gradually revised and the new paradigm of development, based on the concept of "green" economy is gaining more and more importance.

The economic policy of green growth (OECD, 2009) has been established as a strategic direction for the development of all its members for the long-term (by 2030) and more distant (by 2050). The main advantage of the circular or "green" economy is that it not only preserves nature, but also ensures further economic growth without increasing consumption (and the growth of landfills), as well as creating larger number of jobs.

According to the definition of European Commission (COM, 2015) The transition to a more circular economy, where the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste minimized, is an essential contribution to the EU's efforts to develop a sustainable, low carbon, resource efficient and competitive economy. Such transition is the opportunity to transform our economy and generate new and sustainable competitive advantages for Europe.

The general statistics on the production of garbage and options for its recycling in European countries are presented in Table 1.5 and Figure 1.12. Data on the production of garbage and its recycling in Ukraine are compared with those of Poland, which is the country of Europe closest to Ukraine (territorially). Sweden is a country-standart on these indicators in Europe.

In many countries, the regulatory framework for the recycling and reuse of industrial and household waste is established. In Ukraine, last year new (Law "On Waste", 2017) came into force as of January 1, 2018, Ukraine is pledged to sort all waste by type of material, and also to divide it into suitable for reuse, for disposal and dangerous.

Table 1.5

Comparison of garbage production and recycling in Ukraine and EU

Handling waste	Ukraine[1]		Poland[2]		Sweden[2]		Country EU[2]	
	MT[3]	%	MT	%	MT	%	MT	%
Dumping	8,69	94,1	4,81	44,4	0,04	0,80	61	31,4
Burning	0,27	2,90	1,44	13,3	2,24	51,2	64	33,0
Recycling	0,28	3,00	4,62	42,3	2,10	48,0	69	35,6
Total waste	9,24	100	10,87	100	4,38	100	194	100

Footnote: [1] data from Ministry of Regional Development (2015); [2] data from Eurostat (2015); [3] MT- million tons.

This should lead to the number of advantages:

1) prevention of the allocation of methane from garbage dumps;

2) balancing of greenhouse gas emissions in the production of electricity using fossil fuels;

3) regeneration and reuse of valuable resources, such as metals;

4) production of clean energy and clean steam to meet the basic needs of consumers in electricity;

5) the use of a smaller area for the production of one megawatts of energy compared with other objects producing energy from renewable sources;

6) provide an accessible source of environmentally friendly energy (in comparison with solar and wind energy);

7) destruction of chemical wastes and destruction of traditional dangerous air pollutants;

8) reduction of emission values to values hat are well below the permissible level;

9) catalytic destruction of NOs, dioxins and furans.

However, the environmental situation in Ukraine remains rather complicated. The garbage collection and recycling system has practically not been updated during the last 70 years. In most cases, garbage is hidden on special landfills. The collection of filtrate and landfill gas is not carried out, which creates a significant environmental hazard for the surrounding area (S. Bobylev, 2015). In addition, there is an unacceptably low level of recycling of such type of waste as “solid household waste” (SHW).

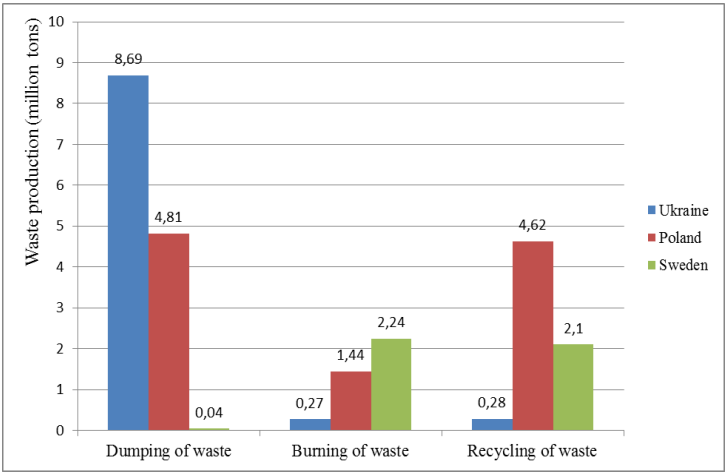

Figure 1.12 Comparison of garbage production and recycling in Ukraine and EU

As noted in the report of the Ministry of Regional Development, Construction and Housing and Communal Services "The state of the scope of domestic waste management in Ukraine for 2016" last year only 5.8% of all waste in Ukraine was disposed:

• 2.71% – burned,

• 3,09% – sent for recycling.

"In 2015 only 575 settlements implemented a separate waste collection, earned one incinerator and three incinerators" (S. Bobylev, 2015).

For comparison: nowadays (on the end of 2017) in Sweden about the 99% of all solid waste is processed (D. Stalinsky et al., 2017).

In addition, there is waste recycling with simultaneous energy recovery. What does it mean? It is environmentally friendly and cost-effective energy regeneration.

Waste processing, including solid waste and its derived fuel, is a valuable renewable energy source.

A large number of waste recycling plants operate worldwide, which have proven to be effective in terms of technologies and environmental protection, in particular:

1) there are almost 100 waste recycling plants in North America;

2) there are more than 500 plants operate in Europe;

3) and 1,600 plants in Asia.

The recycling of waste into energy is not just a way to dispose waste.

It is a way to restore valuable resources. Waste recycling is the most important stage in the sustainable waste management chain and complements the recycling (organized recycling) of waste.

The principle of the waste recycling plant (or waste energy recovery), domestic and industrial solid waste are converted into electricity and (or) heat for industrial processing and for district heating systems – an environmentally safe and cost-effective way to regenerate energy. During this process, waste is burned at high temperatures, and the resulting heat is used to produce steam. The resulting steam leads to a turbine that generates electricity. This way of receiving energy from waste allows restoring valuable resources. Today, 90% of the metals contained in ash slag can be reused and the rest of the slag can be reused as road material. However, there is a problem of accumulation and utilization of solid waste, which requires a systematic approach at all levels from state level to production. Therefore, in Ukraine it is necessary to create really functioning mechanisms that implement the principles of organized recycling, linking industrial enterprises to a single global industrial network, where waste from one production becomes a raw material for another.

The main idea in the world (in general) and in Ukraine (in particular) is to formulate such an approach, when the amount of waste garbage will go to zero (the so-called zero-waste theory) by applying the principles of circular economy and modern technologies (both production and information). Graphical representation of this approach is presented in Figure 1.13.

The purpose of this paper is to identify the main tasks of monitoring the efficiency of recycling in Ukraine and highlight the main constraints on its organization, to formulate the main criteria for improving the efficiency of organized recycling**.**

Waste by definition is any substance, material and object, that are formed in the process of production or consumption, as well as products, which completely or partially lost their consumer properties and do not have further use at the place of their formation or detection, and from which their owner gets rid of, intends or must get rid of by utilization or disposal (Law “On Waste”, 2017).

Monitoring – method of studying an object, envisaging its tracking and controlling its activity (functioning) in order to predict the latter (Law “On Waste”, 2017).

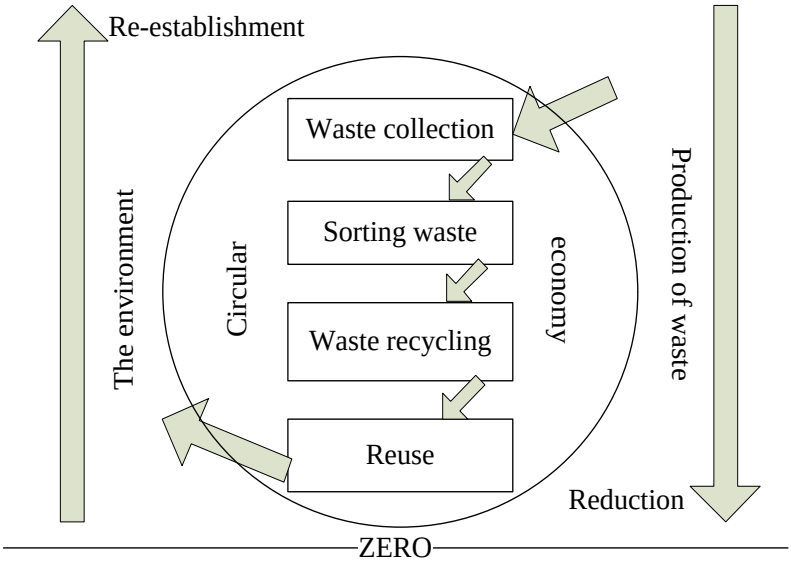

Figure 1.13 Graphical representations using the circular economy to reduce the amount of waste

Pak He Sung suggest systematic monitoring of evaluating activities aimed at tracking the progress and results of the program based on a simultaneous values' measurement of a number of indicators. It is noted that in the framework of monitoring, it is important not just to monitor the progress of the implementation of one or another activity, but to focus attention on the analysis of progress in terms of results achieved (UN, 2008; Pak He Sung, 2009; OECD, 2016).

As part of the UN Recommendations, a single monitoring and evaluation (M & E) category is proposed (UN, 2009).

Here are the main M & E tasks:

- determine whether the intended results of the program correspond to the planned ones;
- what corrective actions are needed to ensure that the intended results are achieved;
- whether the implementation of the program makes a positive contribution to social development (UN, 2009).

The system of organized recycling introduced since the end of the XX century in developed countries, is gradually beginning to be implemented in our country. To achieve its goals, this system must meet

the requirements in terms of economic, environmental and social efficiency.

The mechanism for the formation of organized recycling, among other things, involves the creation of an interactive information system based on modern information technologies, which, in particular, will ensure the detection and elimination of unauthorized waste dumps on the basis of messages from citizens, public organizations, and in the future – automatic monitoring of autonomous technical means, which will allow evaluate the efficiency of waste recycling from the standpoint of different types of efficiency.

For effective monitoring in this information system it is envisaged to use the technology of IoT, which will allow:

1) automatically determine the filling of solid waste;

2) to determine, with the help of technologies of machine vision, to what type one or another waste belongs to;

3) amount of waste, type of waste for each areas;

4) to predict the amount of waste.

This means that a system approach is needed that will include:

1) systems of criteria for monitoring the recycling efficiency;

2) the general scheme of monitoring of solid waste;

3) the organized recycling.

In order to monitor and evaluate the observed phenomenon certain indicators can be used for solid waste accumulation. In other words, the criterion must measure achievements, reflect changes caused by the investigated process or phenomenon. An effective system of monitoring criteria can be constructed only under conditions of careful elaboration of the project's logic, with the correct formulation of its goals and objectives. In addition, the system of criteria should be in line with certain principles for achieving high efficiency of organized recycling through proper monitoring by automatic technical means (Table 1.6). The principles include 10 technical criteria and one economic one. There are technical criteria in order of decreasing importance.

Following the research topic the list of indicators used to evaluate the efficiency of recycling shall be considered. Before moving directly to existing systems' criteria in modern foreign and domestic science and practice, it should be noted that in the framework of a new paradigm of development based on the principles of a green economy, traditional macroeconomic indicators, as well as indicators at the micro level and at the regional level should be adjusted. Often, due to the significant increase of these indicators, there is an extremely irrational use of

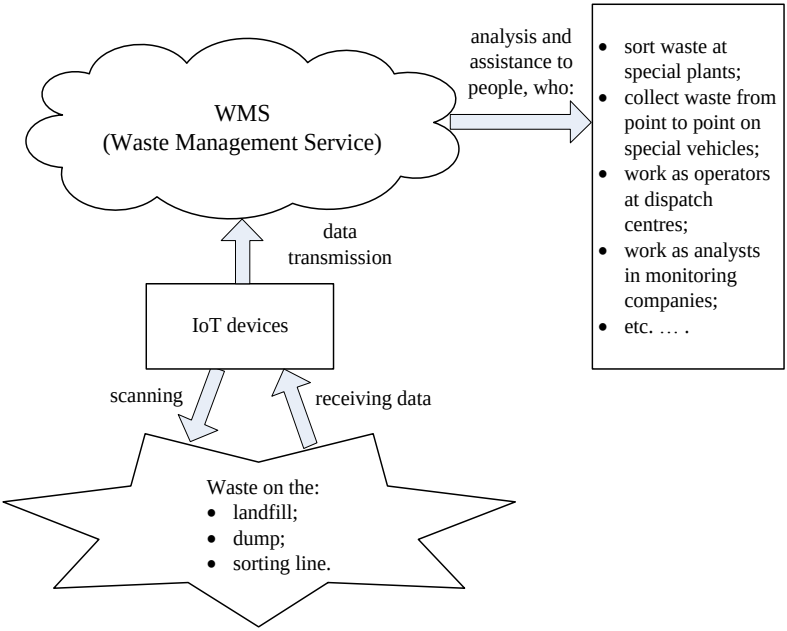

Figure 1.14 Positive aspects of using IoT for monitoring and sorting waste

natural resources, high resource consumption in production, destruction of nature, deterioration of environmental indicators. To avoid this, in recent years a number of artificial indicators have been introduced by the world community, including environmental requirements. The following indicators (in order of importance) include:

1) indicator of humanitarian development;

2) indicator of physical impact of man on the environment;

3) indicator of sustainable economic prosperity.

Also, there are number of complex macroeconomic indicators that are similar to official statistics used for GDP and GNP, but take into account the cost of environmental components (resource-adjusted GDP, ecologically adjusted GDP or green GDP, environmental impact, etc.). In order to assess the ecological condition of the territory, the effectiveness of environmental investments, the magnitude of environmental damage and losses, the number of general and special indicators, in particular, the cost of environmental damage were used (A. Abramov, 2009; Geng Y et al, 2012; V. Voytsekhovska et al, 2016). Thus, we can conclude that the indicators of environmental monitoring

Table 1.6

Basic principle criteria for the efficiency of recycling monitoring

Principle	Content
systematic	the criteria should not "overlap" each other and, when presented, be comparable to each other
unambiguousness	definition of criteria and methods of their calculation should be based on a single methodology (this increases their value, because, firstly, allows them to compare them, and secondly, ensures the same understanding by all consumers)
reliability	the data required for the criteria must be reliable within established time frame
certainty	The method of collecting and processing the information should include the possibility of verifying the accuracy of the received data
informativity	the criteria should give ground not only to the quantitative but also to the qualitative characteristics of the phenomenon or process, therefore, they must be both primary and inherent, that is, given in the baseline indicators
complexity	any object is an integral system, so the criteria should cover all areas of the object's activity
comparability	ensuring comparability of criteria for separate periods
focusing	limitations of their plurality
sensitivity	the criteria must clearly react to the changes that will be taking place
accessibility	the information for criteria determination should be available for collection
****economy***	data must be obtained at the lowest possible cost in order to achieve cost efficiency, which in turn will lead to the total benefits from their implementation

**The authors' own development based on the concept of A. Abramov (2009) and Geng Y et al (2012).*

are sufficiently developed, which, unfortunately, cannot be said about the criteria in the field of recycling and waste management.

A generalized monitoring plan for solid waste and organized recycling is presented on Figure 1.15.

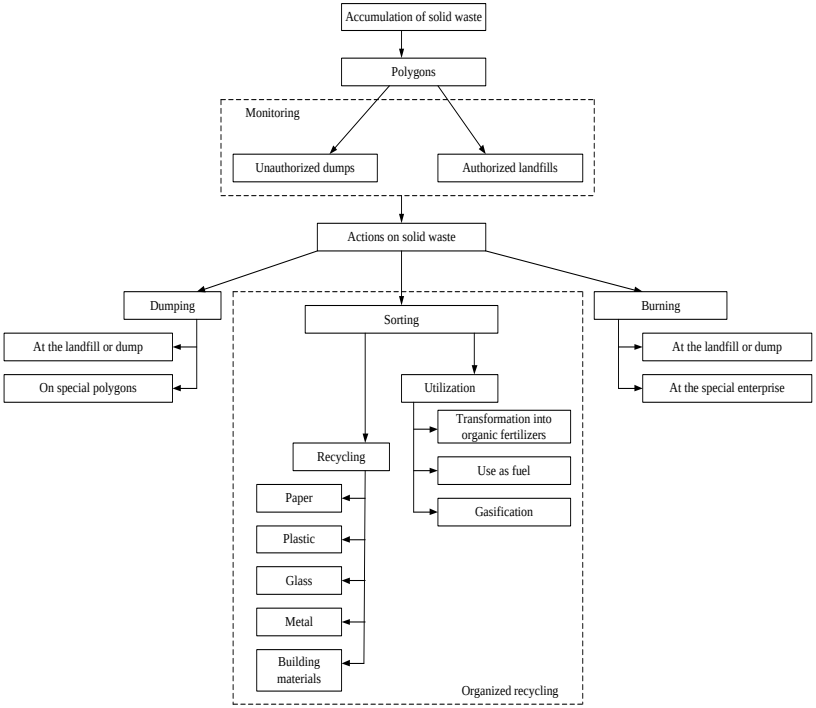

Figure 1.15 A generalized monitoring plan for solid waste and organized recycling

As showed above for the formation of a monitoring system for waste management, it is necessary to continuously monitor and control the following basic information:

- total number of landfills;
- the number of closed landfills ;
- the number of overloaded;
- number of unauthorized landfills operating and liquidated;
- the number of landfills that do not comply with environmental standards and continue to work;
- certification of landfills;
- quantity of solid waste which is prohibited on landfills;
- number of enterprises working in the field of solid waste management
- the number of employees in the field of waste management;
- quantity of special equipment at enterprises operating in the field of

treatment of solid waste;

- the number of people who are provided with collection and removal services for solid waste;

- objective and transparent billing on waste management for the population, enterprises and other consumers.

In order to ensure waste monitoring efficiency, it is necessary to set up a focal point as a separate entity or non-profit organization with exclusive or partial waste management rights in a particular territory. On their basis, it is important to introduce an automated information and analytical system of accounting, control and management of waste streams, establishing interregional communications, etc. Such coordination center must enter into agreements and work together with the organizations that provide those services and exploit the relevant infrastructure. They shall be empowered to manage waste streams, choose service providers, and set tariffs for consumers. The municipality is only one of the service providers (for example, to remove waste from public places, clean up areas and provide other services within the public sector). The use of such a model in Ukraine is very relevant. It will help in preventing and minimizing solid waste and assure more sustainable development on the bases of circular economy.

At the same time, the need to develop criteria for determining the effectiveness of organized recycling has been recognized at the international level, in particular at the G8 summit.

As an integral indicator, it is proposed to use the integral indicator of recycling efficiency, which includes (in order of importance):

1) the indicator of the ecological significance of recycling;

2) the indicator of the relative volume of the proposed recycling;

3) indicator of economic efficiency of recycling.

Limits of measurement are [0,001 - 1,0]. Moreover, if the larger is the value, than the more effective is a recycling process for society (A. Abramov, 2009).

When creating a system of integrated indicators of effective organized recycling, it should be noted that there are several forms of waste disposal (see Figure 1.15), which differ:

1) the number of stages that waste passes before it is reused: the so-called direct recycling (re-use immediately for its intended purpose);

2) regeneration (return of waste to the production cycle after preparation);

3) recovery as useful components from waste to reuse them.

Thus, statistics in the field of waste management should take into

account, above all, the environmental aspect of the problem. Therefore, waste disposal indicators should separately assess each form of disposal.

Since the establishment of the recycling industry has more ambitious goals than simply stating the facts, monitoring the effectiveness of recycling should take into account not only environmental but also economic aspects. From this point of view, an interesting approach is that, considering the classification of organized recycling in the neo-industrial economy. In this situation, it is proposed to evaluate the efficiency of recycling from the position of influence of the following effects:

1) resource-saving;
2) ecological;
3) economic;
4) scientific and technical;
5) social.

At the same time, it should be noted that direct effects (resource-saving and ecological) are comparatively easy to measure within the framework of the current statistical accounting system by means of a chain comparison of relative indicators, correlate the cost estimate of the achieved resource savings and the eliminated environmental damage with the resulted costs.

Indirect effects (economic, scientific, technical, social) are inherent in organized recycling like any other systemic innovation and are difficult to measure for various reasons:

1) lack of necessary detail in the statistical accounting system;
2) the complexity of interaction and the relationships of recipients who receive and transmit effects;
3) multidirectional influence of indirect effects in the context of conflicting interests of recipients;
4) the effect of synergistic effects and the like.

However, ignoring the indirect effects in assessing the effectiveness of organized recycling in research of its impact on a certain territory can significantly distort the real state of affairs.

Conclusions

In modern conditions, the formation of a circular economy is becoming an urgent task for our country, since its solution will reduce the stress in the environmental sphere by reducing landfill sites and dumps, and will also benefit from the use of resource-saving technologies and the social effect of creating new jobs in the sphere

waste management.

However, the waste management system is only being created, so it is important to determine the basic guidelines for its development. In connection with this, further studies of the mechanism for monitoring the effectiveness of recycling seem to be relevant, since management effectiveness is due to the availability, completeness and reliability of data on the state of the socio-economic system, and the timeliness of obtaining these data.

To solve this problem, systemic and criteria approaches, as well as general scientific methods of research, were used. The conducted research allowed drawing a conclusion about the prevalence of environmental indicators both in the public administration system and in scientific research, and also about the existence of certain problems in the information support of monitoring. These criteria can be included as targets in the waste management program.

Also in the article made conclusion what is necessary to take more fully into account social, economic and scientific and technical criteria that allow evaluating the effectiveness of the waste management system at any level (state or regional) in a comprehensive manner.

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Yemchuk Tetiana
PhD in Geographical Sciences, Assistant Professor, Department of Economic Geography and Environmental Management Chernivtsi National University named after Yuri Fedkovich (Chernivtsi, Ukraine)

SUBSTATIATION OF THE MAIN METHODS OF RECOVERY AND TREATMENT IN THE UKRAINIAN REGIONS

Introduction. Recreation and rehabilitation are vital needs of a person that ensure its normal physiological and mental functioning, allow restoring physical and moral forces and acting as an integral part of life. In this regard, there is a mass tourist interest for health improving. This is due, first of all, to the urbanization and industrialization of the habitat of a modern person, and, accordingly, to the dissatisfaction with his psychological and physiological needs.

The market for health tourism is almost comprehensive, that is, it covers all spheres, age, social and ethnic groups. After all, the need for recreational rest in the conditions of increasing pollution of the environment, demographic and man-made load is felt by every person, regardless of place and living conditions.

Therefore, the purpose of our study was to find out the content, peculiarities and substantiate the basic methods of healing that take place on the territory of Ukraine.

Analysis of previous studies and publications. The problem of classifications and typologies of resort areas and institutions [6] have been taking place over a century since the establishment of medical spaology, recreation and recreational geography, economics and tourism management. Currently, there are various approaches to the classification of therapeutic tourism services. However, research on the use of health improvement methods in the regions of Ukraine is scarce.

Presenting main material. Ukraine is characterized by a diverse combination of conditions and landscapes, which have great potential for the wide development of health recreation. Below we present the most common methods of recovery and treatment that take place on the territory of Ukraine.

The climate is one of the leading resources that determine the spatial organization of recreation. The favorable climate impact on human health is important for the organization of all types of recreational

activities. Climate treatment consists of influencing the peculiarities of the climatic conditions of the terrain and special climatic procedures. Special methods of climatotherapy include: aerotherapy, heliotherapy, thalassotherapy.

Aerotherapy (Latin aeris – "air") – therapeutic and preventive effects of fresh air. This method can be used in any climatic region of Ukraine. Influence of fresh air during walks, excursions, sports games has a positive effect on the human body, since, with air therapy, the respiratory function changes, the oxygen supply in the tissues increases, the functions of the organism and, primarily, the central nervous system are normalized.

Special types of aerotherapy include: long stay (including sleep), air baths, etc. The application of aerotherapy has good consequences in the treatment of tuberculosis, hypertension, neurosis, and other diseases.

The territory of Ukraine has comfortable climatic conditions for the development of recreation in the Carpathians, the Crimean Mountains, on the coasts of the seas, lakes, reservoirs, rivers, etc. [3].

Heliotherapy (Greek helios – "the sun") – the use of sun rays with therapeutic and prophylactic purpose. Solar radiation is a powerful means of preventing and treating a number of diseases and pathological conditions. It increases the efficiency of a person, increases resistance to various infections and colds, accelerates the healing of wounds and ulcers, strengthens tissue respiration, retards the development of atherosclerosis, etc.

Depending on the physical conditions, the sun baths are divided into baths of total, diffused, relaxed radiation. In addition, we should distinguish between general and local sun baths. A variety of common solar baths are intermittent (intermittent) baths [7]. Intermittent irradiation in comparison with non-intermittent has a more beneficial effect on the human body.

As a prophylactic and strengthening agent for the body, heliotherapy is prescribed to all healthy people. Especially important is heliotherapy for people who work and live in the absence of direct sunlight, that is, in conditions of global starvation [4]. Heliootherapy is especially useful to people in the treatment of certain skin diseases (pyoderma, psoriasis, etc.), with chronic diseases of the musculoskeletal system, radiculitis.

The influence of open fresh air on the human body can be applied in all seasons of the year and in all climatic zones of Ukraine. Particularly favorable climatic conditions for conducting heliotherapy are the steppe zone, the Southern coast of the Crimea, the Transcarpathian lowland,

and less favorable – the Ukrainian Carpathians, the northeastern regions of the plain [1].

Thalassotherapy (Greek thalassa – "sea") studies the properties of seaside climate, seawater, seaweed, sea mud and other products derived from the sea, and the mechanisms of their action on the human body.

The most important characteristics of seawater, which determine its physiological and therapeutic effect, are mineralization, chemical composition, gas saturation, radioactivity, temperature, etc. The physiological action of sea water on the body is associated with thermal, mechanical and chemical factors.

The beauty of the sea, and a sense of joy associated with bathing raises the mood. Bathing leads to the training of the nervous, cardiovascular and other mechanisms of thermoregulation. It improves metabolism, and respiratory function, increases the vital tone of the body, and its adaptive capacity. As a result, it shows a significant strengthening effect.

Due to the fact that the south of Ukraine is washed by the Black Sea and the Azov Sea, it is possible to widely apply thalassotherapy as one of the main methods of climatic treatment associated with seafront stay. The territories adjacent to water objects are less favorable for the thalassotherapy.

Bathing in the pool with sea water is similar to the swimming in the sea. To a large extent, the chemical effect of sea water and the training effect of swimming are preserved. Simultaneously, in comparison with bathing in the sea, the hydromassage is not so effective, due to the absence of waves, as well as the cooling effect due to the higher and stable water temperature. Bathing in a lake or river is less active as compared to sea bathing.

The simultaneous implementation of various types of procedures in combination with physical exercises in the fresh air has become widespread. Such classes include swimming, therapeutic rowing, water cycling, walking, sports games, gymnastics, etc.

No less beneficial to the human body is landscape therapy (gem landschaft, type of terrain). In other words, it is "the image of the terrain, the land." The landscape recreational resources of our country feature rich vegetation. It plays a great role in landscape therapy. For Ukraine, a rather dissected surface with a multitude of different forms of relief is typical, which, in the majority, are conditions for development or, conversely, limitation of recreational activity. In combination with climatic features and plant resources, such territories are characteristic

for the Right-bank Ukraine (Tovtry, Roztochya, Kaniv Mountains, Mizotsky ridge, etc.).

The leading role in satisfying recreational needs belongs to forests. About 14% of the Ukrainian territory is covered with forests, which are characterized by diversity of species composition. In particular, coniferous forest secretes phytoncides into the air, which stimulate the activity of the gastrointestinal tract, cardiac activity, increase the tone of the nervous system and reduce blood pressure. The forest air is practically sterile. No wonder, woods are called the lungs of the planet.

The therapeutic effect of landscape therapy is the natural beauty. The view and noise of the forests decrease fatigue, irritability, improve feelings, creative inspiration, cheerfulness and optimism. The best places for landscape therapy are the Carpathians, Polissya and Crimea.

Speleotherapy (Greek speleon – "Cave") – usage of the microclimate of underground caves for the healing and recreational purposes. The microclimate of karst caves for medical purposes has been started to use relatively recently. The first information about the beneficial effect of this natural factor on sick people refers to the period of the Second World War [7]. Patients with bronchial asthma noticed improvements, weakening or complete cessation of asthmatic attacks in caves, used as bomb shelters.

Changes that are observed in the patients' bodies during their stay in a karstic cave are due to the complex action of the speloy violins. Long staying in caves (200-300 hours for 5-6 weeks) creates conditions for lowering the sensitivity of the organism to allergens, increases oxygen saturation of arterial blood, normalizes blood pressure and metabolic processes.

Inhalation of cool air improves gas exchange in the lungs. The favorable factor of the caves is relatively low humidity of the air, an increase in carbon dioxide, a high degree of ionization, which contributes to enhancing the moisture output from the respiratory surface of the lungs and the best oxygenation of the arterial blood. It makes a good effect on the nervous and cardiovascular systems.

Among the karst regions of Ukraine, where speleotherapy can be done, Crimea, Podillya, Carpathians, Bukovina and Transcarpathia [2] can be attributed. Along with speleotherapy, you can go for scientific cognitive journeys, which diversify the recreational activities.

One of the types of speleotherapy is halotherapy (Greek Hals – salt). It heals patients with the salt mines microclimate, i.e. the highly dispersed aerosols of sodium chloride, constant air temperature, the

absence of harmful impurities and microorganisms in the air, and the speed of air, along with the gas content ratio, humidity, atmospheric pressure, and absence of noise. Patients inhale the constant dosages of salt air systematically. There is an experience of using this type of climatotherapy in treating bronchial asthma in the village of Solotvino (Zakarpattia region), and in salt caves of Artemivsk mine, Soledara (Donetsk region).

The method of halotherapy has a distinct health effect (removing emotional stress and improving the functional, adaptive and protective capabilities of the body) and is used both for primary prevention of chronic diseases, as well as for secondary prevention for people with chronic pathology of internal organs to prevent exacerbation. It is advisable to use halotherapy to prevent the development and progression of diseases of the respiratory organs that arose, as a result of the influence of many factors: atmospheric, industrial, domestic pollutants (pre-smoking), viral infection, etc.

Seasonal prophylactic courses of halotherapy (spring-autumn) are advisory for prevention of acute respiratory diseases, influenza. In recent years, galotherapy is widely used in cosmetology, including after plastic surgery. During the course of halotherapy, the protective properties of the skin increase, the natural pH of the skin is restored, the microcirculation of blood spreads all over the body.

Hypotherapy and aromatherapy are the most widely used methods of therapy, which are based on the use of plants and animals.

Hypotherapy (hippotherapy) (other Greek-ἵππος – "horse") is one of the methods of treatment aimed at the rehabilitation of people through a therapeutic riding. Since ancient times, it has been known about the positive effect on human health of communication with horses and horseback riding.

The difference in therapeutic riding from other types of rehabilitation lies in the fact that here, as nowhere, the simultaneous inclusion of practically all groups of muscles of the rider's body is ensured. Communication and cooperation between man and horse is equally important. This emotional connection with the animal and the fairly strict riding conditions create a unique therapeutic effect. In addition, the beneficial effect of the horse's body temperature, which is 1-1.5 degrees higher than human's, rhythmic fluctuations that occur when walking, the massage movements of the back muscles, the similarity of the biomechanics of the horses walking to the man's walk, work in the group and create a healing effect during horse riding. Hypotherapy is

very useful in the treatment of infantile cerebral palsy, impaired posture, scoliosis, and osteochondrosis.

In Ukraine, this kind of healing riding has gained momentum in the mid-90's of the last century. There are even special horse routes for tourists. Sitting horseback riding, the tourist can enjoy not only riding a horse, but also explore the magnificent landscapes and sights. Horseback riding is mostly done in special areas.

No less valuable in recreational terms is a method of treatment like kumysotherapy. Kumys is a valuable dairy product used in the treatment of a large number of diseases, as well as in the period of rehabilitation after injuries, operations and simply for health promotion. It is obtained by fermenting mare milk with the help of a special leaven and has got excellent curative properties.

It has been almost abandoned during last decades. Now, kumysotherapy has began to develop actively, and anyone can undergo the course of kumysotherapy. It will have more positive effect, when applied along with hypotherapy.

Health tourism has been offering apitherapy (apioterapia – "bee therapy") more frequently.

From ancient times, the bite of bees has been used and considered the traditional method of treating many diseases. The first scientific study of apitherapy in medicine started in 1894, when a professor at the St. Petersburg Academy of Forestry Lukomska was asked to treat rheumatism and gout using bee venom. In 1941, Professor Artyomov discovered that bee venom had an influence on the nervous, vascular systems, and to the immune system.

The quantity and productivity of bees and quality of honey significantly depends on the environment which provide the flowering of linden, raspberry bushes, white acacia plantations, crops buckwheat, bark and other crops [5].

It has long been noted that bees have a positive effect on humans. A great effect is obtained by a person, using a hive (several hinged hives) as a bed. This was named "a dream on the hive." Lying on such a bed over the bees, a person receives bioenergetically active heat from the bees, which helps to balance and self-repair the work of all human organs, due to biophysical connection with nature, which causes an increase in the ability to work, a sense of ease and freshness. The smell of pollen, bee venom, propolis, even bee humming soothes the nervous system, normalizes blood pressure, stabilizes the psycho-emotional state, causes a healthy sleep.

Bees evaporate a large amount of phytoncides into the air, which saturate blood with fitness vats and stimulate the work of the human heart. Strong buzz during the evaporation of moisture from the cells, accompanied by micro-vibrations that resurface the human body, makes the blood vessels flexible, stimulates the kidneys, clears urinary tract, relieves back pain, and pain in the muscles and joints.

The use of pollen, royal jelly, honey and products on their basis makes the rest of the apiary the most useful and enjoyable for a person.

Ampelotherapy (Greek ampelos – "grapes") – treatment with the help of grapes, and grape cultivation. Today, health tourism services offer ampelotherapy in the form of a grape diet.

The founder of this trend in medicine was the Yalta doctor V.M. Dmitriev. In 1886 he published his book "Grapes treatment in Yalta and on the southern coast of Crimea". Dmitriev was the first to put forward the idea, later confirmed by scientific studies, that grapes normalize the heart beat rate and blood pressure.

Ampelotherapy is recommended for heart, lungs, kidneys, and liver diseases. Grapes are prescribed for gastrointestinal diseases, people with anemia, gout, chronic forms of pulmonary tuberculosis, with the depletion of the nervous system as a general medicine after prolonged depleting diseases. When undergoing ampelotherapy, it is necessary to limit the consumption of other fruits, raw vegetables, milk, fatty and salty food, kvass, mineral water, alcoholic beverages, in order to avoid an intestinal disorder. The amount of grapes or grape juice, as well as the duration of treatment, is assigned individually.

Conducting ampelotherapy has seasonal and zone constraints. It is mostly used in the resorts of the southern coast of the Crimea and other Black Sea resorts of Ukraine.

There is another method of grape treatment – wine therapy, or enotherapy (from the Greek oinos – "wine"). The wine-making has a long history. The wine contains a lot of vitamins and elements that are essential for growth and body protection.

The wine has bactericidal, tonic, anti-stress, anti-allergic and antibacterial effects. Despite the fact that the wine is useful, it, like any other alcoholic beverage, when consumed excessively, begins to destroy the body. Therefore, this kind of treatment should be well thought about.

Grape wine is usually prescribed for the improvement of digestion, anemia, for insomnia, wound healing, and for recovering after operations, severe illnesses, etc.

Enotherapy depends on natural and climatic conditions. The most

suitable for the mentioned methods of treatment are the southern regions of Ukraine and the Transcarpathian region, which are famous for their traditions of winemaking.

Aromatherapy (from the Greek aroma – "aroma, odor") is an ancient art of the use of essential oils, phytoncides of plants and other aromatic substances to strengthen physical and mental health and for cosmetic care for the body.

Essential oils are added to water for baths, used in aroma-luminaires and in massage compositions. Each of these methods allows useful substances to penetrate the body in various ways: through the respiratory system or skin (hair follicles or sweat pores), and get into the blood with other liquids. Thus, they are able to circulate in the human body and affect the internal system of the organism.

It is believed that the use of aromatherapy gives excellent results in the treatment of people of all ages, with the most diverse diseases – from serious illness to ordinary colds. It has a therapeutic effect on people who suffer from protracted diseases that do not undergo traditional treatments, and removes unpleasant side effects. Using aromatherapy can bring quick relief to a person who has undergone stress, depression, anger, and improve his well-being.

Conclusion: Nowadays, there is a growing interest of the population for health improving activities. It is connected with the basic motivation of a person to rehabilitate the body after the disease, and to prevent other illnesses. This can be done not only where people live but in the places, which have the natural, material, and human resources necessary for the improvement. So, the emphasizing of health improvement methods in tourism is a significant step in the development of the tourism industry.

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Chapter 2

ORGANIZATIONAL AND ECONOMIC MECHANISMS FOR MANAGING INNOVATIVE DEVELOPMENT THE ECONOMIC ENTITIES

Dubovyk Tetiana
Grand PhD (Economics), Professor
Buchatska Iryna
PhD in Economics, Associate Professor
Savchuk Anastasiia
PhD in Economics, Associate Professor
Kyiv National University of Trade and Economics
(Kyiv, Ukraine)

ETHICS IN ONLINE COMMUNICATIONS OF ENTERPRISES

Developing internet-marketing communications is one of the major directions for many enterprises. The introduction of Internet marketing communications in the activities of enterprises is growing every year, due to the growing number of social networks users around the world. According to a recent study by "We Are Social and Hootsuite", the number of social media users in the world reached a new mark of 3 billion users [1]. The experts at "Culumus Media Agency" investigated that every 60 seconds, users are doing a lot of activities on the net: they can watch 4.1 million videos on "YouTube", send 15 thousand messeges via "Messenger" and 900 thousand sign in to "Facebook". In addition, for a minute, Internet users make more than 46 thousand posts in "Instagram" and 452 thousand – on "Twitter", have time to view more than 70 thousand hours of video on "Netflix" [2]. The social network "Facebook" has a monthly audience of 2.01 billion users, a daily audience – 1.32 billion. But the most interesting fact is that 87% of "Facebook" revenue comes from advertising on mobile devices [3].

The popularity of social networks causes growth of Internet advertising, which should be regulated and controlled. There is no peculiar law, which can regulate the online advertising and e-commerce

in Ukraine. Still, the internet marketing communication should be held due to the legal framework. The high level of competition and the struggle for consumer attention involves the search for new innovative approaches to the creation of advertising products and the awareness of the social responsibility of all members of the advertising market using promotion on the Internet.

The main problems in online area, are the lack of the data safety, which is transmitted by Internet, and is reduced to two menaces – computer fakes and violation of the private life of consumers, quality and unethical content of communications. The data safety is a common problem in many countries.

The protection of wireless systems (WI-FI) in Ukraine is at a very low level. Due to report of the Department of Cyberpolicies of the National Police of Ukraine, it is specified that about 75% of wireless systems can be successfully attacked. In each second system with a wireless network access to 51 local computer networks of private and public sector institutions is possible [4]. Due to the survey conducted by "ReportLinker" on October 2017 reached 539 online respondents representative of the US population, many Americans don't feel they personally are at much risk of a cyber attack. In a new "ReportLinker" survey on cybersecurity, 54% say they feel their data is safe from hackers, even as a large majority (82%) agree cyber attacks are more of a threat now than they were five years ago. But it's not just corporate servers at risk. The Internet of Things (IoT) – and all our connected devices – is potential conduits for a cyber attack. The US Federal Bureau of Investigation believes such attacks on IoT devices will continue. Yet, in "ReportLinker's" survey, US respondents mentioned smart devices only 9% of the time as being most vulnerable to cyber attacks. Rather, respondents believe desktops/laptops (59% of mentions) and smartphones (25% of mentions) are more vulnerable [5].

The privacy invasion occur when the personal details belong to consumers are exposed to the unauthorized party. It may occur in three ways**.**

1) electronic commerce businesses buy information about individuals such as their personal details, shopping habits and web page visitation listings. This can be done with or without the individual's knowledge by using different computing technologies. A large number of web sites, which require users to create a member name, also ask for personal details. These details are then often sold on to companies to aid in the marketing and selling of their products;

2) the personal information of consumers being transmit may be intercepted by anyone other than the person whom it is intended. It is technically and economically impossible to patch all the holes through which unauthorized intruders may gain access;

3) malicious programs delivered quietly via web pages could reveal credit card numbers, user names, and passwords that are frequently stored in special files called cookies. Because the internet is stateless and cannot remember a response from one web page view to another, cookies help solve the problem of remembering customer order information or usernames or passwords [6].

The main reasons of non-ethical behavior of companies:

- Insufficiency of the legislative and regulatory frameworks;
- Considerable scope of 'shadow' economics;
- Competitions which push back the ethical cogitations;
- Increasing aspiration to report about the rate of return in short terms, i.e. in every quarterly report;
- Absence of appropriate stimulation of senior management ethical behavior;
- General reduction of the ethics' role in society;
- Several company' pressure on the ordinary employees to find compromises between their values and the values of senior management.

Consumers are looking for companies that offer creative products, services that truly address current social, economic and environmental challenges. Humanity, morality and spirituality are common elements of these creative decisions. In this context, ethical and responsible elements should be developed and implemented in order to encourage consumers to participate in joint creative projects of enterprises. The realization of this trend is a logical consequence of the increasing role of advertising in modern society. Initiators and controllers of such restrictions, as a rule, are public organizations of advertisers.

Companies should communicate with their actual and potential consumers constantly and focus on ethical values during companies promotion.. Effective communication is needed to create and maintain a good relationship between the company and its customers. This will allow the company to inform, persuade, remind consumers about their goods, maintain its sales, and create an image of the enterprise. It is communication and networking, and it is a marketing communication that, in conditions of constant changes in the factors of the external and internal marketing environment, needs to research the communications market and respond quickly to its changes. The company should

determine the role of each marketing communication tool and its degree of use in creating consistent and positive treatment at all points of contact with consumers [7].

The development of ethical standards for the promotion of goods and services on the network, privacy of user data, including constantly collecting and using consumer data: age, sex, residence, interests are perspective directions for enterprises.

One of the notable global trends in contemporary advertising development was the increase in the level of social responsibility and the growth of the role of self-regulation in advertising. This tendency is realized both at the global and national level. Studying the experience of other countries regarding the necessity of using social orientation in the activities of enterprises of Ukraine, there is a need to find more effective ways to preserve and ensure greater satisfaction of the needs of consumers in the long-term, both at the enterprise level and at the state level. The activities of enterprises are based on the balance of three factors, namely: the profit of the enterprise, the potential needs of consumers and the interests of society. Because these interests can vary, marketing problems go beyond existing laws and legal constraints, management companies should be looking for solutions that are acceptable to all parties, perhaps with the use of ethical norms of business and social responsibility of market players [8].

On the scale of individual countries, advertisers adopt different codes of advertising ethics. Voluntary adherence to adherents to the requirements of the codes means integration into a civilized and socially responsible advertising community. Ethical rules are rules to follow in our interactions with other people and in our actions that affect other people. They apply to all of us and are intended to achieve good results for people in general, and for situations in general; not just for ourselves, and not just for one situation. Business ethics is concerned with the numerous ethical questions that managers must confront as part of their daily business decision-making [6]

Ethical standards applied in general society and in different industries, are often ignored or forgotten when information is shared electronically. Ethical considerations in electronic commerce have been discussed for years, and possible solutions offered to participants who can encourage developers to consider ethical considerations and prove excellence and trust to the consumer.

Not just the use of computer technology, but also other practices that involve computing technology, such as its development or management,

requires the formulation of policy guidelines. If computer ethics is conceived in this way, it is clear that it is a branch of applied ethics. Whereas its counterpart, theoretical ethics, is concerned with general aspects of morality, applied ethics is concerned with the study of morality in particular domains of human practice. Moreover, the aim of applied ethics is not merely to arrive at well-supported moral analysis, but also to use such analyses to affect the discourse, policies and practices that are prevalent in its domain of study [9].

It is currently an accepted principle of information – ethics while individuals should determine what information about themselves is gathered and stored. Again, it is commonly thought that individuals ought to have access to medical records pertaining to them. However, it is not clear whether one ought to have access to genetic information gathered from another that bears upon oneself Cavanaugh [10].

It is advisable to develop the model of ethical interaction with customers for proactive policy. Companies are suggested to inform customers that company takes an ethical position in society by creating and spreading this information online, and this way company can gain the competitive advantages.

In today's environment, more and more attention is being paid to complying with ethical standards in the online environment. Common recommendation for enterprises is to develop standard ISO 26000:2010 Guidance on social responsibility.

The ethical behavior of the organization in accordance with the specified standard provides:

- formulation of basic values and principles of activity;
- development and adoption of standards for ethical conduct, in accordance with the purpose and scope of the organization;
- encouraging and promoting standards of ethical conduct;
- creation of a mechanism and control system for monitoring, support and enforcement of ethical standards;
- creating a mechanism to promote awareness of unethical behavior without fear of repression [11].

Another principles are recommended to provide were described in Geneva "Declaration of Principles", the "Ethics in the Information Society: The Nine 'P's", the "Riga Guidelines on Ethics in the Information Society", the "UNESCO and the ethical dimensions of the information society".

The Geneva "Declaration of Principles" seeks to ensure that everyone can benefit from the opportunities of information and

communication technology (ICT). It declares that addressing the ethical dimensions of the information society is a key principle for all stakeholders in building an inclusive information society. The declaration exhorts the information society to respect peace and uphold fundamental values such as freedom, solidarity and shared responsibilities and, by highlighting the importance of ethics for the information society, invites all actors to take appropriate actions and preventive measures. In this context, the document calls for the responsible use and treatment of information by the media in accordance with the highest ethical standards. The document "Ethics in the Information Society: The Nine 'P's," calls for value-based decisions and actions in the development of information, communication and knowledge, discusses ethical values, the ethics of information professions and the ethics of regulation and freedom. The "Riga Guidelines on Ethics in the Information Society" meant to encourage debate on the ethical challenges of the information society, raise awareness of the ethical implications of the ICT use and development, and demand the support and participation of all interested stakeholders in the discussion of information ethics. The guidelines call on policy makers to be ready to give consideration to ethical principles and to support policy makers' development of ethically informed frameworks and decision-making tools based on universal human rights and ethical principles. The "UNESCO and the ethical dimensions of the information society" addresses the organization's key role in developing ethical perspectives to enable social and human progress for the information society and described proposals for possible ways UNESCO could address ethical dimensions of the information society [11].

To avoid violation of customers rights for privacy enterprises should inform customer about collecting the data and give them the choice right about disclosure of this data. Other instruments are: safety and checkout of customers' data access, temporary frames of customers' data usage, level of privacy interference by using online marketing communication measures.

In addition to protecting the confidentiality of consumers, the important direction for businesses is to comply with ethical rules of promotion of enterprises on the Internet.

Trade enterprises were suggested to introduce special symbols (quality mark) as a guarantee of companies' serious expectancies to establish serious affairs with customers and different public groups. Herewith the implementations of different psychological confidence

formation mechanisms are appropriate.

The customers' trust can be reached by means of special quality marks. Company signs the service agreement with certain licensed organization, about compliance and monitoring obligations and quality norms. Before acting, these quality marks are to be announces, they must gain positive reputation among customers.

- Strictly formulated obligations facilitate the customers' confidence. Obligations, guaranties and promises – are quality marks, given online, calm customers. Levels of confidence and credence depend on the fact what exact obligations grant and their nature and reliability.

- The capacity to predict the future of enterprise – is the factor of obtaining, strengthening and customers' confidence return.

Other most common problems in Internet security are: cheating users through the creation of fake online stores, by simulating the sale of goods (services) through online auctions, and other fraud in order to receive personal payment data. There are advices for consumer to solve those problems. The first thing consumers should pay attention to is the address of the site. It is clear that real sellers have already taken addresses with the name of their own brand. Also, the site of the serious seller should be green locks at the beginning of the site address, which means that the site supports a secure protocol, and therefore personal information with the data of the buyer's payment card will not fall into the wrong hands. Data about the exact place of residence (house, apartment), information that can be of value: passwords, codes, personal information about citizens, documents, business information, financial, accounting, etc.; – personal photos and videos shouldn't be in open access.

It is important to take into account technical aspects of securing data. Another way to secure data between the customer and the web server is a system called SSL (Secure Socket Layer) which encrypts the information between them so no one else can read it. The theory of it is quite basic and uses the following steps:

1. User want to send data to the server, before it leaves it is encrypted with a unique key for the session.

2. The server receives this information then encrypts the information one more time this time using its own unique session, this is completely different from the users unique key. It then sends back the data.

3. The user`s computer now unlocks the data with the key it locked it with earlier; the data is still encrypted but now only with the servers key. The user's computer then sends the data back.

4. The server then receives this information and unlocks it with its key and now has the unencrypted data of what the user was sending to the server.

Prevention measures such as firewalls, checking for root kits, antivirus systems and others should be put in place, as well as encryption of the data if possible so should a hacker gain entry the information he see's is useless to him or her [6].

Due to "Cisco 2018 Annual Cybersecurity Report" defenders should consider:

- confirming that they adhere to corporate policies and practices for application, system, and appliance patching.
- employing network segmentation to help reduce outbreak exposures.
- adopting next-generation endpoint process monitoring tools.
- accessing timely, accurate threat intelligence data and processes that allow for that data to be incorporated into security monitoring and eventing;
- performing deeper and more advanced analytics;
- reviewing and practicing security response procedures;
- reviewing third-party efficacy testing of security technologies to help reduce the risk of supply chain attacks;
- conducting security scanning of microservice, cloud service, and application administration systems [13].

Based on the conducted analysis, the internet is usually considered as a public place and public behavior nowadays necessarily requires developing rules to regulate it. The complexity of internet communication has social and cultural impacts on the online and offline world. Companies should consider the effects that their communications have when messages received on the other side of the screen and providing the comfort and safe navigation of online users. Acting in compliance with ethical principles improves the reputation of enterprises, which in turn helps to gain users' trust and makes the enterprises more attractive to potential customers.

Therefore, perspective investigations should focus on social networks ethical standards to follow as well as the corporate social responsibility principles to observe.

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Kaliuzhna Olena
PhD in Economics, Doctor of Philosophy
Tyshchenko Svitlana
Candidate of Pedagocical Sciences, Doctor of Philosophy
Ivanenko Tetiana
PhD in Economics, Doctor of Philosophy
Khrystenko Olha
PhD in Economics, Doctor of Philosophy
Mykolayiv National Agrarian University (Mykolayiv, Ukraine)

MODERN INNOVATIVE TECHNOLOGIES IN AGRICULTURE AND THE PROSPECTS OF THEIR IMPLEMENTATION

Formulation of the problem. The current state of the agrarian sector is conditioned by the global influence of technological modernization. Agriculture of Ukraine, despite the instability of innovation activity, tries to integrate advanced scientific and technical developments and adapt them to their own production. Today, there is a wide range of innovative solutions in each sector of the agrarian sphere, which allows them to be used in accordance with the conditions of the current development or the stage of production.

Analysis of recent researches. A large number of different researchers dedicated their works to the problems of development of modern economical system on innovative basis. The problem of innovative software and implementation of advanced technologies in agriculture was studied by such well-known economists as V. Ambrosov, M. Kropyvko, O. Datsiy, M. Zubets, P. Muzyka, P. Sabluk, O. Krisalny, V. Tregobchuk, V. Sitnik, O. Shubravska and others. Some aspects of technologies of agricultural production were studied by V. Kaplunenko, P. Kovalenko, M. Royik, V. Garmashov, M. Romashchenko, P. Pisarenko. The main attention of these authors was devoted to determining the problems of using innovations in the agrarian sector and necessity of introduction of powerful technologies. The constant change of the latest and updating require a detailed study, which also requires the use of various methods and mechanisms of implementation and adaptation to the current conditions of the agrarian sector. The question of adaptation of the modern technologies and technological decisions concerning agriculture in the modern conditions requires further research. The constant change of the latest and updates require detailed researches, which also require the use of various

methods and mechanisms of implementation and adaptation to the current conditions of the agrarian sector.

Statement of the problem. Assessment of problems and prospects of using modern innovative technologies in agriculture in modern conditions of managing in Ukraine.

The main material. One of the most important directions of improvement of crop production is optimization of current costs, that is, reducing the cost of production. Resource-saving technologies gain the top priority. To achieve effective resource saving (besides replacement of equipment for a new one and more economical one) at the present stage, we can use information technologies, i.e. all organizational methods and technical innovations that allow monitoring in the best possible way and regulating the using of all resources of the company.

Such technologies in the agrarian sector of Ukraine are still new and not every farm is able to use them financially. The essence of information methods in practice is that all technological operations (for example, seeding and fertilization) are calculated electronically and carried out with maximum accuracy.

Precision farming is a system of crop productivity managing, based on using satellite and computer technologies. The precision farming system is not a strictly defined set of methods and techniques, but rather a general concept based on using satellite technologies (GPS), geoinformation systems (GIS), precise mapping of fields etc. [3].

Precision farming is a set of separate technologies, necessity of implementation of which is determined by owners and managers of agroenterprises. One can use all technologies at once or only a few, the effect of which will be the most significant for this company.

Precision farming is a general concept, an approach to managing a production process, but not a list of several specific technologies. In general, all agricultural technologies and systems which are based on computer and satellite systems and have the aim to rationalize and optimize the using of raw materials and resources can be included into precise farming.

Systems of precision technologies which are used in agricultural production have a number of components. The subsystem of precise farming and of precise crop production is their components and they are given in Figure 2.1.

The tasks of these subsystems include: monitoring and control of the use of technology; automatic monitoring of yield and mapping of field yields; drawing up of ground maps using automatic soil collectors; the

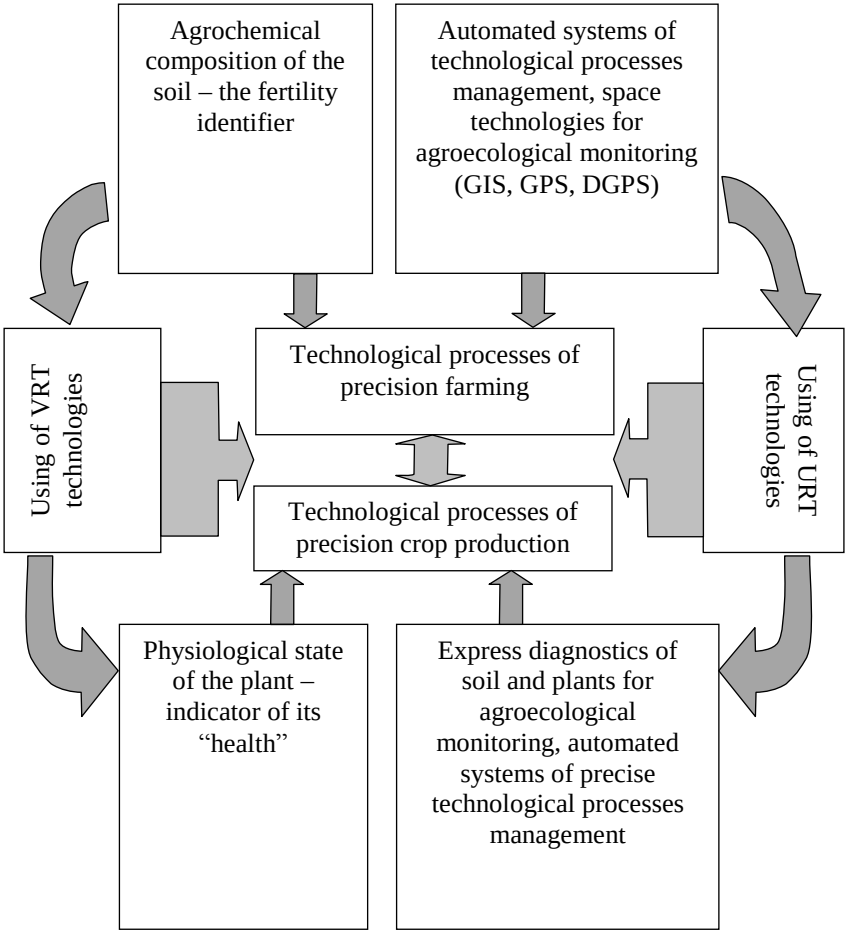

Figure 2.1 Subsystems of precise production technologies

ability to use the necessary amount of fertilizer, seeds on different parts of the same field; monitoring the dynamics of processes based on the accumulation, preservation and visibility of the collected data; monitoring of the changes in the state of fields and crops on different fields, helping to determine the sequence of their cultivation; multi-factor analysis and visualization of collected data, etc.

Nowadays various branches of science and technology create new technologies that enable farmers to increase the productivity of agricultural crops, reduce costs and minimize damage to the

environment. It is not possible to list them, but it is possible to mention those that are already actively implemented in Ukrainian agricultural enterprises. Today, the following innovative technologies in plant growing have the greatest demand:

1. Electronic maps of fields and gardens, software for convenient work with them. Due to this method it is possible to fix with high accuracy not only the area of each field, but also the location of all adjacent objects (access roads, residential and commercial buildings, rivers and ponds, forest bands, etc.). Unlike a paper card, the electronic field passport shows much more clearly all the characteristics of the field, which simplifies the planning of production processes. Having an electronic card, it is easier for an agricultural producer to calculate the exact quantity of necessary seeds, fertilizers, fuel for machinery, it is better to plan the order of processing the field, etc.

2. High precision of agrochemical monitoring of fields. Although any farm has data on the characteristics of the soil in each field, most often these data are very generalized and outdated. Having created an exact soil map (it can be linked to an electronic map), which contains a lot of parameters and characteristics of the soil, the enterprise gets the most rational use of this field – to add other fertilizers (or in other quantities), sow more suitable crops, etc.

3. Navigation systems for agricultural machinery. Unlike car navigators, these devices are not intended to look for the shortest route between two points. They help the machine operator to process the field more accurately – to make the minimum bands of double processing between adjacent passages, to navigate the field easy at night, in conditions of severe fog or dustiness.

4. Monitoring of equipment. In crop production, monitoring of equipment is important to determine the volume and quality of the performed work. Monitoring systems monitor a lot of specific parameters: from the volumes of fuel spent on processing one hectare, to the depth of immersion in the soil of plows and observing the optimal speed of the combine along the aisle.

Using the achievements of the space industry becomes the most appropriate condition for strengthening the development of agricultural production. This is sufficiently relevant in modern conditions, because the presence of significant areas of the agrarian sphere causes the information obtaining on the state of resources, the effective use of natural resources potential and material and technical resources, forecasting yields, introducing modern land use systems and information

agrotechnology, require the development and implementation of innovative information technology.

These include Global Positioning System (GPS), Rapid Eye, CORINE Land Cover (Coordination of Information on the Environment) [1].

The implementation of innovative information technologies should be aimed at:

- speed up the transition to more advanced methods of production planning, purchase of products and material and technical support of farms on the basis of progressive standards that meet the requirements of proportional and balanced development of agroindustrial production;
- optimization of structures of economic branches, crop areas, fixed assets, distribution of investments;
- creation of methods of automated development of norms and standards;
- rational use of land funds, forecasting of harvest, qualitative improvement of breeding and variety testing, development and implementation of intensive technologies of production of different crops [2].

The concept of site-specific management of agricultural areas is the practice of precision farming, based on the optimal use of resources to improve soil fertility. At the same time, decisions can be taken to respond and adjust time changes within the vegan period, and to improve the efficiency of production in general [3].

The analysis of the main software products that help Ukrainian agrocompanies to optimize production, improve planning and minimize harvest losses allows us to identify the key products: Soft.farm, eFarmer, AgroConsultant, PreAgri and Agro-online. Each of these programms has its advantages.

Soft.farm is a complex accounting, planning and analysis system that can be used both by small medium-sized farms and large agroholdings. The program offers the following features:

in the field of plant growing:

- planning of crops, taking into account crop rotation, conducting electronic agrochemical passports of fields, as well as drawing up of technological maps and field history books;
- allows to calculate the need for seeds, fertilizers and plant protection products automatically, the ability to formulate the planned and actual cost, which allows you to manage the budget;
- the formation of analytical reports, which allows the adoption of

rational management decisions.

- free satellite monitoring throughout Ukraine for NDVI vegetation analysis.

in the field of animal husbandry:

- automated planning of the herd structure, genealogy accounting and analysis of growth and mass;
- automated food rationing and veterinary measures;
- control and planning of daily work, as well as the formation of analytical reports.

The advantage of the program over other systems is the availability of livestock functionality [4].

The program also allows you to keep a cadastral account of a land bank. All documentation is imported into the Soft.Farm system and is linked to the electronic map of units, where the terms of the lease are displayed in color format, and the information about contracts and shareholders is tied to each part of land. This will provide an opportunity to check: the terms of the end of the lease; the number of land parts without contracts; areas which are taken and leased or sub-leased; information about shareholders and other. All contracts, registers, scanned documents and reports are stored in a single system – Soft.Farm, which will help to get general information of land relations in the enterprise.

eFarmer is a system of parallel management and documentation of field work targeting small and medium-sized farms. Using of the program allows:

- to create and edit field maps, to take photo-fixation of field notes;
- to conduct a field register, to control the introduction of nutrients and the amount of used fertilizers;
- control the movement of the tractor from the tablet, as well as the work of the machine operator with the help of GPS tracking of the performed work on the field.

The advantage of using the program is the possibility of parallel control of the machine-tractor park [5].

AgroConsultant is a management system for plant technology. The program provides the following possibilities:

- compilation of technological maps of fields, control of crop rotation, analysis of the dynamics of crop development, monitoring the history of the state of fields and estimating the forecast of yield;
- monitoring of equipment and fields; accounting for fuel consumption. There are sensors that monitor costs.

In addition, the program also provides opportunities for keeping inventory and managing the payroll.

The program is intended for use in small, medium and large enterprises. The advantage of the program over others is the availability of the "Agro Support" function, which allows the provision of consulting services remotely [6].

Agro-online is a agronomic accounting system. Use of the program allows:

- to create a passport field, create and edit the boundaries of fields, as well as keep a register of land cadastre;
- to make technological maps, to form maps of crop rotation and to analyze soils;
- to carry out analytical calculation of incomes and expenses on a technological map, to analyze satellite images from the NDVI, to create a map of yield of the crop that will allow to find the most productive parts of the field;
- formulate field reports and attach photos and videos;
- to monitor the equipment – th module "Autopark" allows you to control the amount of materials used for sowing and the amount of work done using GPS tracking technology. The program allows you to create an optimal schedule for the use of technology.

Among the additional features is the possibility of keeping inventory records, monitoring the weather and its impact on the crop, forming procurement planning system.

Preagri is an online service for collecting and analyzing all spatial data of agricultural enterprises, as well as for planning and controlling fieldwork. Using hardware solutions for precise farming in conjunction with geoinformation service, the program provides a complete picture of the processes occurring in the field. Based on the collected data, it allows you to make effective decisions, which will save on the amount of used resources and the time of execution. The program allows you to accumulate information about the current state of the land bank, cultivated areas, introduced crop rotation, which contributes to efficient cost planning and prediction of profitability of available assets. The function of actualization of the contours of fields according to the results of the performed work allows automatic updating of the map of the land bank without unnecessary financial and time costs [7].

Carrying out of agrochemical analysis allows identifying problem areas on fields, as well as in combination with data of remote sensing and mapping yields. It is possible to create maps of differential input of

fertilizers and sowing material.

The service provides processed satellite data for monitoring of vegetative activity of crops. Analysis of vegetative activity allows monitoring the process of development of plants in different parts of the field, to identify areas of the field with different productivity, to assess the need for the introduction of nitrogen fertilizers.

The service provides the possibility of connecting GPS trackers to monitor the field and service equipment, and the ability to download tracks of unmanned aerial vehicles in conjunction with the captured photo-video data will allow them to display them synchronously with a reference to the coordinates on the map, which allows processing information for each part of the fields separately.

The service is designed for use in medium-sized enterprises and large agroholdings. The main advantage of this service over other systems is the integration with Raven, Trimble and John Deere products.

According to the Ukrainian company IST Agro Service (Chernihiv region, Varva), the use of innovative technologies in agriculture can increase yields, reduce costs, make more efficient use of resources, automate and control production processes. IST Agro Service experts assess the effectiveness of using innovative technologies in agriculture:

-reliable information on the quality of cultivated land and the use of the required amount of fertilizers can increase the efficiency by 30%

- allocation of homogeneous zones within a single field can increase productivity by 20%

- technology of variable norm sowing and automatic cutting off of seedlings can increase yields by 12% compared to using one seed rate per field [9].

To achieve success, comprehensive “precision farming” is based on three main elements:

- information;
- technology;
- management.

Information is the most valuable resource of farmers. Actual and accurate information is important at all stages of production from planning and finishing to post-harvest processing.

The second key to success is the rapid development of new technologies and the farmer must be able to make changes that can benefit his production.

Management, the third key to success, unites received information and existing technologies in a coherent system. Without proper

management, the use of precision farming technologies will not be effective. Farmers need to know how to interpret available information about how to use technology and make rational decisions.

Information, technology and management are integrated into the production system, which helps to increase the efficiency of production, quality of products, allows use of resources more rationally and increase the competitiveness of the enterprise.

Agricultural sphere is an ideal environment for the application of information technology. If we talk about the general effect, then it should be noted that due to the competent implementation of information technology and automation in the enterprise the efficiency and reliability of information to make key decisions increases and the impact of the human factor reduces.

Thus, precision farming is an effective management strategy in agricultural production that uses modern information technologies in order to obtain accurate data from many sources of information for making the most correct and effective decisions for the management and development of the company.

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Kvasnicka Raisa
Doctor in Economics, Associate Professor
Larionova Katerina
PhD in Economics, Associate Professor
Khmelnytsky National University
(Khmelnytsky, Ukraine)

MANAGEMENT OF INNOVATION RESTRUCTURING THE ENTERPRISE

Increasing global competition in today conditions functioning are forces the enterprises to respond adequately on changes of the environment and timely reform of economic activities in order to increase the technological level of production for acquire innovation-investment attractiveness and ensure the stability of its own development. In such conditions, integral part of the functioning of enterprises is become systemic restructuring. Topicality of restructuring is growing in the context of macroeconomic crisis phenomena, overcoming of which is possible by activation the innovation policy of the enterprise. However, the enterprises must change their survival strategy to the strategy of updating production technology, sales and management, that is, to implement changes in all internal processes. Restructuring involves the implementation of not only optimal models of production organization, but also requires solving the issues of attracting investors for technological modernization of production and introduction of innovations.

The realities of the restructuring of domestic enterprises and the serious drawback are the lack of innovation orientation of the planned transformation. That is why development and practical recommendations for introducing new mechanisms of innovative restructuring of enterprises are becoming especially relevant.

Innovative restructuring is a continuous process of introducing new technologies or individual technological processes, "know-how", optimization of asset structure, application of effective management systems, ensuring high qualification of personnel in order to increase the efficiency and competitiveness of the enterprise.

Innovative restructuring is progressive character, because it is characterized by a functional enrichment of the form of restructuring and its implementation mechanism, that is, its set of techniques, technology, tools for the implementation of the restructuring process. Innovative restructuring is practiced not only in crisis enterprises, but

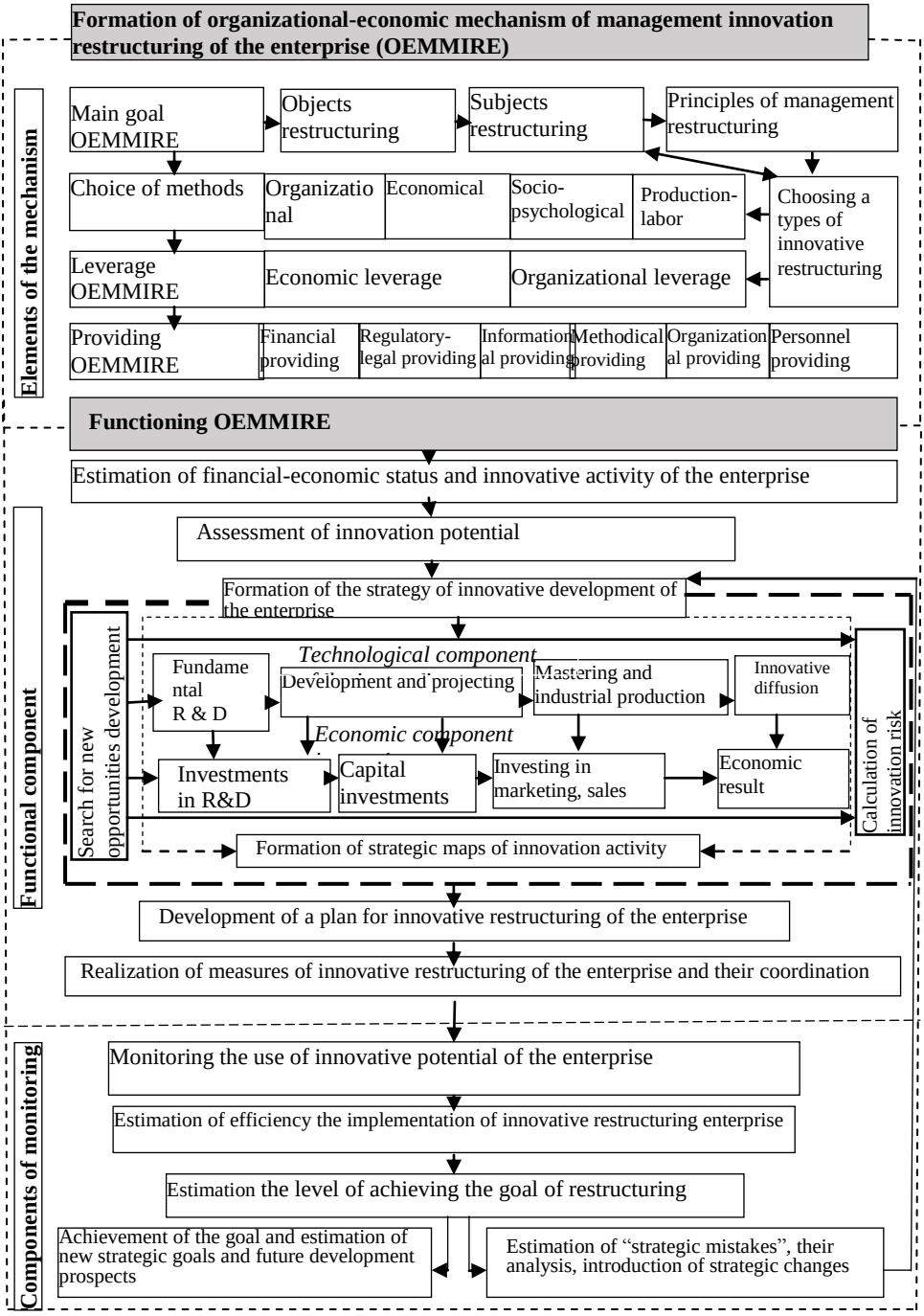
also in enterprises that work stably and seek radically qualitative changes. When making changes, the main should be the innovative direction of management systems, the flexibility of production, targeted and productive innovations.

Research show that formed in Ukraine the mechanism of innovation restructuring includes mainly the organizational part. In the absence of such a mechanism, the most important components are: economic stimulation of innovation activity; an organizational structure capable of perceiving innovations; financial support of innovative projects, informational support of innovation activity; methods of evaluating the effectiveness of innovative programs and projects taking into account internal and external risk factors, it is impossible to significantly improve the results of innovative activity of enterprises and ensure their sustainable development.

In order to achieve the established strategic and tactical goals, it is necessary to form an appropriate mechanism of innovation restructuring, which is one of the means of activating innovation activity and structural adjustment of the enterprise. Under such a mechanism it is necessary to understand the set of elements that determine the material and organizational foundations, motives, stimulates and conditions for the effective implementation of innovation restructuring. The main link in the development of such a mechanism should be the management system of innovation activities. Therefore, the mechanism of innovation restructuring should include a set of elements of the innovation management system, which will reduce the cost of production, the creation of an optimal, cost-effective structure of irreversible and working capital, the introduction of advanced technologies in the production process.

According to the results of the generalization of theoretical and analytical research what concerning the features of the procedure of innovative restructuring, will propose an organizational-economic mechanism for management the innovative restructuring of the enterprise, which includes subsystems of formation and functioning (Figure 2.2).

Organizational-economic mechanism of management innovative restructuring of the enterprise is an integral part of the overall enterprise management system, which, using methods, tools, bases on the observance of certain principles and regularities for its functioning, with the help of instruments and leverage provides an increase of the innovation potential, competitiveness and financial sustainability of the


Formation of organizational-economic mechanism of management innovation restructuring of the enterprise (OEMMIRE)
Elements of the mechanism
Main goal OEMMIRE
Objects restructuring
Subjects restructuring
Principles of management restructuring
Choice of methods
Organizational
Economical
Socio-psychological
Production-labor
Choosing a types of innovative restructuring
Leverage OEMMIRE
Economic leverage
Organizational leverage
Providing OEMMIRE
Financial providing
Regulatory-legal providing
Informational providing
Methodical providing
Organizational providing
Personnel providing
Functioning OEMMIRE
Functional component
Estimation of financial-economic status and innovative activity of the enterprise
Assessment of innovation potential
Formation of the strategy of innovative development of the enterprise
Search for new opportunities development
Technological component
Fundamental R & D
Development and projecting
Mastering and industrial production
Innovative diffusion
Economic component
Investments in R&D
Capital investments
Investing in marketing, sales
Economic result
Calculation of innovation risk
Formation of strategic maps of innovation activity
Development of a plan for innovative restructuring of the enterprise
Realization of measures of innovative restructuring of the enterprise and their coordination
Components of monitoring
Monitoring the use of innovative potential of the enterprise
Estimation of efficiency the implementation of innovative restructuring enterprise
Estimation the level of achieving the goal of restructuring
Achievement of the goal and estimation of new strategic goals and future development prospects
Estimation of “strategic mistakes”, their analysis, introduction of strategic changes

business entity in conditions of economic instability and sharply reduced, both external and internal volumes of investments directed on the development of engineering enterprises. The forming of this mechanism creates the necessary preconditions for managers of enterprises of different levels of management to clearly represent the future of their enterprise and develop its strategic capabilities.

For a more in-depth understanding and scientific justification of the feasibility of developing and implementing an organizational-economic mechanism of management innovation restructuring of the enterprise consider the main components of it.

The main goal of management innovative restructuring is to create such business entities that are able to produce competitive products, be technically secured and financially-capable at the expense of intensifying innovation activity.

The objects of innovative restructuring of the enterprise can be: innovative programs and projects; new knowledge and intelligent products; production equipment and processes; infrastructure of production and entrepreneurship; organizational-technical decisions of an industrial, administrative, commercial or other character that significantly improve the structure and quality of production and (or) social sphere; raw materials, means of their extraction and processing; commodity products; mechanisms of formation of the consumer market and sales of commodity products.

The subjects in this mechanism can be: owner of the enterprise, management of the enterprise, investors, personnel of the enterprise. Investors can be, in accordance with the Law of Ukraine "On Innovation Activity", physical and (or) legal persons of Ukraine, physical and (or) legal entities of foreign states, stateless persons, associations of these persons who carry out innovation activities in Ukraine, and (or) involve property and intellectual values, invest their own or borrowed funds in the implementation in Ukraine of innovative projects [1; 2].

The basis of this mechanism should be the principles of management of innovation restructuring, the observance of which will ensure the success of its realization:

- principle of systemic – this is the principle that involves the formation at the enterprise system that provides innovative search and implementation innovation. The conceptual basis for applying the principle can be considered in the above definition of organizational-economic mechanism. Quite often, can find statements about the need a systemic view of enterprise managers for their innovative development,

but it should be understood that systemic is a very broad concept;

- principle of efficiency, the essence of which is to maximize use the innovation and production potentials for the formation of a substantiated strategy of management restructuring enterprise;

- principle of scientific basis – takes into account all available approaches that are of a scientific character;

- principle of consistency – involves the consistent implementation of all components of the restructuring plan;

- principle of focusing on innovative development – constant search and realization of innovative projects and ways to solve problems;

- principle of legal substantiality – compliance of innovation activity with existing laws and regulations, which carry certain restrictions, or, conversely, permission to use one or another method, behavior, process;

- principle of prudence – planning of activities so as to avoid an ineffective result from the introduction of innovation in the enterprise;

- principle of responsibility for the consequences of managerial decisions, which implies the existence of a certain system of responsibility of the manager of restructuring and all parts of the management apparatus for the results of activities, including material;

- principle of existing risk is explained by the fact that the activity which entails the introduction of certain innovations on the market or the enterprise is very risky, because it is impossible to track all probable scenarios of the development of events. That is why the enterprise should choose the so-called "golden mean", control the situation on the market and in the industry, and choose the way for further action with minimization the risk;

- principle of increasing competitiveness – the development and implementation of innovative projects aimed at increasing their position on the market and among competitors;

- principle of adaptability, involves the adaptation of the management system by the innovative restructuring of the enterprise to rapid (permanent) changes in the internal and external environment of the enterprise.

Organizational-economic mechanism of management innovation restructuring of the enterprise can be conditionally divided into two key blocks: organizational, defining the powers and actions of the departments of the enterprise which involved in the restructuring process, and the economic, what reflecting direct functional content of the mechanism by the appropriate methods and means for the formation and management the financial resources which needed to ensure its

sustainable development.

In order to ensure the effective realization of the restructuring of enterprises, it is necessary to achieve balanced work of all components of the organizational-economic mechanism.

The Instrumental apparatus contains the levers and methods of management and creates a core of management activity. Management methods consist in the targeted influence of the subject on the object to achieve the goal. Management of the enterprise is carried out by the whole system of methods, because organizational methods create preconditions for the use of economic, and socio-psychological complement them and form the necessary interconnection of tools enterprise management. Proper ownership of all management methods allows improving productivity and profitability of production.

In the process of development of society, improvement of technical capabilities and system of production relations, the number of levers and methods that influence the effectiveness of the organizational-economic mechanism of management innovation restructuring is increasing.

The lever is a means with which it is provided combination of the components of the mechanism into a single system and the integrity of its functioning. Functioning of the levers of the organizational-economic mechanism is based on at the system of legal norms that are in accordance with the current legislation. The levers of organizational-economic mechanism include: organizational and economic. Organizational content includes: personnel providing, information providing and information protection, organizational-legal form and structure management. Economic leverage includes depreciation and pricing policies, taxation, lending and insurance. The application of organizational and economic mechanisms of the consists in combining the objective and subjective aspects of human activity in the context of continuous development based on the introduction of technological innovations and increasing the efficiency of the use of production potential [3, p. 13].

Organizational-economic mechanism of management innovation restructuring of the enterprise includes a functional component that combines the main tools and processes of restructuring. As tools in the organizational-economic mechanism of management innovation restructuring of the enterprise should be used state and level of enhancement of innovation potential. The innovative potential of the enterprise is the ability to achieve the innovative goals set with available resources. The structural components of innovative potential the

enterprise are: organizational-managerial potential; scientific-technical potential; production-technological potential; financial-economic potential; human potential.

To do this, it is necessary to develop such a strategy of innovative development of the enterprise, which would allow the enterprise to offer a market the fundamentally new product or service, receiving this advantage of the "first move" in this business. The purpose of this strategy is to take a leading position in the market, thus, an important condition for the realization of this strategy is the introduction of innovations earlier than competitors. This strategy is associated with high risk, since innovative technologies are combined with the uncertainty of both development itself and the response market to a new invention. At the same time, this strategy should provide a stable competitive advantage through a monopoly position. The main condition of the innovation strategy is a technological breakthrough and a quick response to market changes at the expense of a flexible organizational structure and available unique resources.

Strategy of innovative development of the enterprise is advisable to implement on basis of strategic maps, the formation of which is based on the construction of profiles of the state of innovation development with the identification of key indicators, the impact of which through the complexes of tools direct and indirect action can increase the effectiveness of the use of innovation potential and efficiency of the management system enterprise on the strategic and operational levels.

Planning the process of restructuring the enterprise begins with the formulation of its goals. The importance of this stage is due to the fact that the form goals set will be the basis of further management decisions at various stages of the restructuring process. The duration of the realization and the directions of the goals are determined by the prerequisites of restructuring and should cover the planned indicators that the enterprise seeks to achieve as a result of restructuring measures. Another important factor in the justification of restructuring measures is the operating conditions and indicators of activity the enterprise, the evaluation and forecasting of which follows the formulation of goals.

The component of the monitoring of the organizational-economic mechanism of management of the innovative restructuring of the enterprise involves determining the level of achievement of the main goal of the restructuring. Depending on the completeness of its achievements, it can be divided into: full achievement of the goal and failure to achieve the goal of restructuring.

The results obtained will influence the adoption of appropriate decisions which stipulate or terminate the process of innovative restructuring in connection with the full achievement of the goal, or termination of it in connection with recognition that the management of the enterprise was unable to effectively use the innovative potential of the enterprise, investments that have been invested in innovative develops and bring the enterprise to a new level of development. In addition, the partial or non-achievement of the goal of restructuring involves the adoption of managerial decisions, which for objective reasons necessitate the continuation of the restructuring procedure. To do this, it is necessary to define "strategic mistakes", to carry out their detailed analysis, to analyze the internal and external factors that negatively affected on the results of restructuring. If the enterprise has an innovative potential and the management of the enterprise has taken into account "strategic mistakes", then it can move to the development of a new strategy of innovation development of the enterprise. This possibility is explained by the presence in the organizational-economic mechanism of management of the innovative restructuring of the enterprise feedback, which is directed to the functional component of the mechanism and involves finding new opportunities for development. This property of the mechanism ensures its adaptability to the constantly changing conditions of the market environment.

Effective functioning of the organizational-economic mechanism of management of the innovative restructuring of the enterprises is possible that condition interconnected the elements the organizational and economic components, which will create conditions for ensuring effective interaction of the parties in the restructuring procedure through a system of restructuring levers, measures and methods.

Despite the fact that the constituent elements of the mechanism of management innovation restructuring of the enterprise are presented in general terms, but the mechanism itself for each enterprise is individual and needs to take into account many aspects, starting from the definition of the goals of the restructuring and ending up realization of its program depending from available resources and innovation potential.

Thus, the formation of a flexible, dynamic organizational-economic mechanism of management innovative restructuring will contribute to the stable functioning of the enterprise, ensuring its development and increasing competitiveness.

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Mykolaichuk Mykola
Doctor of Science in Public Administration, Professor
Department of Public Administration
Ukrainian Catholic University;
Department of Economic and Finance Policy
Odesa Regional Institute for Public Administration of National Academy for Public Administration under the President of Ukraine
(Lviv, Odesa, Ukraine)

PROMOTING THE USE OF INNOVATIVE TECHNOLOGIES AND THE INTRODUCTION OF INNOVATIVE PRODUCTS: FOREIGN EXPERIENCE AND CHALLENGES FOR UKRAINE

Innovation is a driving force behind the positive changes in the economy. Thanks to science and the implementation of innovation, Japan, Germany, the United States, China and South Korea have made significant progress in the development. In general, experts argue that it is the incarnation of new knowledge technologies that can provide more than 50% of GDP growth (A. Nicolaides, 2014).

That is why the Strategy for Sustainable Development "Ukraine 2020", which has approved by the Decree of the President of Ukraine, states that "Ukraine should become a strong economy and advanced innovation." The innovation development program has included in the "vector of pride" of the country. One of the strategic indicators of the Strategy's implementation is the entry into the top 40 nations of the world according to the Global Competitiveness Index, which is expected by the World Economic Forum (The President of Ukraine, 2015). Innovation is the 12th component of the Global Competitiveness Index and includes the following indicators: the ability to innovate; the quality of research institutions; expenses of companies for R & D; university-industry collaboration in R & D; state purchases of high-tech products; the presence of scientists and engineers; a share of patents (applications/million persons). Ukraine ranked 61st out of 137 countries on the index of innovation in The Global Competitiveness Report for 2017-2018. The worst indicators for this block are the costs of R & D companies (76th place); cooperation of universities on industry in R & D (73rd place); Government Procurement of High-Tech Products (96th place) (World Economic Forum, 2017, p. 297).

Cornell University, INSEAD, and the World Intellectual Property Organization publish own Global Indicator of Innovation, in which 2017 Ukraine ranked 50th out in 127 countries (the second in its group of lower-middle income countries and the 33rd in Europe). Moreover, Ukraine is ranked 77th in the world (5 in the group and 39 in Europe), while the share of innovation revenue is 40th in the world (2 in the group and 26 in Europe). Thus, Ukraine is ranked 11th in the world (2 in the group and 9 in Europe) according to the efficiency of the innovation activity (Cornell University, INSEAD, and WIPO, 2017, p. 27). The worst indicator among the component indicators for Ukraine, as well as in the Global Index of Competitiveness, is the institutional unit (101st place) (Cornell University, INSEAD, and WIPO, 2017, p. 303).

Therefore, the task of economic development of Ukraine can be solved only by making fundamentally new approaches to public administration ensuring the widespread introduce of innovations.

In developed countries, 70-89% of enterprises innovate. In Ukraine in 2017, only 16,2% of enterprises with an average number of employees of 50 persons or more (with a limit of 25%) were engaged in innovation activity. It is equal to the Indicator of 2011 but on 1,1% less than the 2016 figure. The introduction of innovative products in 2017 was 2387 units, the worst indicator since 2010 and 23,9% worse than the previous year. The number of new technological processes introduced in 2017 amounted to 1831 units (of which low-waste, resource-saving – 611). In general, this indicator increased by 50,5% and 33,4%, respectively, as compared to the previous year. However, compared to 2010, the number of low-waste, resource-saving technological processes increased by 27,6 percent, although the total number of new technological processes introduced decreased by 10,4 percent (State Statistics Service of Ukraine, 2018; Verner, 2017, p. 209).

The results of innovation in Ukraine in comparison with the European countries have clearly illustrated by the European Innovation Scoreboard, which has published within the framework of the European Commission project. Ukraine has classified as a category of countries with moderate innovation, as the results of 2010 are 4,2% lower than the average in the EU. The results table of 2016 compared to 2010 gives a 4,2 percentage point reduction in the overall indicator of innovation. However, due to the improvement of the situation with scientific publications, patents and employment in the intellectual sphere, there are failures regarding investment (23,7 points), the sale of medium and high-tech products (30,8 points) and new technological processes (14,8

points) (European Commission, 2017, p. 77).

Consequently, the change in the attitude of public administration and society towards science and innovation, in general, should ensure the rapid implementation of completed scientific developments in production to raise its level.

To solve the problem of transforming science into a decisive factor in the reform of the economy is possible only under conditions of a consistent state scientific and technological policy. It has to base on: ensuring the country's innovation security; definition and realization of strategic priorities of scientific and technical development; creating, through state regulation measures, favourable investment conditions for enterprises that actively innovate. Today's economy is also facing the challenge of developing a robust innovative sector with infrastructure that can combine innovative offer and innovation demand.

The formation of innovation security implies the fulfilment of the following conditions. First, support at the proper level of fundamental research. It is also vital to ensure the optimal level of sectoral research and development (R & D) in the total volume of research. Practical completion and implementation of scientific results in production are necessary. Public administrations should create conditions for preventing the import of outdated technologies and preservation due to this technological lag of the country.

Strategic priorities of scientific and technological development determine the directions of development of science and technology, which are the most important for ensuring the competitiveness of the country, which needs to focus on limited government resources, without allowing them to disperse.

It should be borne in mind that, in some scientific fields, human potential of Ukraine remained at the beginning of the new millennium one of the strongest in terms of human resources. According to The Bloomberg Innovation Index, the quality of Ukrainian postgraduate education is ranked 5th in the world of 50 researching countries, yielding only South Korea, Russia, Finland and Israel (The Bloomberg Innovation Index, 2015). The largest number of domestic scientists is engaged in research in the field of physical, mathematical, technical, agricultural and medical sciences. In particular, the technical profile of scientific research by their number is 48,8% of the total number of scientists involved in the implementation of scientific research and development, natural sciences – 25,3%, agricultural – 7,4%, medical – 6,5%, socio-scientific – 7,9%, humanitarian – 4 % (State Statistics

Service of Ukraine, 2017, p. 42).

Ukraine's efforts to join the processes of globalization require bringing the principles of economic development of the country to international standards. In particular, the national strategy should include: developing, along with the main public and private partners, a long-term national science policy; support for higher education and research; development of cooperation between research institutions, universities and industry as a component of the national innovation system; creation and operation of national institutions for risk assessment and regulation, reduction of vulnerability and ensuring of safety and health; stimulating investment, research and innovation.

It is also necessary to ensure the improvement of the legal and regulatory framework in the field of scientific and technical development and the proper protection of intellectual property, serious changes in the organization and financing of scientific research, modernization of the technical base of scientific institutions, development of effective management, etc.

The implementation of these commitments can ensure the transition to an innovative model of development, which should ensure the competitiveness of the national economy through the use of domestic and world scientific, technical and educational potential. Legislative consolidation of more types of organizational and legal forms in support of innovation development, which could reduce possible losses from the impossibility of introducing innovative development, is required.

It should be noted that the EU, with the aim of coordination of research, forming single scientific and technical standards, creating a single European research area (European Research Area – ERA), to provide information which introduced periodical "European Innovation Scoreboard" (European Commission, 2017).

Consequently, the innovative direction of development is a prerequisite for the economic security of the state, increasing the competitiveness of domestic products and ensuring of welfare growth. Therefore, the transition to a new direction of development requires effective state regulation by a systematic approach. It is also necessary to improve both the formal and informal component of the institutional framework of economic growth.

Another an important component of the potential of innovation development is intellectual capital. In developed countries, the most significant share of researchers is employed in the private sector, which provides them with higher wages than those in public research

organizations. For example, in the United States 34% of doctors work in private companies and 42% in universities. In Ukraine, according to 2016, more than half of the total number of Doctors of Sciences and Doctors of Philosophy (Candidates of Sciences) who carried out research and development, worked in organizations of the state sector of the economy, 39,1% – higher education, 4,8% – entrepreneurial the sector (State Statistics Service of Ukraine, 2017, p. 33).

Some experts note the need for innovation in the development of three types of knowledge: scientific, technological and entrepreneurial (Lubit, 2001). At the same time, if scientific knowledge is the basis for scientific activity, the development and introduction of innovations in production requires knowledge not only of the features of technology, but also the conduct of business, the characteristics of a particular market, customer preferences, etc.

Studies of Ukrainian specialists confirm this conclusion. It has proved that one of the problems of the Ukrainian agrarian sector is the lack of knowledge among farmers that allows the practical use of scientific achievements and best practices. Foreign experience proves the need for several farmers to own a farmer, among them: a financier, an accountant, an agronomist, a zootechnician, a milkman, a mechanic, and others.

The creative potential of the economy can consider as an integral part of the innovation potential. Since creativity, intelligence and culture can compare with such resources as oil, gas, and gold.

At the same time, in order to ensure the activation of innovation activity of business entities, it is necessary to create the appropriate innovation culture. It should bear in mind that not only the presence of an innovative culture of the organization but also in the surrounding environment (at the enterprises of the region, employees of the regional authorities, the population) is important. Innovation culture does not arise in itself but is purposefully formed by the efforts of the top management of the enterprise (organization), the region. Also, the process of formation of innovation culture should carry out systematically, taking into account the interaction of participants in socio-economic processes at the regional level.

The presence of a strong innovative culture in the region will facilitate the establishment of information exchange between economic entities, government, and the public, combining efforts in the development and implementation of the strategy of innovative development of the region to ensure not only the strengthening of

confidence in the government, recognition of its unifying role, but also the disclosure of creative abilities, further development of intellectual potential of the region.

Consistency in government regulation at the regional level achieves through developing strategies for innovation and their financial security. Strategic tasks should be specified and reflected in the system of investment projects. Experience shows that it is the lack of a package of desirable projects with substantiation of their efficiency constrained by the influx of foreign investment. Therefore, in the organization of investing in innovation development of the region, the formation of an appropriate indicative plan takes a prominent place.

Outputs related to the need to achieve the strategic goals of innovation development of the region. For their implementation, a list of possible innovative projects forms, from which the desired portfolio is formed (indicative investment plan). The projects that, due to the synergetic effect, provide the most exceptional result in the production, social sphere taking into account the environmental impact give an advantage.

Motivation should focus on:

- investors' interest in investing funds in the implementation of priority projects;
- stimulating of the introduction of innovative projects in the production of business entities.

Planning for financing involves determining the composition of investors, the possibility of using own funds of business entities, loans. Monitoring of investment development will help to identify problems in timely the implementation of the program of regional innovation development, implementation of the necessary regulatory measures.

The results of the analytical assessment of the achievements of the strategic goals of innovation development and the impact of investment activity on the sustainable development of the region may lead to conclusions about the need to adjust the investment plan or the possibility and feasibility of further increasing the results of sustainable development, i.e. goals.

Ukraine achieves competitive advantages solely at the expense of factors of production (natural resources and cheap labour), which is only the first stage in gaining competitive advantages. The second stage involves investments, the third with innovations and the fourth with wealth. At the second stage, the willingness of business entities to invest and attract placement is essential. At the same time, significant

corporations make the enormous impact on economic development, technological progress and social security of the population. The absence of a large number of substantial corporations contributes to the emergence of a "European paradox," which manifests itself in the transformation of scientific studies of European countries into technological achievements by foreign firms (mainly the USA) (Mihaylovskaya, 2006, p. 84). Therefore, it is crucial for Ukraine to move to the third stage as soon as possible, the feature of which is not only the use of existing technologies and equipment by national enterprises but also the creation of new ones by own means.

In our opinion, the following measures will promote the increase of innovation activity of enterprises:

- stimulating the directing of own resources on scientific researches and introducing of innovations;
- preferential crediting of innovative development;
- the organising of cooperation between science, business, government and the public.

In developed countries, tax benefits are widely used to stimulate research and acquisition of advanced technology (Krupka, 2001, p. 89-90):

- In the United States, cooperation between firms with universities is encouraged and for-profit tax, it is allowed to deduct up to 20% of the cost of basic research;
- in France, joint stock companies are allowed to reduce by 50% taxes on the amount of profit from an increase compared with the previous year, the cost of research.
- The reduction of income tax in the event of investment in the latest technology and technology is foreseen in many states but in different sizes: in Japan it is only 7% of investments, England 10%, Canada 7-20%, Belgium – 13,5%, Holland – from 20 to 25% .;
- stimulate investment activity and the creation of reserve funds that are exempt from taxation, in Sweden firms have the right to deduct them up to 50% of profits.

To stimulate innovation activity and positive impact on sustainable development of regions and national economy it is expedient:

exempt from taxation:

- profit from the sale of innovative products;
- the benefit, which is aimed at financing applied research, the results of which will be innovation;

to reduce by 50% the taxation of profits, which is designed at

carrying out scientific investigations that improve existing technologies and technologies, increase the competitiveness of products and enterprises in the short-term period.

Depreciation is the second component of its investment resources. Their share in gross financing in developed countries reaches 70-89% (Orlov P.A. and Orlov S.P., 2006, p. 324).

In Ukraine, since 1995, the amount of accrued depreciation by sectors of the economy significantly exceeds profits (Krupka, 2001, p. 283). That is, in our country, this source of financing can play a significant role in ensuring the innovative development of the industrial complex. An increase in the depreciation fund may be due to accelerated depreciation, which was first applied in 1940, the United States, as a sufficiently effective means of stimulating investment, especially for high-tech industries, which substantially affect the NTP (electronic, aerospace). For more than 50 years, it has been used in France, where it was first introduced to create the preconditions for increasing the competitiveness of coal mining, ferrous and nonferrous metallurgy enterprises. At the same time, revaluation of fixed assets was carried out with the help of inflation coefficients. Legislation of France, Germany, and other countries provides for a distinction between economic depreciation, which reflects depreciation and is included in the cost, and fiscal, which is used exclusively for tax benefits (Orlov P.A. and Orlov S.P., 2006, p. 318, p. 321-322). This distinction is expedient because the inclusion in the costs of the entire amount of charges following the increased standards makes products of low-profit industries uncompetitive.

Specialists pay considerable attention to the study of the benefits of various methods of accruing depreciation. At the same time, they do not always care about securing the essence of accelerated depreciation, which consists in the advance accumulation of funds for the purchase of new equipment instead of physically and morally worn out. This amount of money as a result of inflation, increasing the cost of producing new, more advanced equipment can be much higher than the previous value of the outfit. As some scientists note, as a result of calculations accelerated depreciation for means of labor can turn into a “slow down,” when “there is a lagging accumulated amount of depreciation deductions from the actual rates of loss of their consumer properties and value” (Orlov P.A. and Orlov S.P., 2006, p. 326). It is therefore desirable to revalue fixed assets taking into account their new market value. Undoubtedly, this will further reduce the budget for some time; these

losses should be offset by future revenues. Such "privileges" should be justified, and for this purpose, it is necessary to exempt from taxation "accelerated," depreciation only if they are spent for the purchase (or creation by themselves) of new equipment.

In addition to the own funds of enterprises, it is necessary to ensure active use of credit resources of innovative development.

One of the forms of financial support for innovation development by the state is guaranteed loans for small businesses, in the form of which the US provides 90% of assistance, but there is a problem of non-repayment of loans (Krupka, 2001, p. 92).

The source of financial resources for regional development may be foreign investment. But, as some scientists point out, in practice, in today's context, the problem of attracting loans from international financial institutions is urgent because for the direct foreign investment it is necessary to improve the investment climate, while a large-scale, and at the same time, productive portfolio investment abroad seems unrealistic, even in the medium-term (3-5 years), due to the imperfection of the infrastructure of the Ukrainian stock market. The attraction of speculative capital can have devastating consequences for the economy (Muzychenko, 2005, pp. 349-350). For foreign investors, the banking sector, whose profitability is much higher than in developed countries, is more attractive.

German economist G. Menshe (1979, p. 14) noted that sooner or later the financial sector begins to invest in the real industry because of the massive size of financial transactions lead to a decrease in the rate of profit in the monetary sphere compared with manufacturing.

Innovation Bank can also finance technical development on preferential terms. However, it may be advantageous for him to have his representations only in the dominant scientific and production centres of the country. Also, if such a bank is created by the contributions of shareholders, then they are mainly serviced by them. Commercial banks provide mostly short-term loans and market rates. Their credit resources depend on the savings of the population, which still does not have sufficient funds and confidence in banks. So far, the profitability of financial transactions is higher than the profitability of financial investments.

Since the banking sector of Ukraine is not yet ready to intensify real investments, the state should stimulate this activity. Thus, banking professionals believe that effective action will be the creation of a system of preferential taxation. It have to use for banks, which carry out

lending projects on priority directing for development of the industrial complex.

In the terms of limited financial resources, the importance of their effective use is increasing. At both the state and regional levels, it is important to direct resources to increase the production of high-tech high value-added products that can reduce imports and increase exports, and form the domestic market for these products. To stimulate the development and production of similar products, some scholars propose to support the innovation business. It makes by providing state guarantees of 25% of investment in the project for the creation of the production, and in the presence of a current large and one that has a three-year or more credit history in output – state guarantees in the amount up to 100% of the volume of pre-export financing. According to the scientists, the production of science-intensive products and low solvent demand of Ukrainian population is restrained.

In the USA, small business investment companies are created with the participation of the state, "they have tax, financial privileges and state guarantees for loans (up to 75%)." In general, depreciation and tax privileges provide financing for research spending by 10-20% (Lobas, 2009, p.67).

Public authorities have a leading role in the well-established relationship between science, business and the public, therefore the state's contribution to the implementation of the program of regional innovation development is primarily to prepare specialists for local governance, provide them with education in economics and public administration, continuous improvement of professional skills.

The training and professional development of business and community representatives will be the key to effective collaboration with scientists and civil servants.

The process of organizing of effective interaction between representatives of government, business, science and the public will improve the quality of strategic plans and ensure their successful implementation.

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Proshchalykina Alina
PhD in Economics, Associate Professor
Cherkassy National University
named by Bogdan Khmelnytskyi
Dudnik Oksana
PhD in Economics
Horodyshche College of
Uman National University of
Horticulture
(Cherkassy, Gorodushche, Ukraine)

ORGANIZATIONAL-ECONOMIC MECHANISMS OF INCREASING INNOVATIVE ACTIVITY OF ENTERPRISES IN THE AGRICULTURE OF UKRAINE

The development of innovation activity is the basis for increasing the competitiveness of entities business activity both on the domestic and foreign markets. Modern agricultural production should also be aimed on the increasing environmental friendliness and preserving regional ecosystems. Innovative activity in the agroindustrial complex has its own specificity, which is related to the degree of development of new technologies, varieties and hybrids of plants, the use of more productive breeds in livestock production, the level of technical-technological and biological base, the way of farming.

The characteristics of agricultural production in Ukraine are shown in Table 2.1.

The given tables show that in Ukraine there is an increase in the total volume of agricultural products: compared to 2010, the volume of manufactured products increased by 30.7%. A slight decrease was observed only in 2015, which was due to unfavorable weather conditions (production decline was due to crop production). Grow for the analyzed period and performance indicators: per capita increased by 40.4% compared to 2010, and per 100 hectares of agricultural land – by 36.7%. The growth trend of production occurred at the expense of agricultural enterprises. At the same time, in households the production declined both in absolute terms and in relative terms.

Table 2.1

Agricultural production by types of agricultural holdings (in 2010 prices; millions hryvnya)

Indicator	2010	2013	2014	2015	2016
All types of agricultural holdings					
Agricultural production	194886,5	252859	251427,2	239467,3	254640,5
crop production	124554,1	175895,2	177707,9	168439	185052,1
% of total production	63,91	69,56	70,68	70,34	72,67
animal production	70332,4	76963,8	73719,3	71028,3	69588,4
% of total production	36,09	30,44	29,32	29,66	27,33
Agricultural enterprises					
Agricultural production	94089	136590,9	139058,4	131918,6	145119
% of total production	48,28	54,02	55,31	55,09	56,99
crop production	66812,7	103127,8	105529,5	99584,7	113392,6
% of total crop production	53,64	58,63	59,38	59,12	61,28
animal production	27276,3	33463,1	33528,9	32333,9	31726,4
% of total animal production	38,78	43,48	45,48	45,52	45,59
including private farms					
Agricultural production	11965,8	19091,4	19188,8	18909,3	22101,4
% of total production	6,14	7,55	7,63	7,9	8,68
crop production	10840,9	17695,3	17847	17565,4	20705,3
% of total crop production	8,7	10,06	10,04	10,43	11,19
animal production	1124,9	1396,1	1341,8	1343,9	1396,1
% of total animal production	1,6	1,81	1,82	1,89	2,01
Households					
Agricultural production	100797,5	116268,1	112368,8	107548,7	109521,5
% of total production	51,72	45,98	44,69	44,91	43,01
crop production	57741,4	72767,4	72178,4	68854,3	71659,5
% of total crop production	46,36	41,37	40,62	40,88	38,72
animal production	43056,1	43500,7	40190,4	38694,4	37862
% of total animal production	61,22	56,52	54,52	54,48	54,41
Agricultural production by all types of farms					
per capita, UAH	4249	5559	5847	5589	5967
per 100 ha of agricultural land, thsd.UAH	523,7	681,3	708,3	674,2	715,7

Source: formed by authors based on [1]

Most of the products were produced by agricultural enterprises. During the analyzed period their share increased significantly – from 48.28% in 2010 to 56.99% in 2016. Among agricultural enterprises, farms produce only 8.68% of products, although their role has increased compared to 2010. In animal, farms practically do not play a significant role by producing only 2.01% of livestock products in Ukraine. Essential in production is the role of households. In 2010, they produced 51.72% of agricultural products, although their share declined to 2010, to 43.01%. However, most livestock products – 54.41% produced by households.

According to the "Survey of innovation activity in the economy of Ukraine", innovative actively among agricultural enterprises were about 25% of enterprises. Most of these enterprises are engaged in the cultivation of cereals and industrial crops, vegetable growing. Among the enterprises in the field of animal innovation actively are about 20% of enterprises that specialized in the growing of cattle, 20% – in growing pigs and poultry and 10% were engaged in sheep [2].

However, it should be noted that the overall indicator of innovation activity in agriculture of Ukraine is significantly lower, since a significant part of the production is produced by households, and the level of creation and introduction of new technologies and products in them is very low. The question remains as to whether their products meet their production standards. This category of producers can not be represented also in foreign markets. Therefore, the transformation of households in the entities of entrepreneurial activity is relevant for Ukraine. The mechanism of activating the development of family farms has several components: the creation of favorable conditions for entrepreneurship; solving property problems and access to resources; development of infrastructure; development of cooperation.

Since the main purpose of family farms, in contrast to personal peasant economy (PPE), is to generate profits, the very first condition their formation is the creating of a favorable business climate and the simplification of economic conditions. The conversion of PPE to family farms has a number of benefits to them, since they will enable them to take advantage of state support for taxes, technology purchases, preferential loans, etc.

The first step in Ukraine to create family-owned farms was the adoption of the Law of Ukraine "On Amendments to the Law of Ukraine "On Farmers" on Stimulating the Establishment and Activity of Family-owned Farms" of 31.03.2016, No. 1067-VIII [3].

Obtaining legal status gives one more advantage to family farms – the possibility of independent activity on organized markets, and not through shadow intermediaries who pay low prices for agricultural raw materials. On the other hand, increasing the requirements for the quality and safety of agricultural products necessitates technological upgrading of production (creation of specialized slaughter cattle facilities, use of contactless milking systems and means of rapid milk cooling, etc.). Households can not solve such problems on their own, therefore, becomes more and more important the serving cooperation. By combining small agricultural producers, it will create the basis for increasing value added.

From the perspective of I.V. Prokopa and T.V. Berkuta, the main measures to support the transformation of households depend on their type:

For most consumer households (which produce only for their own needs and sell surplus production only) measures of state support are to support activities in regions with unfavorable economic conditions, encouraging participation in agri-environmental programs and the payment of fees for the preservation of agricultural landscapes and cultural heritage.

For mixed households with diversified nature activity of the support is to attract them to the subsidy programs, support of non-agricultural activities, payments for public goods.

For most commercial enterprises – involving subsidy programs, assistance in business registration, promotion of cooperation, improve the agrochemical, zoo-technical and veterinary service, development advisory services, including in social insurance system [4, p. 228].

Agreeing with the opinion of the authors, we want to supplement several measures. Important are problem the availability of land resources and the existence of an effective system of legal protection of private property rights. The question can not be solved of the transformation of households without resolving the issue of the availability of financial resources, without which it is impossible to form the material-technical base of the economy. It is also necessary to create an infrastructure for the storage of manufactured products, their processing and sale.

One of the reasons for low innovation activity in agriculture is the lack level of financing and difficult access to investment resources.

In Ukraine the volume costs for scientific research and development is very low and in 2017 it amounted to 0.45% of GDP (13379.3 million

UAH). In 2017 – 21.9% of total volume of costs were directed to perform fundamental scientific research, 23.6% of the funds allocated to perform applied scientific research, for perform of scientific and technical (experimental) development – 54.5% of total volume of costs. In agricultural science predicted 9.4% of the money spent on fundamental scientific research, 12.3% of the funds for applied scientific research, about 3% in share experimental studies [2].

The development of innovation activity in agriculture of Ukraine is complicated by a number of problems. In particular:

– due to lack of funding and low volume investment, there is a very low demand on the innovation develop and technology: a significant part of enterprises do not have the financial resources to acquire new technologies, chemical and biological means, modern technology;

– exacerbation problems of food safety issues and uncertainty about products agroindustrial complex that have an innovative component (in particular, genetically modified components) [5, p. 32];

– innovations are carried out only by a limited number of large enterprises;

– the low technical and technological level of equipment of production in the agroindustrial complex does not allow to fully engage actively of innovation;

– insufficient development of infrastructure innovation activity causes lack of financing and not development of innovation providing.

The reforming in agriculture of Ukraine is carried out extremely slowly. According to the scientists of the Institute of Agrarian Economics, the effectiveness of reforms on individual measures was as follows: regarding the formation of the economic platform of agrarian reforms – by 25-35%, with respect to the construction of the market in the content of the mechanism – by 20-40% (the least effective is price regulation), in terms of filling the content of structural scheme of agrarian reform – by 15-30% (the least effective is the direction of "informatization and computerization of production"), in relation to the legislative provision of market reforms – by 30% [6, p. 12].

An important condition for the development of domestic agroindustrial complex is the construction of mutually beneficial links between large, medium-sized, small agricultural enterprises, peasant farms and rural communities. The basis of such interaction should be cooperation.

The value of cooperatives can not be overestimated. The experience of their functioning in the regions shows that they have contributed to

improving the service of the population; produce food in small divisions and sell them at local markets at lower prices (in particular, cereals, oil, flour, dairy products, sausages, etc.); provide services (transportation, water supply, land cultivation, harvesting), promote the development of social infrastructure (shops, public catering establishments, roads).

In general the intensification of development the cooperative movement is hampered by a number of problems:

– in targeted programs provided measures for the development of cooperatives, which allocated funds from the budget, but often created cooperatives can not benefit from subsidized loans and other means of state support in the absence of the necessary institutions and deposit base;

– the number of cooperatives in the last four years significantly increased, but their composition basic share occupied procurement and procurement cooperatives, the interest of which is to obtain income from mediation and not to create conditions for functioning small-scale farmers who participate in cooperation in order to create a complete cycle of production, increase its efficiency and competitiveness;

– lending cooperatives use, mainly, short-term lending. They are practically devoid of opportunities to make long-term credit investments. In market conditions the volume and qualitative composition of funds owned by a credit cooperative, determine the scope and direction of its activities;

– the existing potential of small-scale production is not sufficiently involved in cooperative activities. The urgent task is to increase the investment for technical and technological modernization of agricultural production on the basis of cooperation of small forms of activities, which will ensure a multiplication of agricultural production and sustainable development of rural territories.

In order to improve the conditions for the sale of agricultural products, increase the profitability of small forms of activities it is necessary to switch to a multi-level system of cooperation, which combines the development of production, service, consumer and credit cooperatives. Thus, the three-level system of consumer cooperation combines consumer cooperatives of the first level from sales of agricultural products, its harvesting, storage, processing and transportation, as well as serving cooperatives. Each level of cooperation has its functions: the first level is formed by agricultural sales consumer cooperatives, witch consisting of the agricultural commodity producers who want to sell their products through the

cooperative market; the second level is represented itself by the agricultural cooperative market; the third level can be represented by the regional, and later by the national association of agricultural cooperative food markets.

An important task for the development of cooperatives is to increase the efficiency of their use of financial resources. These measures should be aimed at increasing the level profitability of cooperatives by subsidizing part of the expenditure from the regional budget. The main idea is to implement targeted subsidization of a part of the costs of the cooperative on the principle of investment project.

The development of various types and forms of cooperation in agriculture requires state support for itself the cooperative movement, the organization of the system of training and counseling its initiators, the formation of the material-technical base of consumer cooperatives (especially processing enterprises) as the most important institute of the self-regulated subsystem in the agrarian sector.

A promising form of integration is clusters. In Ukraine there are now few examples of the creation of clusters in the field of "green tourism" (for example, Cherkassy region pilot cluster "Zeleni sadyby Cherkashhyny"), organic production (in the Poltava region function a regional cluster of producers of environmental products), according to a certain type of products (fruit cluster "Podilske yabluko" in the Khmelnytsky region, "Naturalne moloko" in the Rivne region), innovative agro-clusters (regional agroindustrial innovation cluster "Agroinnovacii", Rivne) [7]. Studying and disseminating their successful experiences should be an integral part of function advisory services.

Due to the lack of budget funds for direct support of agricultural producers is becoming increasingly important the development of public-private partnership. In Ukraine this practice is not sufficiently used, which is due to the following reasons: in the law provides for only a contractual form of public-private partnership, which is based mainly on concession agreements or joint activities, which does not allow to effectively solve issues of distribution of profits, intellectual property rights; there is a procedural problem of financing from the state budget after the start of realization the project; there is no mechanism for compensation of losses because of the state's failure to fulfill its obligations; limited authority of local authorities when participating in a state project [8, p. 8].

The state should establish coordinating institutions that will facilitate

the resource support of small and medium enterprises through the transfer of unused industrial assets, which are not used and the creation of infrastructure agricultural market of general use.

The main directions of enhancement of innovation activity of agricultural enterprises of Ukraine may be:

1. Increased funding – both through direct support and through tax incentives for innovative active enterprises. Requires reimbursement from the budget and costs on certification of organic production.

2. Organic production. This direction is possible in creating conditions for the development of cooperation and public-private partnership, which will increase resource supply and investment. At the same time, this direction of activity is possible for the entities of small and medium entrepreneurship, which has not only economic but also social significance for the development of the village.

3. Development of cooperation and public-private partnership. They will allow the implementation results of R&D outcomes for all business entities and increase financial opportunities for upgrading capital and introducing new technologies. At the same time, scientific and educational institutions will work directly with producers, which will increase the commercialization of their development.

4. Improvement of technical equipment – by creating centers of collective use of equipment.

5. Development of the system of agricultural insurance. Agricultural insurance, as a risk management tool in agriculture, requires systematic and consistent support of the state. In order to avoid abuse by insurers, it is necessary to amend the Law "On Agricultural Insurance" in relation to the regulation of costs on the administration of insurance. In particular, it is necessary to develop a methodology for the formation of tariffs on insurance of agricultural crops depending on the zoning of their cultivation and inherent risks.

Consequently, the increase of innovative activity the small enterprises in the agroindustrial complex of Ukraine is possible due to the development of new types of activities, increasing coordination and reducing operating costs of producers. In this regard, institutes and technologies that promotes the participation of association farmers, public organizations, local communities through traditional forms of collective activities and through the use of modern means of communication become crucial. The combination of individual, family and collective forms of organization of production allows not only to solve economic problems, but also to determine the solution of social,

demographic, ecological, and cultural problems of rural development. The role of small forms of activities is significant, since they stimulate structural adjustment by responding dynamically to changing market conditions, creating additional jobs even in settlements with a low development level, promoting the development of a competitive environment in the economy, focused on solving local socio-economic problems, contribute to intensify the processes of organic production of environmentally friendly products.

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Shapran Evgen
Doctor of Science (Technical), Professor, Head of the Department
Sergienko Olena
PhD in Economics, Associate Professor
Gaponenko Olga
PhD in Economics, Associate Professor
Department of Commercial, Trade and Entrepreneurship
National Technical University "Kharkiv Polytechnic Institute"
(Kharkiv, Ukraine)

SPATIAL DYNAMICS DIAGNOSTIC MODELS OF ENTERPRISE EXTERNAL ENVIRONMENT

Introduction. In modern conditions of transformational changes in the Ukrainian economy there is a strong tendency of increasing the number of financial-insolvent companies in various industries. The reason for this is as the political situation, which is accompanied by instability and aggressiveness influence of external environment on activity of enterprises as well as absence of the proper methodological base of diagnostics of the financial state of the production-economic systems [5, 9, 11].

Existent and often applied methods and models of diagnostics, developed both oversea and domestic scientists, do not give the adequate estimation of level of the financial state of enterprise and do not allow to diagnose a financial situation on an enterprise, which conduces of making decision to the decline of efficiency [2, 3, 14, 15, 16]. Therefore, there is a necessity of creation of complex model of diagnostics, which, taking into account the of a particular sectoral specific of enterprises, would allow to find out operatively and high-quality the areas of crisis processes, which are engendering or already exist at the enterprise.

Research results. Systematic consideration of problem of diagnostics financial-economic activity of the enterprise allows to select the followings tasks: [5, 8, 10, 12] analysis and synthesis of indicators, which remove efficiency of activity of the enterprise; forming of classes of the financial states; recognition of financial situations; estimation of the financial state; prognostication; analysis of progress trends. Realization of the selected tasks in-process carried out on the basis of

the offered complex of models. Scheme of these models is illustrated in the Figure 2.3.

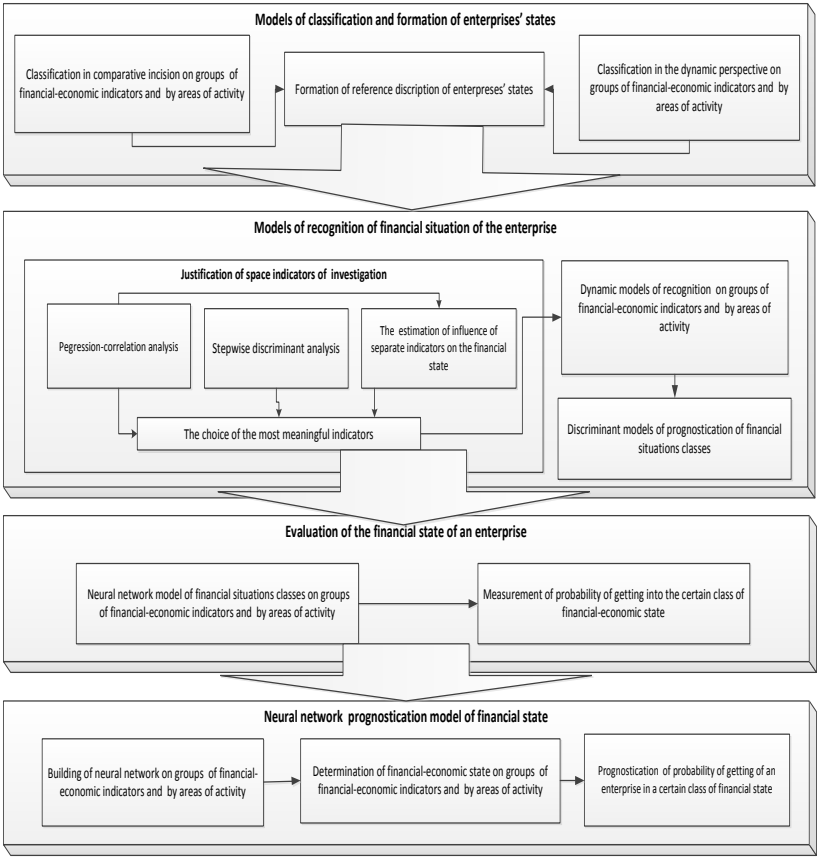

Figure 2.3 Basis Interconnection of the Enterprise Financial-Economic Activity Diagnostics models

Purposes and tasks of this complex stages are the following:

Stage 1. Forming of the system of indicators of effectiveness of the enterprise. The main task of the first stage is estimation and analysis of space sing of the enterprise indicators forming of the informing system of figures – indicators.

On the basis of the conducted analysis of literary sources, practice of

manage the Ukrainian enterprises, indicators were selected, which characterize financial-economic position of the enterprise. The formed system of coefficients was presented by experts, and the expert evaluation of meaningfulness and importance of these indicators was conducted for the diagnostics financial-economic activity of the enterprise. Co-ordination of opinions of experts was appraised by the coefficient of concordation [6, 17]. Thus, on the basis of expert analysis there was formed the system of indicators of effectiveness of enterprise, which includes six groups of indicators:

- Liquidity and profitability (X1 – X8),
- Business activity(X9 – X18),
- Financial stability (X19 – X24),
- Capital assets efficiency (X25 – X28),
- Labour resources efficiency (X29 – X38),
- Cost structure (X39 – X45).

Stage 2. Forming of classes of the financial states of enterprises on the basis of cluster analysis method [1, 4, 7]. The task of this stage is construction of models of states classification of enterprises in comparative and dynamic on the groups of indicatots and forming of the standard states.

Classification of 23 enterprises of machine-building industry is conducted separately for every group of selected financial - economic indicators and for every year of the researched period (2013 – 2017). This process is carried out on the basis of cluster analysis («*k*-mean» method) [1, 6, 17]. For the first group indicators of liquidity and profitability, the analysis of dispersions illustrated, that the value of cross-group dispersion is exceeded by the values of intra-group dispersions (exceping X2). This underlines, that classification by indicators of X1, X3–X8 is executed high-quality. Evaluation F-criterion illustrates that the most meaningful indicators for the process of clusterization are following: X1 – X4, X6, X7 (Figure 2.4).

Classification Quality also can be estimated by the grafh of mean values, which illustrates divergence of middle variables between clusters. In the Figure above, one can see, that the most close located clusters 1 and 3 due to the sign of X1 and clusters 1 and 2 due to the sign of X8 (similary results were got based on the analysis of Evklid distances between classes).

Consequently, financially stable enterprises (12, 19) entered in the first cluster, which got an income and were able to financial settlement for short-term liabilities in time and fully.

Variable	Analysis of Variance (Spreadsheet2)					
	Between SS	df	Within SS	df	F	signif. p
X1	21,58528	2	0,414719	20	520,4802	0,000000
X2	19,76918	2	2,230820	20	88,6185	0,000000
X3	17,12415	2	4,875853	20	35,1203	0,000000
X4	14,96158	2	7,038420	20	21,2570	0,000011
X5	14,63691	2	7,363093	20	19,8788	0,000018
X6	16,96966	2	5,030340	20	33,7346	0,000000
X7	14,95255	2	7,047453	20	21,2170	0,000011
X8	13,69392	2	8,306075	20	16,4866	0,000059

Figure 2.4 The Analysis of Variance

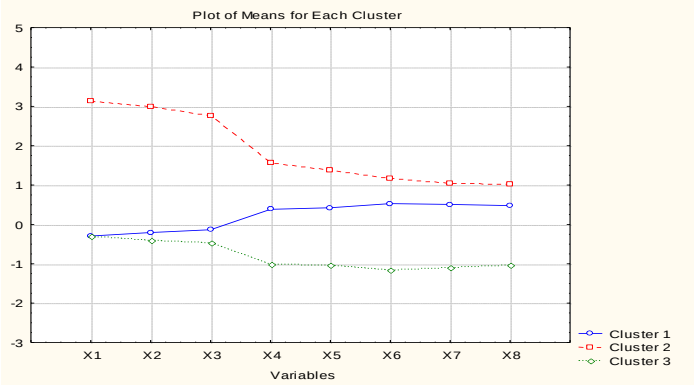

Figure 2.5 Plot of Means for Each Clusters of the Financial States

In the second cluster (2 – 8, 13, 14, 16 – 18, 21 – 23) enterprises entered with the satisfactory levels of of liquidity and profitability coefficients. These enterprises relatively can pay off liabilities and pick up rofitability of an enterprise in a relatively short period.

In the third cluster (1, 9 – 11, 15, 20) enterprises entered with the low level of stability and profitability, which were not able to liquidate debt in time the and bear loss from basic production activity.

It is conducted similarly classification of enterprises by indicators of liquidity and profitability for other four years (2014-2017). Classification of enterprises is the same way carried out on other five groups of financial-economic indicators for every year of the researched period. It needs also to mark that the formed classes of the financial-economic states of enterprises are interpreted as follows: 1 – financially proof enterprises, 2 – financial sustainable enterprises, 3 – financially crisis enterprises.

Stage 3. Recognition of financial situations. On this stage the tasks of recognition and prognostication of classes of financial situations are decided on the basis of discriminant analysis method [4, 7, 8]. In accordance whith the general scheme of model of diagnostics of financial-economic activity of enterprise, the next stage is grounding of sign space for each group of indicators. Procedure of choice of the most important factors is presentes in Figure 2.3 and it foresees realization of next methods of analysis.

1) Regression-correlation analysis [4, 9] consists in an exception from the model of indicators, which have most correlation between other indicators of group, the same depriving a model from the effect of multicollinearity. Procedure of analysis is conducted for every year of the researched period, and end-point is a choice of indicators which have the least correlation for all five years. Thus, during procedure there are next indicators in a model (Table 2.2).

Table 2.2

Regression-Correlation Analysis Results

Liquidity and profitability	Business activity	Financial stability	Capital assets efficiency	Labour resources efficiency	Cost Structure
X1 X2 X4 X5 X8	X10 X12 X14 X15	X20 X21 X22 X23 X24	X25 X26 X27 X28	X29 X30 X31 X32 X33 X35	X39 X40 X41 X43 X44

2) Discriminant analysis [4, 7, 14], due to which it is possible at once to withdraw superfluous coefficients from a diagnostic model, which have significant influence on the integral estimation of the financial state. Taking into account all results of step-by-step analysis for five years, it is possible to select basic factors, which most often meet in the number nonmeaningful and to withdraw them from a model. In this case, this indicator is X3 and X6. Thus, it is possible to draw conclusion, that the most meaningful variables for discrimination are X1, X2, X5. In other groups of indicators in proccess of step-by-step analysis were excluded from a model next coefficients (Table 2.3).

The last stage in the choice of the most meaningful factors is an estimation of separate indicators of influence on the results of discriminat analysis. Influence of indicators on the variation scope of dependency variable is calculated in accordance with the formula [12]:

Table 2.3

Discriminat Stepwise Analysis Results

Business activity	Financial stability	Capital assets efficiency	Labour resources efficiency	Cost Structure
X12 X16 X18	X19	–	X34 X37	X38 X42

$$R_{x_j} = \frac{\left|a^*_j\right|}{\sum_{j=1}^{m}\left|a^*_j\right|} * 100\%$$

where R_{x_j} – is the size of influence of j (in percents) explaining variable (X_j) on variation of dependent variable; $\left|a^*_j\right|$ – is the module of indicator value (X_j).

Results of separate indicators influence to the value of discriminant function for the group of liquidity and profitability are presented in Table 2.4.

Table 2.4

Influence of Financial Indicators (liquidity and profitability) to the Financial State Indicators (%)

Indicators	2013	2014	2015	2016	2017
X1	38,77	45,12	57,00	9,43	1,46
X2	4,30	5,92	3,49	7,54	7,11
X3	4,27	5,54	0,27	5,56	3,85
X4	16,22	20,31	16,72	26,64	21,91
X5	16,40	9,39	10,15	21,89	30,09
X6	5,45	6,32	5,08	3,76	5,03
X7	8,59	5,28	4,29	6,51	8,67
X8	5,99	2,13	3,01	18,68	21,88

According to the Table 2.4, the most meaningful input in a discriminant function is done by an absolute liquidity ratio, profitability of the total capital, profitability of asset and net profitability of sales (X1, X4, X5 and X8).

The estimation of influence of separate indicators on the result of discriminant function on other groups of financial indicators is carried out similary. Thus, comparing all results which were got on the basis of analysis of factors, it is possible to form new sign space broken down by every group of financial indicators (Table 2.5).

Table 2.5

The Most Significant Financial-Economic Activity Indicators of Enterprises

Liquidity and profitability	Business activity	Financial stability	Capital assets efficiency	Labour resources efficiency	Cost Structure
X1	X10	X20	X25	X29	X39
X2	X12	X21	X26	X30	X40
X4	X14	X22	X27	X31	X41
X5	X15	X23	X28	X32	X43
X8	X17	X24		X33	X44
				X35	

Further, on the basis of select indicators, a dynamic discrimint analysis [4, 7, 8] is conducted with the purpose of construction of discriminant functions for subsequent development of diagnostic model.

Analysis of dicrpiminant function illustrates, that the quality of the model and degree of influence of input variables on end-result. The value of Wilk's Lambda can vary scope from zero to one. Resulting in a value gets to zero (Wilk's Lambda=0,00118), consequently the model is adequate (Figure 2.6).

	Discriminant Function Analysis Summary (L_R_199 9_DA) No. of vars in model: 5; Grouping: K (3 grps) Wilks' Lambda: ,00118 approx. F (10,32)=89,998 p<0,0000					
N=23	Wilks' Lambda	Partial Lambda	F-remove (2,16)	p-level	Toler.	1-Toler. (R-Sqr.)
X1	0,058477	0,020161	388,8138	0,000000	0,276598	0,723402
X2	0,001604	0,735054	2,8836	0,085222	0,441368	0,558632
X4	0,002906	0,405689	11,7195	0,000734	0,051758	0,948242
X5	0,002803	0,420583	11,0212	0,000979	0,077264	0,922736
X8	0,003766	0,313083	17,5523	0,000092	0,559234	0,440766

Figure 2.6 Discriminant Function Analysis Summary

By a visual analysis [1, 6, 17] it is also possible to define quality of recognition (Figure 2.7). From the grafhic, it is gathered that ysis in three classes are grouped densely enough, and distances between clusters are large enough. It will allow with most probability to assume

that recognition of the financial state of enterprises will be executed correctly.

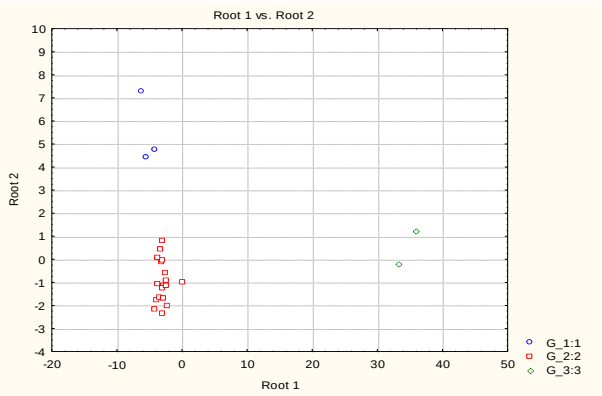

Figure 2.7 Scatterplot of Canonical Scores for Enterprises

Discriminant classification function is resulted in Figure 2.8.

	Classification Functions; groupin		
Variable	G_1:1 p=,13043	G_2:2 p=,78261	G_3:3 p=,08696
X1	196,071	-19,4639	-16,6974
X2	34,964	-2,5196	-5,3556
X4	103,199	-13,8810	0,3026
X5	-112,120	15,1194	-0,4249
X8	12,269	0,1977	-4,5839
Constant	-372,018	-4,1387	-7,8920

Figure 2.8 Classification Function Parameters for Enterprises Classes

Discriminant functions for all years are resulted in Table 2.6.

It is necessary to build a total discriminant function, uniting data of enterprises for throughout the year of the investigated period. In the dicriminant analysis by the first group of indicators of liquidity and profitability, the followings results were got (Figure 2.9).

1. Analysis of discriminant function proves that on the whole classification of objects is executed high-quality (Wilk's Lambda=0,01933), and by the criterion of F-remove and Partial Lambda, the most meaningfull indicators are : X1, X4 and X8 (Figure 2.9).

Table 2.6

Discriminant Classification Function for Enterprises Financial Liquidity and Profitability Classes

Years	Class of the financial-economic state	Indicators					Discrimination Constant (C)	Quality Criteriation Wilks' L (λ)
		Cash ratio (X1)	Quick ratio (X2)	Return on total capital (X4)	Return on equity (X5)	Net return on sales (X8)		
2013	I	196,071	34,964	103,199	-112,12	12,269	-372,018	0,00118
	II	-19,464	-2,5139	-13,881	15,1194	0,1977	-4,1387	
	III	-16,697	-5,3556	0,3026	-0,4249	-4,5839	-7,8920	
2014	I	244,89	50,48	-94,51	43,70	-19,21	-390,09	0,00369
	II	-31,21	-7,70	14,14	-6,33	4,39	-7,73	
	III	-14,65	-1,63	3,35	-1,78	-0,99	-3,47	
2015	I	428,09	-40,81	-123,76	87,05	42,25	-598,63	0,00118
	II	-37,36	3,90	7,48	-4,15	-1,91	-5,06	
	III	-61,23	3,79	37,60	-33,13	-16,68	-31,36	
2016	I	12,29	8,65	21,64	-16,30	10,36	-31,06	0,01319
	II	-1,21	0,07	1,33	-2,18	3,28	-1,08	
	III	-4,36	-6,79	-21,54	20,96	-20,88	-25,06	
2017	I	-1,21	14,25	-15,33	18,72	11,66	-23,62	0,00562
	II	-1,21	-0,09	-13,23	16,78	10,77	-2,65	
	III	8,08	-8,97	89,58	-113,16	-72,37	-108,14	

2. Visual analysis a of the grafh (Figure 2.10) illustrates, that objects in three classes has grouped densely enough, and distances between clusters are large enough. It will allow with most probability to assume that recognition of the financial state of enterprises will be executed correctly.

	Discriminant Function Analysis Summary (DA9 9-02ST_VSE_nov No. of vars in model: 5; Grouping: K1_98-02 (3 grps) Wilks' Lambda: ,01933 approx. F (10,216)=133,76 p<0,0000					
N=115	Wilks' Lambda	Partial Lambda	F-remove (2,108)	p-level	Toler.	1-Toler. (R-Sqr.)
X1_ABS_L	0,109162	0,177066	250,9708	0,000000	0,772773	0,227227
X2_SR_L	0,020022	0,965371	1,9370	0,149103	0,658001	0,341999
X4_R_SC	0,021309	0,907067	5,5325	0,005158	0,065574	0,934426
X5_R_SBC	0,022010	0,878193	7,4899	0,000899	0,073229	0,926771
X8_CHR_P	0,040759	0,474220	59,8712	0,000000	0,823382	0,176618

Figure 2.9 General Discriminant Function Analysis Summary

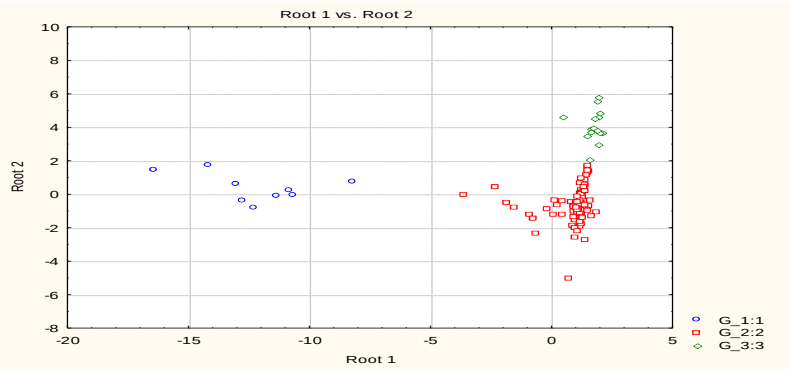

Figure 2.10 General Scatterplot of Canonical Scores for Enterprises

3. As a result of analysis all discriminant functions were got for enterprises financial states classes (figure 2.11).

	Classification Functions; groupin		
Variable	G_1:1 p=,07826	G_2:2 p=,79130	G_3:3 p=,13043
X1_ABS_L	48,1522	-4,24776	-3,1216
X2_SR_L	-2,7964	0,46123	-1,1203
X4_R_SC	-4,0065	-1,00276	8,4873
X5_R_SBC	3,7246	1,15051	-9,2145
X8_CHR_P	2,3707	1,01907	-7,6047
Constant	-77,1988	-0,91922	-11,8833

Figure 2.11 General Classification Function Parameters for Enterprises Classes

Discriminant functions for other groups of indicators were got similary. The last step of the model construction by a multidimensional analysis is directly recognition of the financial state of enterprises at the every year of inverstigated period. This process is carried out by the substitution of values of indicators of certain year in discriminant functions, which were got in the previous analysis. After it, it is possible to define probabilities of getting of enterprises to that or other class, grouping the results of recognition of the financial states for every year and total discriminant function. On the basis of the discriminant functions, it is conducted recognition and prognostication of the financial state of enterprises for investigated period.

Stage 4. Evaluation of the financial state of an enterprise. On this stage of diagnostic model, the followings tasks will be realized: construction of model of unclear plurals of classes of financial situations and determination of probabilities of getting of enterprise in the certain class of the financial state. The model of unclear plurals is built on the basis of analysis of conduct of enterprise by the selected groups of indicators [2, 3, 11, 15]. This process is carried out by the substitution of values of indicators of certain year in the discriminantni function. The next step is determination of probabilities of getting of an enterprise in the certain class of the financial state, grouping the results of recognition of the financial states for the reaserched period.

Stage 5. Prognostication Neural network models.

The tasks of this stage is a construction of models of neuron networks on groups financial-economic indicators, recognition of the financial state on the basis of these models and prognostication of probability of getting of enterprises in a certain class [2, 13, 16, 17]. Thus, the built architecture of neuron network has the following type (Figure 2.12).

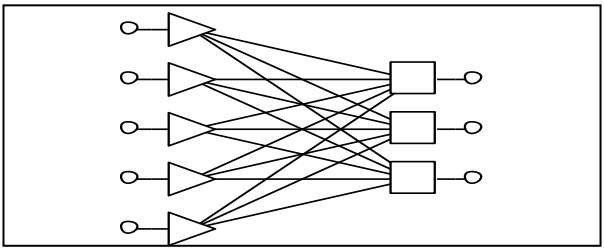

Figure 2.12 Neural Network Architecture

The index of S.d.ratio – relation of standard deviation of error of prognosis to standard deviation of input information is used for the estimation of quality of neural network (Table 2.7). In this case by every sample (educational, test and control), the value the correlation coefficient approaches to 1, and S.d.ratio – to the 0. So, it is possible to assert that prognostication and recognition of the financial state of an enterprise on the basis of the built network will be executed effectively.

The general results of the analysis of model and prognosis probability levels of the financial state for PJSC «Kharverst» are resulted in Table 2.8.

Table 2.7

Neural Network Regression Statistics

	Data Mean	Data S.D.	Error Mean	Error S.D.	Abs E. Mean	S.D. Ratio	Correlation
Tr. M1	0.08620	0.26718	2.33e-16	0.05307	0.03359	0.19861	0.98008
Ve. M1	0.06897	0.25788	-0.02204	0.09804	0.04347	0.38017	0.94883
Te. M1	0.08333	0.26644	-0.01354	0.06448	0.0443	0.24199	0.98146
Tr. M2	0.70114	0.40073	1.297e-16	0.20116	0.11869	0.50199	0.86487
Ve. M2	0.82758	0.30369	-0.01993	0.14238	0.11207	0.46886	0.90343
Te. M2	0.70833	0.41728	0.03586	0.19298	0.12876	0.46249	0.88664
Tr. M3	0.21264	0.35292	-6.212e-1	0.19593	0.11198	0.55519	0.83172
Ve. M3	0.10344	0.20126	0.04197	0.11112	0.10158	0.55213	0.83564
Te. M3	0.20833	0.36747	-0.02232	0.17365	0.11923	0.47258	0.88131

On the basis of the results of diagnostic models and input data of PJSC «Kharverst», it is possible to form the separate table of dynamics of the financial-economic state of the enterprise and analyse its activity for the inverstigated period.

Table 2.8

Prognostication Neural network Results for Enterpise State

Groups of financial-ekonomic indicators	The best network type	Network Error	Correlation coefficient	Posterior probabilities of classifying for enterprise each class					
				(2018)			(2019)		
				I	II	III	I	II	III
Liquidity and profitability	MLP	0,012	0,95	0,14	0,60	0,26	0,11	0,63	0,26
Business activity	MLP	0,023	0,97	0,87	0,10	0,03	0,91	0,06	0,03
Financial stability	MLP	0,019	0,97	0,29	0,53	0,18	0,27	0,54	0,19
Capital assets efficiency	MLP	0,014	0,93	0,62	0,38	0,00	0,41	0,54	0,05
Labour resources efficiency	MLP	0,051	0,91	0,96	0,04	0,00	0,91	0,09	0,00
Cost structure	MLP	0,036	0,90	0,22	0,44	0,34	0,27	0,56	0,17

Thus, analysis of prognoses on the indicators of group of liquidity and profitability in 2018 and in 2019 illustrates that with probability 60 % and 63 % this enterprise will be in the second class, which characterized the satisfactory state of financial activity. However, if management will not accept necessary measures for increasing the level of solvency and profitability, it can lead to passing of the enterprise to the third class (probability 26 %). But if the enterprise in this period will conduct the policy of expansion and search of new markets of sale, effective policy of purchases, and also development and introduction of

new types of industrial products, it can pass to the group financially – stable enterprises with probability 14% and 11% accordingly.

Conclusions.

1. The conducted analysis of methods and models of development of enterprises allowed offering the system of indicators, which comprehensively characterizes the level of development of the system both in the spatial comparative inscsion and in the dynamics on groups and by areas of activity.

2. Models of diagnostics of financial situations built on the basis of cluster and discpiminant analysis, neural network models and panel information allow to take into account the features of the financial state by the basic areas of activity of enterprise, tendency of development while forming of priorities them its development.

3. Static and dynamic clusterisation of machine-building enterprises of Kharkiv region was conducted on the basis of methods of cluster analysis on the indicators of strategic development. It allowed getting the followings groups of enterprises: 1 – financially proof enterprises, 2 – enterprises with the satisfactory financial state, 3 – crisis enterprises.

4. The diagnostic model of financial situations of activity of the enterprise allowes to estimate the level of the use of financial potential of enterprise and form administrative decisions for strategic program of development. It is adapted to every enterprise.

Thus, the complex of models of diagnostics of financial-ekonomic activity the of the enterprise allows: to diagnose a plural financially - economic positions of the system on the whole and on the local areas of its activity; to estimate the trajectory of conduct of the system and find out bottlenecks in activity of enterprise; to forecast and analyse the dynamics of current state and it progress trend in the future, that promotes the operationability of making decision on a previous exposure and localization of crisis situations.

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Chapter 3

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

Cherkasova Svitlana
Doctor of Economics, Associate Professor, Finance, Credit and Insurance Department
Lviv Trade and Economic University (Lviv, Ukraine)

USE OF INVESTMENT POTENTIAL OF VENTURE FUNDS FOR INNOVATIVE DEVELOPMENT OF ENTERPRISES

Market transformations in the economy of our country have led to the development of collective forms of investment. Particularly popular in the financial sphere were the processes of creation and development of venture investment funds. The attractiveness of venture funds as a form of investment business organization in Ukraine today is extremely high. The mentioned institutions during the last decade have accumulated a strong investment capital, which can be considered as one from the domestic sources of economic growth of the country. However, as practice shows, the importance of venture funds in financing the development of enterprises and formation in the country of an innovative type of economy remains insignificant. It is important not only to consider the reasons for the lack of innovation orientation of the activities of domestic venture funds, but also to identify the mechanisms whose use will enable to attracted in the economic activity of domestic enterprises the accumulate by these institutes the investment for stimulate innovation development.

Remain important is the questions of choice the most effective mechanisms of realization accumulated by the investigated institutes the investment potential for acceleration of innovative development of enterprises.

The modern stage of economic development of Ukraine has caused

considerable interest of participants of the financial market to the creation of venture investment funds. The special attractiveness of venture funds as a form of organization of investment business is related to many aspects, including a special tax regime, long-term nature of investments, the absence of legal restrictions on directions investment, the possibility of concealing information about the composition of fund participants, etc.

Unlike other forms of collective investment, venture funds have wider opportunities of investment and can carry out economic transactions that are prohibited for other types of investment funds. By domestic law, investment funds are exempted from paying income tax and value added tax at the time of liquidation and settlement with participants. An important reason for the popularity of venture funds is the ability to hide information about their members – real venture business owners.

Venture capital is capable of providing innovative transformations in the activities of individual economic entities and in the national economy as a whole. The venture capital movement is characterized by a particularly effective organization, control and proper information support [3, p. 318].

In foreign practice, the activities of venture funds are aimed at making large investments in prospective projects and highly risky production for a long period of time. The profit received of the venture founds are directed towards further business development.

By the end of 2016, the number of active venture funds in Ukraine amounted to 998 units, and the value of their total net assets – 180.7 billion UAH, having increased during the decade almost 5 times [7]. The growth of investment assets of venture funds in Ukraine was observed until the 4^{th} quarter of 2016 and was characterized by high dynamism (Figure 3.1). A slight decrease in the value of assets of these funds at the end of 2016 was largely due to the lack of state regulation of the stock market, which led to a reduction in the number of listings securities in stock registers of stock exchanges and the loss of their value. The negative impact on this process was caused by the write-off of part of assets of funds from insolvent banks and assets what registered in the area of anti-terrorist operation.

According to calculations, the ratio of assets of venture funds to assets of domestic banks in modern conditions is about 14.5% [7; 8] and characterizes the significant investment potential, accumulated by these institutions, which can be used for innovative development of the

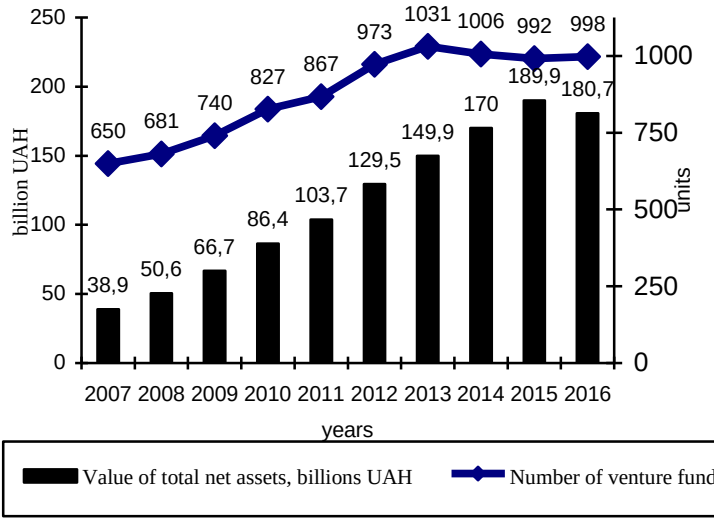

Figure 3.1 Dynamics of number the venture funds in Ukraine and their aggregate net assets during 2007-2016

Source: built by author for [7]

enterprises as one of the sources of internal investment resources. However, the influence of domestic venture funds on the development of innovation remains insignificant, because on the money of funds of domestic financial institutions in the structure of sources financing the innovation accounts for only 1.3% [9, p. 90]. In general, this characterizes the low interest of venture funds in financing the development of innovation activities and their insignificant impact on the emergence in the country of an innovative economy type.

Venture funds can use both lending and stock methods for financing economic activities of entities the economics. The investigated institutes have the right to provide loans to legal entities, of which not less than 10% of the authorized capital belongs to these funds. The acquisition of venture funds the securities what issued by enterprises ensures the implementation of a stock financing method, within which it is necessary to consider separate mechanisms.

Deserves on the dissemination of world-class practices the experience of attract the venture capital of the joint-stock companies. The mechanism of attracting venture investments through the purchase of shares consists of the following consecutive steps: the definition of

the purpose of obtaining money by a joint stock company on the principles of venture investment; conducting the necessary organizational measures for choice in the existing venture infrastructure an investor (venture fund); develop a strategy for cooperation with the venture fund; develop of a feasibility study for an innovation project, which involves venture capital, and a mechanism for its implementation.

To implement investment projects involving venture investments, the joint-stock company provides develop of several variants of the business plan and selects the most effective, assigns the responsible person for cooperation with the venture fund, conducts a presentation work on familiarizing the investor with the company's economic activities and its competitive advantages compared with others contenders for venture investments. Thereafter, is under way organizational work to conclude an agreement on financing, to determine the share of a venture fund in a company's capital, to include representatives of the venture fund in the board of directors of the company, etc. In turn, the venture asset management company performs a thorough analysis of the financial status of the company, assesses the perspective directions of its development and the risks accompanying the economic activity, the competitiveness of the company on the market, the efficiency of corporate management and other factors that determine the success realization of the investment, then makes a decision about the possibility of cooperation with the company.

The next mechanism for attracting investment potential of venture funds as a source of financing the innovation development of enterprises is related to the issue of bonds. Bonds of enterprises can be issued by enterprises of any organizational-legal form for the purpose of attracting debt capital. The venture fund can buy the entire volume of the bonds of the enterprise or a significant part of it. This mechanism for attracting borrowed financial resources has certain advantages compared with bank loans, because it allows you to obtain money for a longer period of time and, as a rule, at lower interest rates. For enterprises-issuers of bonds to attract venture capital significantly simplifies and reduces the cost of securities placement in the market.

The third mechanism of financing innovative development of enterprises with using the investment potential of venture funds is short-term character and is implemented to replenishment of working capital. Acquisition of venture funds of commercial securities, which are bills of exchange, allows providing additional needs in the financial resources due to the seasonal nature of economic activity and discontinuities in the

process of receipt and spending of money. However, this mechanism due to its short-term character can not provide processes the innovative development of enterprises.

Analysis of the structure the assets of venture funds gives grounds to conclude that the first two mechanisms of financing the activities of enterprises have not yet received proper development in Ukraine. A significant part of the investment resources of venture funds is directed at loans to enterprises that are the founders of these funds, or invested in bills of exchange for the purpose getting of profit in the short-term period.

To strengthen the innovation orientation of Ukrainian venture funds and their importance in ensuring economic growth, it is important to use the foreign experience of organization the venture activity. In world practice, are used different types of venture investments, including rescue financing, replacement financing, financing operations, etc. Unlike domestic practice, venture capitalists can be not only investment funds, but also pension funds and banks.

In different countries was formed their specialization of venture investment. In the countries of Western Europe, venture investment provides the development of companies. At the same time, the management of the companies used venture investment as a mechanism for acquiring them in the property. Increased demand the venture investment is used in the Great Britain and France.

In the United States, venture capital is primarily geared towards new science-intensive technologies. Investment in innovation projects in this country is particularly recognized, and venture investment is seen as allowing which makes possible to expand sources their financing and more evenly to distribute risks.

In post-soviet countries, venture investment mechanisms are often replaced by ordinary lending. In addition, these processes are not accompanied by a deep analysis of the object investment, the assessment of investment risks and characterized by the lack of proper oversight and control by the state from the process of implementation investment [10].

Taking into account the undeveloped cooperation of venture funds with joint-stock companies in domestic practice and the prevalence of this mechanism on developed markets, it is precisely at the expense of activating this direction of investment may be secured that the strengthening of the innovative activity of venture funds in Ukraine. This form of investment is even more transparent compared to the existing, as information about cooperation with the venture fund should

be subject to mandatory disclosure as part of the annual information of the issuer of securities. However, in order to implement the proposed mechanism of cooperation between joint stock companies and venture funds, it is necessary to create an infrastructure for venture investments in Ukraine, which would combine both venture funds and direct participants in the investment process. The functions of information and advisory support in this system could be performed by a consultative-informational department created in the structure of the National Venture Fund.

Creation of the infrastructure of venture financing would give an active impetus to the development of public-private partnership in the venture sector. By the time the state defines the most important projects and programs of innovative development with the share of state financing on a competitive basis, can be carried out a selection of investment funds ready to invest their resources in their implementation. The activation of the innovative direction of venture business in the country can promote also the practice of providing state guarantees for investment programs and projects, the successful implementation of which will ensure the development of priority sectors of the national economy.

State support of financial institutions which take part in the financing of innovation activities in foreign practice is realized in the form of state orders for carrying out research works, implementation of joint innovation projects on a parity basis, tax stimulate to increase investment costs (tax credit, preferential taxation of income), compensation of part the interest rates for loans innovative directions, providing loans for innovation development and their insurance.

The experience of industrialized countries testifies that an effective tool for stimulating innovation activity is guaranteeing the process of repaying loans by the state. The guarantee is realized by two schemes: within the first one – the state guarantees repayment of loans provided by banks, for the second – to guarantee loans are created special institutions. The process of attracting banks' loans to venture investment processes will substantially increase the transparency and reliability of this form of investment both through diversification of investment risks and at the expense of more thorough examination of investment projects in the process of making a decision on granting a loan.

Thus, in the Great Britain, the state guarantees the return of 85% of the loan granted by banks for investment purposes; in Germany, state guarantees cover 80% of the loan amount of such a direction. In France

created a specialized institute surety – the French guarantee company for venture financing. In the capital of such a company, 45% belongs to the state, the rest – to banks and insurance companies. The company provides the return of an investment loan in the amount of 40 to 75% depending on the nature and circumstances that led to non-fulfillment of obligations by the borrower. The practices of using such stimulate measures for the development of innovation activity of venture funds should be studied and gradually implemented in Ukraine [11, p. 85].

Involvement of world experience for stimulating the development of venture investment and its effective use in Ukraine will be possible under the condition of a stable state policy in the field of investment activity, formation of the appropriate authority of the state as a guarantor of accepted commitments, develop of simple and understandable for market participants standards and rules of participation in financing of innovative developments, favorable investment climate.

Among the main disadvantages of state regulation of activity the venture funds as institutions of innovation development in Ukraine should be noted:

- lack at the state-level strategy for the development of venture funds as institutions whose activities can significantly accelerate the emergence in Ukraine of an innovative economy;
- establishing for venture funds the rules of activity, tax preferences and privileges without taking into account the priority of investment activities, stages of development and implementation of investment projects;
- excessive closure of the activity of venture funds, which makes it possible to apply opaque mechanisms of management;
- lack of oversight and control by the state on the process of implementing business plans by such institutions and directions of their investment declarations.

At the state level it is necessary to develop a strategy for the development of venture investment funds. The positive effect on strengthening the innovation focus of these institutions can be achieved at the expense of creation in Ukraine of the National Venture Fund with functions of coordination of cooperation between venture funds and innovative enterprises and developing venture infrastructure, development public-private partnership in the sphere of innovations, introduction of system government guarantees and insurance for innovative loans and other forms of financing for innovation develops. It necessary is strengthening the dialogue and cooperation of state

agencies with professional participants of venture business. Currently, attempts by state regulatory units to regulate the scope of venture investment are unsuccessful and cause resistance from professional market participants.

These instruments will ensure not only the growth of the supply of venture capital, but the achievement of more effective use of the existing potential of venture funds on the most important directions of development of the system national economy.

In modern conditions, the participation of venture funds in the innovative development of Ukrainian enterprises and the formation in the country of an innovative type of economy remains insignificant. Mechanisms for attracting capital of these institutions through the purchase of shares and bonds of enterprises in domestic practice are not widespread. Investments of venture funds remain non-transparent and, in most cases, they are not innovative direction. Strengthening the role of venture funds in ensuring the accelerated development of the national economy can be achieved by changing the principles of state policy about the functioning and development of these investment institutions. Legislative consolidation requires the principle of compulsory innovation orientation of the activity of venture funds. Only if implemented this principle justifiable is legislation on wider investment opportunities, provided for these funds, and tax privileges granted to them. It necessary is the involvement and widespread use of world experience in using the capital of these institutions to innovate the development of domestic enterprises.

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Dumanska Ilona
PhD in Economics, Associate Professor, Chair of International Economic Relations
Khmelnytsky National University (Khmelnytsky, Ukraine)

BANKING PRODUCTS AND PROGRAMS OF FINANCING AGRICULTURAL SECTOR ON INNOVATION BASIS: ANALYTICAL ASPECTS

The agrarian sector in 2017 gave 12% of GDP and a third of total export earnings. At the same time, it is possible to receive more from the agrarian sector, especially after the signing of the Association with the EU, which opens the European market for Ukraine.

In order to reorient to a new space and to secure a competitive position, it is necessary to develop instruments for attracting funds to agribusinesses. Currently, part of the Ukrainian production is not in line with the requirements of the European market. Reason: low technological progress of small and medium farms. The use of outdated and less effective technologies is reflected in the increase in the cost of the product.

Without money, farmers cannot upgrade the material and technical base, buy high quality seeds and CZR before the season. This hinders

the development of small farms. For them, especially necessary loans – preferably long-term. That they will allow to purchase the necessary equipment, to invest in processing, to introduce technologies.

Now there is a problem with commercial banks in Ukraine – there are a lot of bad loans. According to the National Bank of Ukraine, in the first quarter of 2017, the total share of problem loans of banks exceeded 55%.

The lack of repayment of loans to banks lasts from 2014, when borrowers who took loans in the currency after the devaluation of the hryvnia had to return three times the amount. In addition, small and medium-sized producers tend to focus on the domestic market, where the purchasing power of the population, after the devaluation of the hryvnia, also fell significantly.

The crisis has led to a situation in which enterprises have lost their own funds and have no resources to handle in order to develop.

At the same time farmers in the agricultural sector are always lacking funds. In order to get back their investments that have gone to seed, one needs to endure the seasonal gap between investing and returning money. In such conditions, a loan is a necessary source of working capital.

Credits are issued by commercial banks within the framework of programs. Among the main:

- lending to replenish working capital – for the purchase of fertilizers, livestock, repair of equipment, wages to employees;
- lending for investment projects – for the construction of fixed assets, elevators, warehouses and equipment for the work of designated premises;
- loans for the purchase of agricultural machinery.

The interest rates of the bank depend on the type of loan product, the maturity of the loan, the currency in which the loan is granted, the interest payment procedure, as well as the financial condition of the borrower himself.

Average weighted interest rates on loans in 2016 for agricultural enterprises in hryvnia fluctuated within 14-21%, in currency – 6-10%. According to NBU data for December 2016, the average loan rate for market participants of the agroindustrial complex was 18.4%. The average adjacent value in the branches of the economy is 14.2%.

There are individual programs that calculate offers for a single client. There are also affiliate programs with farmers who provide Ukrainian banks. Preferably it is a program for the purchase of fertilizers and

machinery. Among the banks that provide loans: PrivatBank, Oschadbank, Ukrgasbank, Raiffeisen Bank Aval, CreditAgricolBank, OTP Bank.

Terms for granting a loan: the legal registration of the borrower as an entity; profitable business activity; the absence of a negative credit history.

Due to high interest rates, many agribusinesses are not a lucrative instrument for raising funds. Bankers have their reasons not to reduce interest on agrarian loans, among them: poor quality of financial planning, accounting and reporting, lack of reliable statistics on land use and liquid collateral.

There are no prerequisites for reducing interest rates. It remains to rely on state support for farmers, which would offset interest on bank loans.

But now it is not necessary to count on state support. From the budget for compensation of credit rates in 2017, as in 2015 and 2016, only UAH 300 million was allocated under the program of support of agricultural producers. Given the size of the total amount issued on loans, which is almost UAH 51 billion, the amount of compensation will not be able to cover even twenty percent by interest.

In addition to high rates, the conditions for obtaining a loan may be fulfilled by not all entrepreneurs.

This applies both to fees for resource use and security requirements. If in the part of the payment of a loan banks cannot offer a fee lower than the resources involved, then in the provision of security, there are additional questions. Some of them are related to the type of security (the most important guarantee for most banks is liquid assets), others – with the need to evaluate and insure them.

In this part, there are precarious inconsistencies between the existing ability to use certain assets as a means of providing agricultural enterprises and the non-recognition of loans by the NBU for which no redundancy is required.

The subjects of the agroindustrial complex suffer losses in 2017 in a different way. If before they left most of their VAT, since 2017 they were deprived of such preferences. This will further reduce the availability of working capital to agricultural enterprises. According to calculations – the deficit in the industry will reach 30 billion USD.

In his blog, Deputy Minister of Agrarian Policy and Food of Ukraine Maxim Martynyuk described the current situation with loans.

At the end of February 2017, loans issued to agricultural companies

amounted to only UAH 50.9 billion or 6.4% of the total amount of loans received by enterprises in the real sector.

For comparison: banks of wholesale and retail trade provided 263.9 billion UAH. Loans, which is a record indicator on the system. Silver – in the processing industry, which sent 201.3 billion UAH.

Both branches lag behind the growth dynamics of agriculture. Recycling has increased by 3.6%, wholesale – by 4%, while agriculture has reached 6%.

Almost 40% of them – 19.6 billion UAH – for a year, which allows you to understand their intended purpose: financing cash gaps inherent in agriculture. At the same time, long-term loans (over five years), issued for investment projects, for re-equipment of funds and expansion of production, amount to 11.2 billion UAH. This is about 20% of the total number of loans granted to farmers, which is twice less than the short-term amount.

With the signing of the Association Agreement and the Free Trade Area with the EU, many domestic farmers are able to deliver their products to the European market. But with time it may turn out to be the opposite – and Ukrainian farmers will lose their domestic market. Everything – through the conditions of competition of manufacturers.

The EU provides its farmers with significant subsidies in comparison to Ukraine. They can receive loans under the age of 25 and at low interest rates (3.5-5.5% in euros).

According to various estimates, bank lending is only 20% of the working capital of the agrarian sector. At a time when in developed countries the share of loans is 70%.

In Ukraine, there are about 46 thousand farms. Of these, 10% produce 90% of all products. Small farms cannot compete with large agricultural producers in terms of production due to insufficient modernization of farms. They cannot be upgraded because of the lack of funds that cannot be obtained.

Is it possible to consider the low level of lending to farmers because they are bad payers? No, because the volume of arrears of companies in the sector is only 12% of loans granted to them.

In those sectors where the largest number of loans is issued, the indicators are worse: trade delays payments of 15% of loans, in the processing industry – 46%. The average for all loans in 2016 reached 52% in total.

Given the numbers, farmers are good borrowers. But this does not add to their popularity.

The banks have their own rules for issuing loans. In order to become such, it is necessary to give the institution something to be pledged for the money received.

A change in the situation may be the emergence of agrarians a reliable mortgage, which may become the land. This will not only enable farmers to obtain the necessary funds for economic activity, but will also improve the situation of banks, because they will be able to increase their volumes.

The experience of developed countries shows that it is expedient to develop a network of institutions in relation to crediting agrarians, that is, improving legislation, institutions, development of mortgage lending, and leasing. The most optimal is the creation of a state-owned Agrarian Bank, the main task of which should be to promote the development of lending to agricultural commodity producers by providing loans, guaranteeing the return of received loans, refinancing loans.

Agriculture needs financial support because seasonality of production, large capital turnover, poor material and technical base (outdated Soviet technology), the difference between prices of agricultural and industrial products, the peculiarity of the production process and the importance of the economy do not positively affect the activities of enterprises. Agrarian enterprises have significant financial resources, but not sufficient for self-financing and development. It is well-known that state support to agricultural enterprises through the mechanism of cheapening loans contributes to raising their level of provision of credit resources.

Thus, the credit provision of the agroindustrial complex essentially depends, among other factors, on the amount of the state budget funds aimed at the program of cheaper agricultural loans.

The banking system does not play a significant role in the development of agrarian enterprises, although there are positive trends. Most Ukrainian banks are commercial, privately owned, so it is not difficult to understand that their main purpose is profit, rather than maintenance of risky sectors, in our case, agro-industrial complex.

The most financially attractive are the agro-industrial sectors associated with the cultivation and processing of crop production. This is due to a faster turnover of capital and the ability of borrowers to repay debts within 8-10 months.

Lending to agriculture requires banks to form an adequate lending policy that would proceed from the status of the agrarian sector and thereby create the priority conditions for its development.

The peculiarities of the agro-industrial complex complicating the process of lending to this sector of the economy by banking institutions are as follows:

- elongated production cycle;
- high demand for long-term loans, which is more risky for banks;
- specificity of the pledge (in particular land and property of specialized enterprises);
- seasonality of production of finished products, especially in crop production;
- dependence on the influence of weather factors, crop yields and animal productivity.

It is also necessary to take into account that adverse weather factors (hail, storms, hurricanes, floods, showers, frosts, droughts, fires) can lead to partial or total loss of crops and domestic animals; – high credit industry; – low level of management and qualification of personnel of agrarian enterprises.

Banks independently determine the terms of lending, volumes, terms, commission fees for loans, adhere to the principles of lending, control the use of borrowed funds in accordance with their own credit policy and strategy, adhere to the requirements of the current legislation and norms established by the National Bank of Ukraine, therefore, troubled and bad borrowers are for them too risky, such as, for example, agricultural enterprises. They set tight requirements and high interest rates for borrowers, thus protecting themselves from losses.

Lending involves providing loans to all economic entities without any specific characteristics and conventions that they need, but they are creditworthy, but in this case, during this period, the agrarian sector suffers the most, as it is considered to be the most risky and not quite favorable for investments that are also insufficient for development.

Prospective is considered for lending to agrarian enterprises at the expense of resources of foreign banks. This lending in the agrarian sector of the agroindustrial complex is not applicable, except for isolated cases, which indicates an inadequate level of utilization of those potential opportunities and benefits embodied in this form of investing in fixed assets, such as lending from the credit resources of foreign banks.

The main problems of agriculture that require immediate resolution are outdated equipment, which was demolished 20 years ago, but it is still in use.

Leaving from this situation is leasing – it will help to update the

technical base of agrarian enterprises, while not spending a lot of money on the purchase of the equipment itself and not extracting these funds from the turnover, because, as we know, agricultural machinery, especially the latest developments, is worth a lot of money, which our enterprises do not have all.

At present, banks use eight technologies of lending for leasing projects of agro formations. As a rule, highly liquid assets such as vehicles (45%) and agricultural machinery (31%) are the subject of lease agreements for agricultural enterprises. But direct lending to agro formations takes only 8% of the total and does not exceed 10-12% of investment demand for leasing technologies.

This type of lending should be used in the given conditions of economic development of Ukraine, it will lead not only to updating the material and technical base, but also to improve the quality of production, products and the state of agricultural enterprises, the possibility of greater output of Ukrainian products to the world market and conquest

Also, the problem is not only in the banking system and its unwillingness to provide loans to farmers, but also the desire of the agrarian enterprises themselves to obtain the most favorable loans on the most favorable terms while hiding certain information.

Bank research on these issues, expert examinations and, if necessary, investigations is specific and requires certain costs, which then result in the terms and interest rates of the loan.

The more reliable the data is provided and the less money will be spent on the study of their reliability, the more favorable conditions will be for the borrower. In the stage of development of crediting in the field of agroindustrial complex it is necessary to consider other types of lending and non-traditional lending, which are quite popular in

Lending to agrarian enterprises is perhaps the most important link in their financially secured. But insufficient consideration of this issue and the adoption of the recommended measures prevent the good relations between the banking system and the agribusiness sector. Banks, above all, are interested in profit and conditions that will provide them with the least risk. And not all agricultural enterprises are in a satisfactory financial condition and fully meet the requirements and desire of bankers.

Although foreign banks are interested in the development of the Ukrainian agro-industrial complex and are ready to invest in the development of our agriculture, thus not only their needs, but also the

social status of agricultural workers will be solved.

Foreign experience shows a variety of approaches to solving the problems of preferential lending to agricultural producers by the state.

Thus, in France, the mechanism of action of preferential loans is based on the principle of bonits – compensation to the lender from the state budget of the difference between the contractual interest rate and the rate of preferential credit. The size of the preferential lending rate is fixed, legally defined and differentiated depending on the type of loan: for the arrangement of the economy – 2,7-4%, modernization – 2,7-5%, livestock development – 5-6%, production of some crop products – 6-10%, land loans – 5,2%, financing of cooperative societies – 3,7-5%.

For German agricultural producers, either the rate of preferential credit is fixed or the amount of partial compensation [7, p. 138]. The preferential investment loan to Austrian farmers is differentiated depending on the type of loan at two levels of compensatory payments - 50 and 36% of the current interest rate of the creditor bank.

In the US, the Farmers' Association finances a program to reduce lending rates with a compensation of 4% of the interest rate on a loan received from commercial banks by a farmer or an agricultural commodity producer.

Romanian agricultural enterprises partial compensation was made after the return of the preferential loan in the stipulated term at the rate of 70% interest rate of the creditor.

Consequently, the common features and trends in the development of the system of agricultural lending in highly developed countries are: the participation of the state in maintaining the functioning of the system; high level of attraction of credit resources to agriculture; the most common tool is preferential lending; the formation of a "mixed" lending system.

But at the same time, the necessity of finding alternative sources of financial support by the participants of the agrarian market remains. In order to improve the credit provision of agriculture in Ukraine, it is necessary to intensify the development of new forms of lending in agriculture that would allow them to obtain loans. These include factoring transactions, loans secured by manufactured goods, mortgage lending, leasing, forward lending, etc.

An analysis of domestic conditions for attracting additional financial resources of agricultural enterprises and their access to external sources of financing shows the urgent need to revise the foundations of state regulation of this sector of the economy and to activate the position of

the state.

The need to strengthen state regulation in the agrarian sector is conditioned by the importance of agricultural production in the national economy of our country.

Necessary measures to revive domestic agriculture and increase its share in international trade should be as follows:

- an increase in the amount of subsidies to the agro-industrial complex of Ukraine;
- reviewing the conditions and criteria for financing and lending to the village;
- reduction of interest rates on loans as a result of the strengthening of the role of state banks in the banking services market.

The model of development of domestic credit infrastructure within the national economy should include the creation of a bank that would deal exclusively with the services of the agrarian sector.

The creation of such a bank can be carried out in the form of a cooperative bank or the State Agrarian Bank, but in any case, this segment of the banking market infrastructure will allow all financial and credit resources of the industry to be concentrated and coordinate all financial and credit flows.

Such a practice of creating a single clearing house for the agrarian sector is not new and has been successfully implemented in many leading countries of the world - Belgium, the Netherlands, France, etc.

Such a highly specialized bank in our country should also become a developer of methodological recommendations, instructions, uniform forms of credit card and document packages and a guarantor for the creation of preferential lending conditions for the agrarian sector of our country.

So, summing up, it can be noted that the further development of financial and credit relations in the field of agriculture should adhere to the principles of a market economy, but with elements of public administration and regulation of this sector of the economy.

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Sobolieva-Tereshchenko Olena
PhD in Economics, Associate Professor
Ivantsiv Nadiia
Bachelor
Chair of Finance and Economics
Borys Grinchenko Kyiv University
(Kyiv, Ukraine)

COMPARATIVE ANALYSIS OF THE PAYMENT CARDS MARKET IN UKRAINE AND NEIGHBORING COUNTRIES TO IDENTIFY THE POTENTIAL FOR THE INNOVATIVE DEVELOPMENT OF BUSINESS

One of types of innovation activity is the new organizational-economic and financial-credit decisions that improve the quality and efficiency of managerial and commercial processes. First of all, the experience of neighboring countries and an analysis of existing financial instruments for stimulation of the innovative development of business entities are studied in the conditions further integration into the World Economy.

Today, Ukraine and its neighboring countries have different levels and directions of economic development, one part of them belongs to the countries of the European Union (Romania Hungary, Slovakia, Poland), the other one intends to become the EU member (Ukraine,

Moldova), the third belongs to the post-soviet countries (Russia, Belarus). However, being neighboring countries and having similar geographic and socio-cultural conditions, they implement different approaches to innovation development and business, and to finding new financial-credit instruments for stimulation of the innovative development of business entities. This all served as the basis for conducting a comparative analysis of the payment card market to determine the potential of innovative business development in Ukraine.

The investigation of the role of financial instruments as an important stimulation factor for innovative development was initiated by foreign and domestic researchers. According to Hungarian Professor Boris Santo (1990) "Innovation are a Means of Economic Development" [1]. The problems of innovative development of economy of the Republic of Belarus and ways to solve them are described in work of Petrasik E.L. (2010) who expressed the idea that in monetary, credit-financial and fiscal system of the country contains significant untapped reserves to stimulate innovation activities of domestic enterprises and the national economy as a whole. [2]

The innovation performance of the Slovak Republic including analyze position country in European Union and innovation barriers in Slovak SMEs was study in the work of Ladislav Klement et al. (2016) [3]. In additional some specific recommendations for focusing the position of Slovakia among the closest competitor regions (V4 neighboring countries – Slovakia, Poland, Hungary, Czech Republic) was also given by them.

Michał Polasik and Dariusz Piotrowski (2016) declared in their works about payment innovations in Poland that a "next most important challenges for the banking sector will be the ability to introduce innovations into the market and the implementation of new technologies, including mobile technologies". [4]

In the work by Andriy Ramskyi et al. (2017) analyzed of relationships between banking system transformation and effective development of the Ukrainian economy and determined Ukraine's integration into the European Union as way strengthen the business environment. [5]

Accordingly, it is necessary to study the payment cards market neighboring countries in order to understanding of the potential of innovative development of business. The purpose of researches is to make a comparative analysis of the payment cards market of Ukraine and neighboring countries to determine the connection of the influence

of credit-financial instruments on stimulation of the innovative development of business entities. To this end, the markets of payment cards have been investigated according to the data of the central banks of the countries and the level of development and different business conditions has been analyzed using the international methods "BDO International Business Compass" "Doing Business" for 2017 in such neighboring countries as Belarus, Hungary, Moldova, Poland, Romania, Russian Federation, Slovak Republic and Ukraine.

For determination the potential of innovative development of business entities of the country, the degree of attractiveness of business development is essential. To assess the level of development and business conditions, the Rank and Value of Economic, Political-Legal, and Socio-cultural conditions system, which is defined among 174 countries by the BDO International Business Compass (BDO IBC) method, is analyzed. The comparative analysis of Ukraine and its neighbors by 2017 is presented in Table 3.1

Table 3.1

The parameters of BDO IBC in 2017 for analysed countries

Country	Index		Economic		Political-legal		Socio-cultural	
			General conditions					
	Rank	Value	Rank	Value	Rank	Value	Rank	Value
Belarus	87	49.8	79	48.9	133	44.7	40	56.7
Hungary	45	59.2	56	52.1	41	72.7	46	54.7
Moldova	95	48.7	74	49.2	102	51.5	103	45.7
Poland	34	60.7	47	52.7	32	77.6	47	54.7
Romania	51	56.4	68	49.8	51	68.3	60	52.7
Russian Federation	109	46.7	67	49.9	143	40.1	70	50.9
Slovak Republic	43	59.4	41	54.2	39	74.2	61	52.1
Ukraine	134	42.7	112	45.8	151	37.1	102	45.8

Source: compiled by the authors based on [6]

According to the data of the table of 2017, Ukraine ranks 134 in the ranking of 174 countries in relation to the generalized index of BDO IBC, which is the lowest index among the analysed countries under study. At the same time, under economic conditions, Ukraine occupies 112nd position in the ranking, according to the political-legal conditions – 151st position and according to socio-cultural conditions – 102nd

position. The highest ranking among the countries under study is Poland – 34th among 174 countries. At the same time, in economic and socio-cultural terms, Poland occupies 47th position in the ranking, and Poland has a higher ranking in terms of political-legal conditions, occupying 32nd position.

Also, the most well-known and popular is the methodology for assessing the establishment and support of business "Doing Business" (DB), conducted by the World Bank among 190 countries in the world. The methodology is based on the assessment of various indicators of the start-up and development of small and medium-sized businesses to ensure the enforcing of contracts and resolving insolvency.

So, for innovative business development, the most important indicators are the conditions: Starting a Business and Getting Credit. Consider the 2017 Indicators of "Doing Business" method for Ukraine and its neighboring countries in Table 3.2.

Table 3.2

Analyses of sub-indices DB in 2017 for analysed countries

Doing Business	Belarus	Hungary	Moldova	Poland	Romania	Russia	Slovakia	Ukraine
Starting a Business								
Procedures	5	6	5	4	6	3,7	6	4
Time	5	7	6	37	12	9,8	12	5
Cost	0,6	7,1	6,2	12	2,0	1,0	1,2	0,5
Min.capital	0,0	46	0,0	11	0,6	0,0	18	0,0
Getting Credit index								
Depth of credit info	7	5	6	8	7	7	6	7
Strength of legal rights	2	10	8	7	10	6	7	8
Extent of disclosure	7	2	7	7	9	6	3	6
Director liability	2	4	4	2	4	2	4	2

Source: compiled by the authors based on [7]

According to the table, Ukraine among the neighboring countries has the most immediate conditions for starting a business in terms of the number of procedures (4), days (5) of its registration, Cost (% of income per capita) – 0.5 and Minimum capital (% of income per capita) – 0. The most demanding conditions for starting a business are in Poland – the number of business registration days is 37 days in accordance, Cost (% of income per capita) – 12.1 and Minimum capital (% of income per capita) – 10.9%. At the same time, the conditions for obtaining a loan for business development in both countries are roughly the same. So,

table 2 reveals, that Depth of credit information index (0-8) in Poland – 8 and in Ukraine – 7, Strength of legal rights index (0-12) in Poland – 7 and in Ukraine – 8, Extent of disclosure index (0-10) in Poland – 7 and in Ukraine – 6, Extent of director liability index (0-10) as Poland as in Ukraine – 2.

Effective supported and availability of cashless payments very important for innovative development of business, including using plastic cards. A comparative analysis of the payment cards market in Ukraine and neighboring countries is presented in Table 3.3

Table 3.3

Comparative analyses of payment cards market in 2017 for analysed countries

Country	Population, mln.	Number of card, mln.	Cards - per capita	ATM, pcs.	People – per ATM	POS, ths,pcs.	People - per POS
Belarus	9, 5	13,9	1,46	4 404	2 157	151	63
Hungary	9, 8	9 ,1	0,93	5 107	1 913	136	72
Moldova	4,1	1, 7	0,43	1 099	3 694	17	244
Poland	38,6	37, 8	0,98	23 230	1 663	605	64
Romania	19,1	16, 4	0,86	11 069	1 724	194	98
Russian Federation	146,5	268, 5	1,83	206 316	710	2189	67
Slovak Republic	5, 4	5, 5	1,01	2 765	1 966	42	129
Ukraine	42,2	34, 9	0,82	37 003	1 142	252	168

Source: compiled by the authors based on [8-15]

A comparison of the population of Ukraine and its neighboring countries showed that the closest indicator for Ukraine is Poland. The remaining neighboring countries in comparison with Ukraine, except for Russia, have a significantly smaller number of people and, accordingly, the number of small and medium business enterprises.

The comparative analysis of the number of payment cards per capita in Ukraine with other neighboring countries showed that the indicator is slightly lower than in neighboring EU member states and about 2 times less than in the post-soviet countries (Russia, Belarus). So, according to the indicators of the neighboring countries, there is a reserve to increase the emission of payment cards in Ukraine.

Comparison of the ATM's park showed that the largest number of ATMs is in the Russian Federation, however, the number of clients using ATM is the smallest, 710 people per 1 ATM. The smallest number of ATMs is in Moldova, however, the number is the highest for the number of clients using ATM, 3694 people per 1 ATM. In the neighboring countries of the EU an average 1 ATM accounts for about 1800 people. At the same time, the smallest indicator is in Poland – 1,663, which is 1.5 times higher than in Ukraine. Thus, Ukraine has the potential to reduce the ATM's park taking into account the average number of people per 1 ATM in the EU neighboring countries and Ukraine's efforts to reduce cash flow in order to combat the shadow economy.

In order to extend cashless settlements, countries increase the total number of POS-terminals, reducing the number of individuals per one terminal. Among the neighboring countries, Ukraine ranks second after Moldova for the number of persons serviced by one terminal, respectively 224 and 168 number of capita per POS. Average number of capita per POS in other countries is about 70 people, which is almost 2.5 times less than in Ukraine. Therefore, Ukraine has the opportunity to increase the POS terminals park in order to extend cashless settlements and withdraw business from the shadow. Focusing on EU neighboring countries, it should be noted that the best indicators of using the park of funds intended for payment card transactions in Belarus Poland Russian Federation.

The market of payment cards of Ukraine and Poland are similar. Ukraine and Poland are neighboring countries and have approximately the same conditions for the development of the payment card market. Thus, the total population in both countries is approximately the same as 42 264 thousand in Ukraine and 38 640 thousand in Poland. The number of payment cards in both countries is also approximately the same and is respectively 34858 thousand cards in Ukraine and 37 765 thousand cards in Poland.

However, the number of cards per capita in Poland is higher than in Ukraine by almost 20% and is respectively 0, 98 cards per person in Poland and 0, 82 per 1 person in Ukraine. The number of Business customer cards in Poland is almost 7 times the number of Corporate Cards in Ukraine and is respectively 9.74% and 1.5% in the total number of cards. Therefore, Ukraine has great potential for issuing corporate cards as a financial and financial tool for the development of innovative business.

One of the factors behind the reduction of cash flow in business and the expansion of cashless payments in Ukraine is to reduce the ATM fleet and increase the POS-terminals park, taking into account the experience of Poland. The total number of POS-terminals and Merchants in Poland is much higher than in Ukraine. The calculation of Merchants' provision of POS-terminals has shown that on average one outlet in Poland is set to almost 2.4, while in Ukraine this indicator is 1.5, which is 60% less.

Thus, a comparative analysis of the payment cards market of Ukraine and neighboring countries to determine the potential of innovative business development has shown that by the rating "BDO International Business Compass", "Doing Business" and the author's assessment of the payment card market in 2008-2017, the best for studying and determining the potential of innovation development of business in Ukraine within the framework of European integration is the experience of Poland.

Comparing the indicators of the payment cards market in Poland and Ukraine, reserves have been set for increasing the emission of corporate cards for business, reducing the number of ATMs and increasing the number of POS-terminals.

However, on the results presented in these researches, it is possible to conclude that the Polish payments card market is now far better equipped to face future challenges for innovation business development than Ukrainian payments card market. It seems justified that Ukrainian banking system should benefit from the Polish experiences.

The opening of payment card markets, the removal of tariff and non-tariff barriers and the greatest possible freedom of movement for bank services generated completely new opportunities for innovative development of business.

Considering the above, for the comparable analysis payment card market methodological tools offered on the basis of scoring and rating. The three criteria: cards availability, ATM park and POS-terminal park recommend used for comparative analysis of payment card market to determine the potential for the innovative development of business.

Criteria and indicators payment card market for identify the potential the innovative development of business are presented in Figure 3.2.

Ukraine and neighboring countries has different population, so comparable total number of payment cards is not show real conditions of payment cards market. The best criteria of cards availability is Number of payment cards per capita which is defined as the index of the

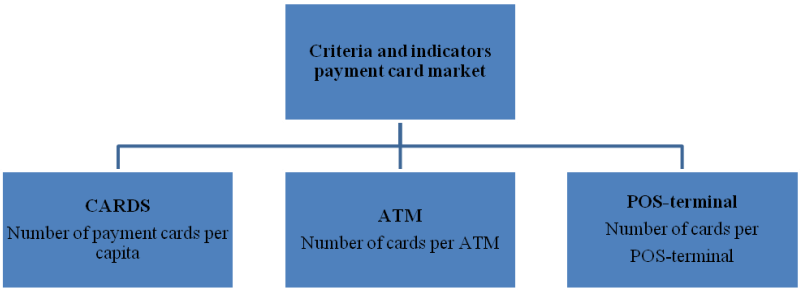

Figure 3.2 Criteria and indicators payment card market

Source: proposed by the authors

number of payment cards to the population of every country.

The strategy to decrease the ATM park in Ukraine and its neighboring countries give the opportunity for expand non-cash settlements between subjects of entrepreneurial activity and withdraw business from the shadow. In this case, the optimal criteria of ATM park are Number of cards per ATM which is defined as the index of the number of cards to the number of ATMs of the country.

Additionally for expand non-cash settlements between subjects of entrepreneurial activity and withdraw business from the shadow is very important development POS-terminal park. The best criteria of POS-terminal park are Number of cards per POS-terminal which is defined as the index of the number of cards to the number of POS-terminal of each country.

Each of three mentioned criteria for the payment cards market has the same significant effect on the state of the payment market in the country. It should be noted that when comparing countries and determining the rating, it is necessary to take into account certain features of each criterion of the payment card market. The highest number of cards per capita and the largest number of cards per 1 ATM is a positive factor and corresponds to the highest rating. At the same time, the highest number of cards per 1 POS terminal indicates a lack of equipment and is a negative factor and corresponds to the lowest rating.

Therefore, it is proposed for industry and SMEs to use the recommended methodology for a rapid review of the payment card market in almost every country. Upgrading and in-depth analysis on an annual basis will ensure that the data is always relevant to reliably compare the risks and opportunities of the market. Thus, our methodology can provide you with a solid foundation for your

innovation solutions that can make your business even more successful.

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Chapter 4

ENSURING THE COMPETITIVENESS OF RESULTS INNOVATION ACTIVITIES THE ECONOMIC ENTITIES

Berezina Liudmyla
Doctor of Economic Sciences, Professor
Bahan Nadiia
Postgraduate Student
Poltava State Agrarian Academy (Poltava, Ukraine)

INNOVATION AS AN EFFICIENCY INCREASING FACTOR OF AGRICULTURAL ENTERPRISES RESOURCES USING

Nowadays, providing effective development of domestic agricultural sector and producing high-quality competitive agricultural products require changes, first of all, regarding the use of resource potential, ensuring the implementation of innovative and resource-saving technologies of production, etc. Rational, maximally efficient use of resources involved in the production of agricultural products is a prerequisite for achieving a balance of societal interests (social, economic, environmental), as well as the basis for ensuring national priorities for the development of the agrarian sector; ensuring food security of the country; optimization of agricultural export potential; profitability of commodity producers; provision of socially oriented state agricultural policy.

At the same time, this requires application of special knowledge and specific approaches to addressing urgent issues of the agrarian sector, in particular concerning the organization of rational land use; use and implementation of labor potential; optimization of innovation activity; updating and upgrading of technical and technological facilities and equipment, etc. [3].

In the realities of modern times, innovation is becoming a key factor for most enterprises development. The increasing number of scientific works, where the research activity is investigated, is characteristic. In

the majority of them considerable attention is paid to innovative processes connected with improvement of the whole production and economic potential of the enterprise. That is why domestic scientists try to substantiate national innovation priorities, find effective mechanisms for attracting and effective innovations using [1]. We should note that the intensification of research on the issues of innovation was taking place in the 1960s – during the accelerated development of scientific and technological progress. Further study of innovative activity, initiated by J. Schumpeter, was performed by J. Bright and his followers. At present, this problem has caused the development of research by such scholars as: Yu. Benderskyi, P. Belenkyi, A. Vlasova, V. Heiets, N. Gladushyna, O. Denysova; M. Dolishnii, R. Ivanukh, S. Ilienkova, O. Kavtysh, L. Kolobova, O. Kuzmin, V. Lavruk, O. Lapko, A. Kuteinykov, S. Pokropyvnyi, Ya. Plotkin, A. Savchenko, V. Terekhov, A. Chukhno, T. Shmatkovska and others [1, p. 38; 2, p. 42; 3; 4; 5; 6; 7, p. 143; 8, p. 143; 10, p. 121].

The purpose of the publication is to study the problem of increasing the efficiency of agrarian enterprises resources using on an innovative basis.

At the current stage of economic development, the effective implementation of economic activity by agrarian enterprises on a competitive basis requires a qualitative, economically grounded plan for the development of the existing economic, including resource and innovation potential. The functioning of agrarian enterprises in the conditions of limited financial resources induces the organization of activities in such a way that at the possible minimum cost of resources to obtain the maximum possible results. Studies show that the vast majority of agricultural enterprises cannot even provide a simple reproduction of resource potential. For agricultural commodity producers, the issue of the deficit of certain types of productive resources, their low quality, as well as their sub-optimal structure and interaction is relevant, which in aggregate contributes to lowering the rates of economic development of the agrarian sector. It is the innovative potential of the enterprise that can provide the efficient use of available limited resources.

As it is stated in the National Report “Innovative Ukraine 2020”, the main characteristics of the current stage of the innovation process in agrarian enterprises are as follows:

- sufficiently high level of innovation activity of enterprises;
- limited use of own innovations by agrarian enterprises;

- interdependence of innovation activity degree of the enterprise and its profitability;

- diversification of innovative activity directions of effective enterprises;

- absolute predominance of enterprises own funds among sources of innovations financing;

- low level of use of institutional sources of information by agrarian enterprises regarding innovations and possibilities for their implementation;

- versatility of innovative activity of crop and livestock enterprises by its types;

- innovation for the environment [6].

As the main aims of innovation, agrarian enterprises determine updating the resources and processes, accessing to new markets or increasing the share of the existing market, reducing labor costs, materials and energy resources, primarily per unit of output. At the same time, agrarian enterprises pay much less attention to reducing the negative impact on the environment and expanding the range of products.

The market determines the innovative activity of the enterprise as an external factor in the following aspects: the necessity of new innovations; availability of alternatives in the selection of an innovation project; definition of terms of its realization; the order of innovations implementation on the market; the scale of the innovation dissemination, etc.

Objective factors of internal environment of innovation process affect the quantitative parameters of innovation, the ability to produce and distribute innovations. Subjective factors act at the moment of decision making on a specific innovation project by the subjects of the innovation process, whose tasks are to analyze external conditions and internal capabilities of its implementation.

A comprehensive characteristic of the company's ability to innovative activity is its innovative potential. The concept *potential* means the ability and willingness of any organization to implement the innovation process.

Innovative potential of an enterprise can be defined as an integral complex of resources interrelated in certain socio-economic forms, which characterizes the ability of an enterprise, under the influence of external and internal factors, to create and effectively implement innovations in order to achieve innovative strategic changes, increase

economic efficiency and enterprises competitiveness [5].

Innovative potential occupies a leading position as a component of the economic potential of an enterprise and plays an important role in providing its effectiveness (Figure 4.1).

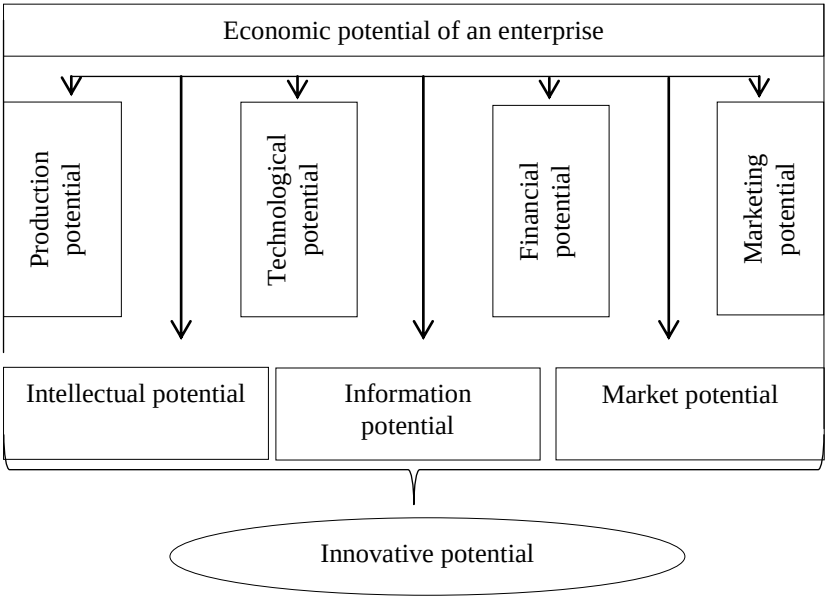

Figure 4.1 The place of innovative potential in the structure of economic potential of the enterprise [7]

In order to increase the efficiency of an enterprise's activity on an innovative basis it is expedient to determine the growth factors of production efficiency in the main directions of the production process development (Figure 4.2). These areas cover the complex of technical, organizational, and socio-economic measures that achieve savings in living labor, costs and resources, and the improvement of the quality and competitiveness of products. The most important value for increasing the economic efficiency of production is given to the rational use of production potential, maximum loss reduction and efficient use of resources.

One of the most important elements of management concept of agrarian enterprises innovative activity is the development of innovation policy, which includes important strategic and tactical aspects.

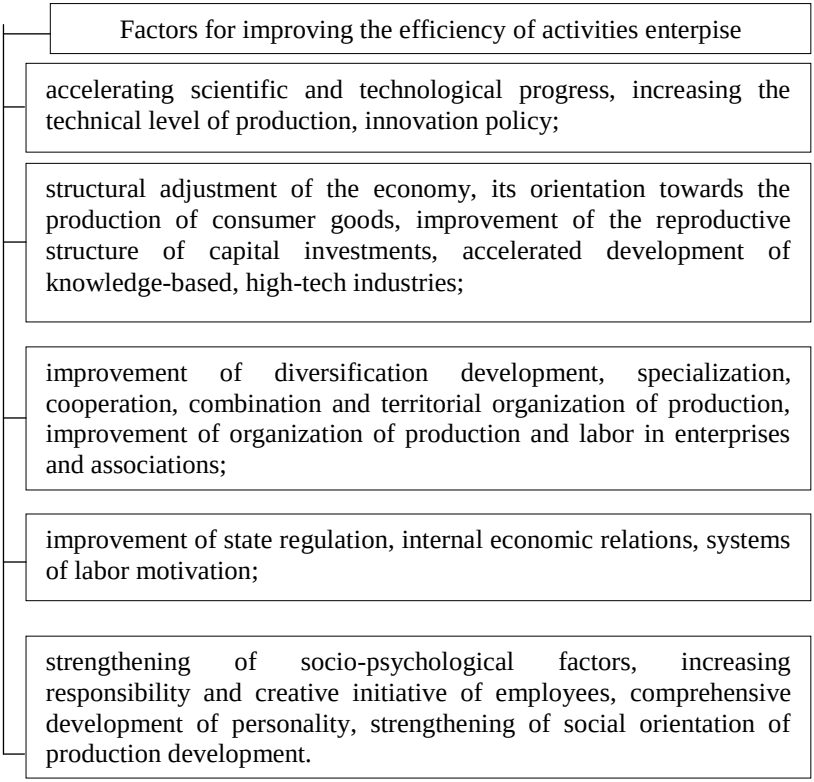

Figure 4.2 Factors for improving the efficiency of an enterprise on an innovative basis [11]

The essence of the strategic aspect is the possibility of developing and implementing long-term innovation projects and programs that ensure the most effective achievement of the global goals of agrarian enterprises. Tactical measures are aimed at promoting the quality of goods and production efficiency, as well as strengthening the innovative potential of enterprises, which is a strategic criterion for the effectiveness and efficiency of their functioning [8].

Implementation of innovations in the agrarian sector of the economy should be carried out in all spheres of activity. Agrarian enterprises should take into account the trends of innovation development of other industries and fields of activity. First of all, we are talking about the introduction of technological, both process and product innovations, as well as non-technological – organizational and marketing ones. At the

same time, “the general trend of reducing the timing of the introduction of an innovative product into “life” and profit in the shortest time is the main motivating factor for businesses” [9].

The development of the innovative technology update in agriculture of Ukraine was contributed by the emergence of agricultural services market, which began to cover the increasing scope of implementation of certain elements of advanced technologies. In particular: introduction of high-yielding varieties and hybrids of main crops; highly productive and advanced technical means of production and spare parts for them; perfect plant protection products from weeds and diseases [4].

In current conditions, such specialized sectors of agricultural services have been formed in Ukraine, which promote the innovative development of agrarian production through the transfer of innovative technologies:

- in the field of production of high-yield seed and hybrids of agricultural crops, which annually sow the growing areas of crops in Ukraine: Pioneer, Singenta, Monsanto, Novi Sad, KWS SAAT, Euralis, LG, NPZ Lembke;
- in the field of plant protection against weeds, pests and diseases: Monsanto, Singenta, BASF, Bayer, Arista LifeScience, Dupont, Ceminova;
- in the field of supply of agricultural machines for various purposes and spare parts and repair materials, the following corporations and companies operate: AMAKO, John Deer, New Holland, Case, Kverneland, Kinze, Hardy, Claas, De Laval, Horsch, Amasone, Kuha, Cimbria Haid;
- in the areas of combined activities with the expansion of the complexity of agro-services, the growing importance is acquired by: AMAKO, Singenta, Monsanto, Dupont [4].

Effective use of innovative potential of agrarian enterprises is still negatively affected, in particular, by the imperfection of legislative regulation of innovation activity; both their own and loan limited financial resources for the implementation of innovations; outflow of highly skilled workers; imperfection of the methodology for evaluating the effectiveness of innovations; undeveloped processes of using venture capital; deterioration of the technical base of scientific institutions; lack of support for innovative entrepreneurship at the regional level, etc.

The elimination of the destructive influence of these processes on the effective use of innovative potential by agrarian enterprises is possible due to the improvement of their financial situation with the help of

increasing, first of all, their own profit and implementation of measures of state agricultural policy. In particular, the state should ensure the establishment and maintenance of associations of small enterprises and farms in different organizational and legal forms as a way of expanding the possibilities of innovative development, dissemination of scientific and technological innovations among this group of commodity producers; intensifying the activities of scientific institutions in cooperation with agrarian enterprises and strengthening their information provision in the field of innovation. Such a partnership in the field of innovative provision of increasing the efficiency of resources utilization by agrarian enterprises will have undeniable advantages in achieving the strategic objectives of the industry and the economy as a whole.

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Dotsenko Victor
Doctor of Technical Sciences, Professor
Arpul Oksana
PhD in Engineering Science, Assosiate Professor
Molokova Anastasiya
Assistant Professor of Hotel and Restorant Chair
National University of Food Technologies (Kyiv, Ukraine)

PERSPECTIVE APPROACHES TO THE FORMATION OF THE PRODUCT RANGE OF HOTEL AND RESTAURANT BUSINESS

Recently, there has been a tendency to popularize the service sector and strengthen its position in the global economy. There is an expansion of the range of services offered, and the share of employment in this area increases. For industrialized countries, demand for products in the hospitality industry exceeds demand in the area of goods production. Similar tendencies are also characteristic for a number of developing countries, where the rates of hospitality services are even more significant [15].

In particular, the development of the hotel and restaurant business in the economy of any country is one of the indicators of the quality of life of the population and the state as a whole.

Domestic hotel and restaurant business has for a long time been at the stage of institutional formation and the formation of intra-industry, inter-branch, interregional and foreign economic relations, but despite on it, this type of business is actively developing. In particular, in the capital of Ukraine, by 2017, the number of hotel enterprises increased by 14.5% in comparison with last years, so, there is an increasing concentration of hotel and restaurant sectors, progressive accommodation facilities that meet the requirements of international standards, operate stably, steadily, constantly improve the range of basic services, extend additional, and pay special attention to the formation of a strategy for its development.

Despite the positive dynamics of the development of industry hospitality, there is a high liquidity of capital and, at the same time, high competition in the sphere of hotel and restaurant business, which requires entrepreneurs to follow the trends of the market of innovation in the hotel and restaurant business (Figure 4.3) to ensure competitiveness.

By the scheme above, one can conclude that placement of establishment must pay particular attention to innovations, to experiment, to search for new unexplored segments to provide competitive advantages on the market.

The range of services and products offered by hospitality industry companies is a key factor in achieving competitiveness, the breadth and depth of the range of products places the enterprise at a higher position and is the main argument when awarding a higher class hotel or restaurant. Moreover, a wide range of offered services and products contributes to the increase of direct and indirect revenues of the hotel and restaurant, which makes the research put forward to the problem particularly relevant and practically significant.

As the world experience shows [1], leadership in the competition accepts is the one who is the most competent in the assortment policy of the enterprise, possesses methods of its implementation and can operate it as efficiently as possible.

Assortment policy defines the specialization of the hotel and restaurant business enterprise; it is a key factor in attracting consumers. As the experience of domestic enterprises [5] shows, by expanding the range of products offered by the hospitality industry, the ways of providing services, etc., it is possible to achieve the main objectives of the assortment policy (Figure 4.4). So, a well-designed assortment policy allows the following goals to be achieved.

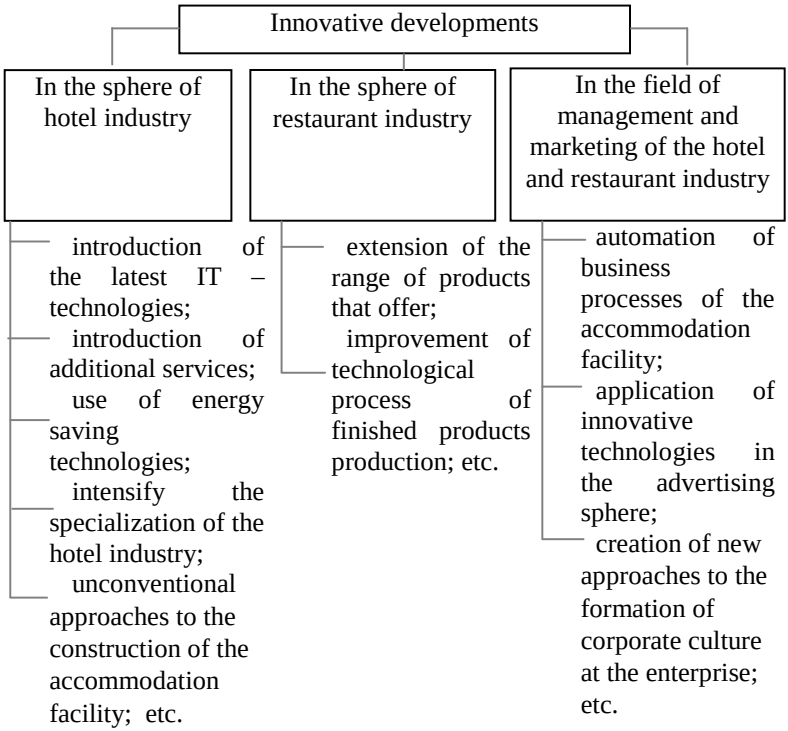

Figure 4.3 Trends in the market of innovation activity

Objectives of the assortment policy indicated in Figure 4.4 make it possible to understand the expediency of extending and updating services or food products in hotel and restaurant establishments.

It is known that the enterprises of the restaurant and hotel industry are classified according to various features, including the range of products offered to a consumer [11], which significantly affects the competitiveness of the enterprise.

It is important that today in the hospitality industry is particularly popular specialty restaurants, as a separate operation, and at the hotel. By the way, the total number of restaurant facilities in Kyiv (Figure 4.5), every year, is growing rapidly, not taking into consideration the public food at hotels.

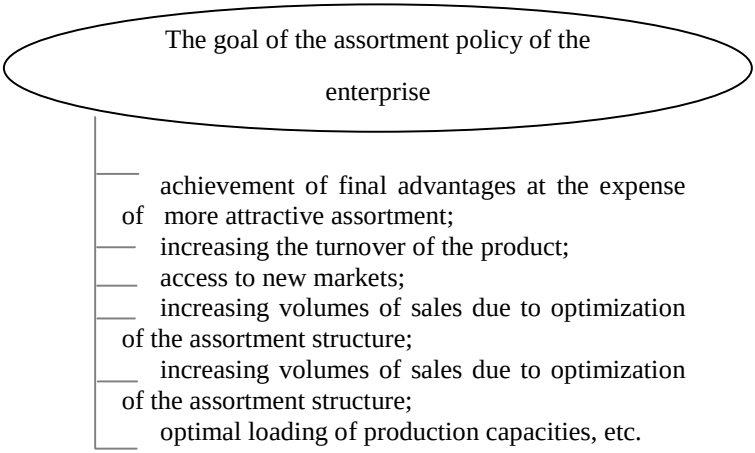

Figure 4.4 The goal of the assortment policy

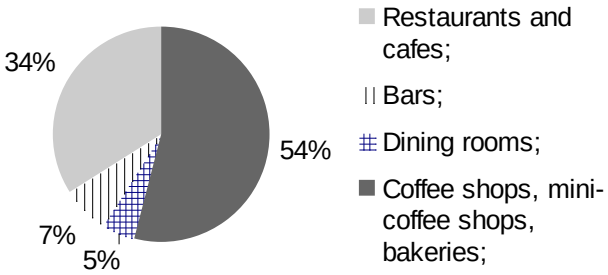

Figure 4.5 The structure of restaurants in Kyiv by types

Today, coffee shops are a large proportion of all restaurants in the restaurant industry (Figure 4.5). Studies show that the demand for mini-coffee shops is significant and will grow every year. According to [14], the coffee market in Ukraine has increased by 8.9% since 2017, as compared to last years, due to the fact that the culture of consumption of coffee, flour confectionery and bakery products is particularly popular,

with the acceleration of the pace of life and the fashion generated by Western countries, the use of food and drinks in motion (street, car, park). Every year, the number of coffee shops, mini-bakers (bakery or confectionery with own production at hotel and restaurant enterprises) increases by 7.8%, and this number only increases in recent years [13]. In addition, this market segment still has free niches and is very prospective in the future.

Particularly popular in the hotel industry is the provision of breakfast both for visitors to the accommodation facility, as well as for other enthusiasts. Usually, breakfast at the hotel's restaurants has a simple, nutritious menu with egg dishes, dairy and fermented milk products, as well as flour confectionery.

Indeed, one can conclude that in Ukraine, almost every restaurant and hotel restaurant has a choice of flour confectionery and bakery products because of the fact that this type of product is commonly used.

In general, the range of flour confectionery products is diverse and it is classified according to many features, in particular: by size, method of design, conditions of implementation and in most cases depending on the technological process and the raw materials used (products made from wheat or rye flour, from sand, puff, or fresh dough, etc.).

For example, we consider puff pastry products, analyze the experience of using the innovative developments in the market and suggestions to improve and extend the range of flour confectionery products (puff pastry).

So, recently, good nutrition has become popular, therefore, many scientific developments were devoted to reducing the content of fats in puff pastry, saturation with its dietary supplements, to eradicate the deficiency of macro- and micronutrients [10]. The market is known by the innovative technologies for the establishment of non-traditional vegetable raw materials – cellulose, pectin, gum, food fibers, etc. As a result, new technologies of flour confectionery products were developed, where various vegetable supplements were used, namely, products of fruit and berry processing, which containing natural antioxidants (polyphenols, carotenoids) and a significant amount of vitamins, minerals, organic acids, food fibers, etc. Such innovative researches have made it possible only to enrich the flour products of puff pastry with valuable elements, to extend the range of finished products, but the developed products do not have a functional purpose.

Many scientific developments were carried out namely, with the addition of secondary products with a high content of food fibers (seeds,

broom and copra oil and technical culture, fruit and vegetable powders, pastes, concentrates, beet pulp) for puff pastry semi – finished products [10]. It is also important that the secondary products of plant material contain a significant amount of food fibers, rather than the raw material itself. For example, it was investigated [12] that beet pulp contains 7.0 ... 9.0% protein and 43.0% barley. The research on the enrichment of flour confectionery products with beet pulp processing and wheat germs allowed the complex increase of amino acid fast, respectively, to improve the biological value of puff pastry products, but the total amount of useful nutrients and valuable biologically active substances in the finished product is not satisfactory to provide a daily norm of useful nutrients.

Improvements in the protein content of flour confectionery products can be achieved through the use of dairy products in their formulations. Among such developments it is possible to allocate the technology of sweet puff pastry using whey milk, which is the source of essential amino acids. This technology allows you to improve the elasticity of the dough, its resilience and organoleptic characteristics. It should be noted that the use of dairy products in the production of puff pastry products can not only positively affect the chemical structure, food and biological value of the product, but also improve the plasticity of the dough.

To improve the quality and nutritional value of puff pastry products and to reduce their caloric content, a study was carried out using dextrin from potato, molasses and sago [8], carboxymethylcellulose dilution [9], microbial polysaccharide, in particular xanthan gum [6]. These studies allowed solving the problems of complex development of the food and biological value of the product – dextrin has improved the elasticity and resilience of puff pastry, consequently increasing the organoleptic characteristics of products, but such a scientific study had no effect on the biological value of the finished product. Carboxymethylcellulose has reduced the energy value of the product by reducing the egg product's formulation. The xanthan polysaccharide also had its own rationale that it reduced the energy value of the products and increased their structural and mechanical properties. However, this technology made it possible only to extend the range of sold products.

Expansion of the range of puff pastry products may also be due to the use of other types of flour. Alternative types of flour, in particular soy and flour of other legumes, also have a positive effect on improving the nutritional value, in particular the mineral and vitamin content [4].

The development of the technology of cooking of rye flour based

products [7] has an important social significance, given the high biological value of this type of raw material due to the content of essential amino acids (lysine, threonine), vitamins and minerals of the group B. The proportion of rye flour of rye and wheat of first grade (70:30), the amount of dry wheat gluten (7% to the mass of flour), the complex use of ferment preparations with hemicellulose 2700 PXi / Mg (0,006% by weight of flour) and amylolytic 10,000 MAIi / g (0,003% by weight of flour) activity contributes to the formation of the properties of the dough necessary for the operation of the layering and the receiving operation of the puff pastry products on the basis of the best quality rye flour. It was also investigated that the fat-retaining ability of rye flour is 35% lower than, wheat flour of the first grade. With different dosage of rye flour rendering, the fat-forming ability of the mixture is practically unchanged and is close to the fat-retaining ability of the flour of the first grade of wheat, which made it possible to prove the amount (25% by weight of flour) of fat for layering of dough based on rye flour. The use of rye flour in the formulation of pulp products has allowed increasing the nutritional value, due to enrichment of the finished product with mineral substances with vitamins and food fibers. The market also proposes developments of using topinambur powder [2], moringa and sweet potatoes to improve the consumer properties of flour confectionery products [3].

Scientific developments on improving the consumer properties of flour confectionery products are quite various but the multifactorial influence of non-traditional oils, fruit-berry and fruit-vegetable raw materials on the formation of food and biological value of products is not sufficiently studied. In this connection, the search of the new non-traditional raw materials for improving the protein, fatty acids, vitamin and mineral content of puff pastry products is relevant for today.

Therefore, nowadays, it is reasonable to carry out scientific developments of flour confectionery products for its health (functional) purpose. Enrichment of food products by useful nutrients can positively affect the physiological processes of the human body.

Accordingly, on the example of research of the products of puff pastry, it is possible to extend the assortment of any products (snacks, desserts, drinks, meat, fish, branded products, services of a living, organization of leisure activities, planning and planning decisions, etc.). It is important to follow the order of actions for constructing a competent assortment policy at the hotel and restaurant business enterprises:

- to identify the products that are most in need among all population;
- to establish a potential contingent of consumers;
- to analyze the world experience of innovative developments to extend the assortment of products in hotels and restaurants, and to develop innovative products;
- to test the developed innovation;
- to take measures for the popularization of the developed products;
- to optimize the structure of the assortment.

Taking into account the above sequence of actions and creation of an innovative product, it is possible to achieve all the goals of the assortment policy of hotel and restaurant enterprises, which will increase the turnover of services and products in the service sector, and the realization of which will enable the company to bring the world's hospitality industry.

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Pozdniakov Serhii
PhD in Economics, Member of the Board Public Organization "Platform for Public Dialogues"
Kiiko Victoriia
PhD in Engineering, Associate Professor, Department of Examination of Food Products
National University of Food Technologies
Kuzmin Oleg
PhD in Engineering, Associate Professor, Department of Technology of Restaurant and Ayurvedic Products
National University of Food Technologies
Akimova Luidmila
PhD in Economics, Associate Professor, Department of Finance and Nature Resourse
National University of Water and Environmental Engineering (Cherkasy, Kyiv, Rivne, Ukraine)

TECHNOLOGIES OF DEVELOPMENT AND IMPLEMENTATION OF SYSTEMS OF INTERNAL MANAGERIAL INFORMATION

Introduction. The process of improving the corporate governance is intended to solve the main task – to create an adequate research and information basis for making managerial decisions. To form such a base is possible only when constructing an effective system of internal managerial information (SIMI) at enterprises (Golov S.F., 2003) [1]. Therefore, the launching (development and implementation) of SIMI is very important and relevant in modern context. Such systems allow us to determine the business development strategy and develop roads of its achievement, to organize an effective multistage system of internal control at the enterprise, to create an expenditure management system aiming to optimize them and to make sound managerial decisions (strategic and operational) (Abramova I., 2003; P. Rikhardssona, O. Yigitbasioglu, 2018; MJ Turner et al 2017; D. Prajogo et al 2018; O.

Ponisciakova et al. 2015) [2-6].

Currently, there is no generally accepted standardized procedure for the development and implementation of SIMI, so there many mistakes happen which lead to a project failure.

Examples of unsuccessful implementations of managerial information systems at enterprises are discussed quite widely (Fedoseev A., Rochkus Ja., 2002; Josie McLarena et al., 2016; Tyler F. Thomas, 2016) [7-9]. The same applies to SIMI (Apple Consulting, 2002; Tacis, 2002) [10, 11], since SIMI is a part of the business management system.

Therefore, it is necessary, on the basis of the current experience in the process of setting up the SIMI, to provide recommendations in the form of the General plan (method) for setting up systems to avoid mistakes and increase the effectiveness of implementation projects.

This work is devoted to the development of practical recommendations as for the implementation of SIMI at food industry enterprises.

Materials and methods. In order to specify the structure of SIMI and determine the methodological principles for the formation of SIMI, it is necessary to highlight the following questions:

– application of expenditure account methods and calculation of production prime cost in SIMI;

– principles of construction of the management accounts plan;

– development of classifiers and codifiers;

– organization of accounting procedures;

– composition of the subsystem of management accounts and subsystem of performance indicators;

– place and role of normals and standards;

– interconnection of the budgeting system, the decision-making system of the SIMI;

– methods of constructing of SIMI.

Description of the main stages of the setting up of SIMI was attended by the number of domestic and foreign experts, specialists, and scientists. Thus, in (O.P. Sanchez et al, 2017; Kolesnykov S., 2003) [12, 13], the problems of the implementation of automated SIMI according to the lanmark moment of their occurrence were classified, as weel as the key success factors were determined. In such a manner, attention is devoted to two important aspects: organizational measures and directly to implementation of automated SIMI.

There are cases when the management has not yet chosen an automated system and setting of SIMI requires a preliminary business

diagnosis, a description of business processes and business process modeling. After that you can already go to the stage of decision making to adapt the existing system or select the finished software product.

There are several stages determined in the literature: business diagnostics; development of company strategy and system of balanced indicators; description of business processes; improvement of organizational structure; development of financial structure; creation of data base; construction of a system of management reporting; construction of spending management system and cost calculation; construction of a budgeting system.

Further, in (Abramova I., 2003) [2], the stages related to the process automation and personnel motivation were defined, but the automation plan is not detailed, it was described in the general terms.

In [14], the focus was on organizational and regulatory measures. After completion of the preparation of regulations, according to experts, the implementation phase begins which consists of the following: training of workers, testing of management information procedures on real data of one accounting cycle with the participation of developers, adjusting of regulations according to the results of their trial usage, approval of regulations, adaptation of existing or introduction of new automation systems.

According to experts [15]: the stages of successful implementation of management information systems (MIS) include the following: search for a defender among the management; rapid development of the easy prototype (the best MIS implementation projects begin with simple prototypes that can be quickly implemented and provide data for at least one of the key issues); connection of information systems (Kuzmin O. et al 2017, 2018) [16, 17], technologies (Dietrich I., 2017, Niemirich O. et al, 2018) [18, 19] trainings, overcoming resistance from employees.

Experts proceed from the assumption that the construction of the SIMI is based on current managerial needs and may change over time, depending on the specific situation at the enterprise – "the following recommendations of the management as for implementation and expansion of functions are the best means for planning of MIS." It means the attention is not being paid to the construction of an all-embracing SIMI model beacuse experts believe that each enterprise has its own standard (model).

Automation goes through the adaptation of existing systems and the independent development of the information system. Covering the main stages of the implementation plan, experts provide clear explanations

but the stages are not itemized.

Thus, it is necessary to highlight the order and stages of the General Plan (method) of the setting SIMI taking into account the experience of managers, scientists and specialists in management accounting.

Results and discussions. In order to create the optimal General Plan of setting, the notion of an effective model of the SIMI setting plan was introduced. An effective model of this type involves a sequential list of stages of the implementation of the SIMI. The sequential and quality implementation of all stages of the effective plan determines the effectiveness and maximal efficiency of the implementation process.

The formation of an effective model takes place by separating the factors (measures) that result in the effectiveness of the process, ranking them according to the degree of import and setting out in a sequence of stages.

For the visual comparative analysis of the effective model and proposals of specialists the table was created where opposite each point of the General plan the proposals of specialists and authors are indicated (Table 4.1). By completing and adjusting the stages of SIMI setting proposed by the consultants, it is proposed our own General Plan of setting (see column "Authors" in table) that is close to the effective model.

Table 4.1

Comparative analysis of the proposed plans for the implementation of SIMI

No.	The stage name	Источник ссылки не	Источник ссылки не	Источник ссылки не	Ideal model	Murchiniv	Authors
1	2	3	4	5	6	7	8
1.	Organisational arrangements:	+	±	±	+	±	+
	– to formulate a project management committee that will make decisions on approval of corporate standards and changes in them, operational decisions in the process of performing of works, assess the activities of groups locally and if necessary make practical conclusions;	+		+	+	–	+
	– to interest and attract to the project the key man of the company;	+	+	+	+	+	+
	– to form a tactical response team for monitoring the process;	+		–	+	–	~
1	2	3	4	5	6	7	8

Table 4.1(continued)

1	2	3	4	5	6	7	8
	– to form a working (project) team for managing and controlling the process in general;	+		+	+	+	+
	– to form a support team of the functioning of the system within the department of the ACS and qualified users;	+		+	+	–	+
	– to form an advisory group for the analysis of the subject of completeness of corporate accounting standards of managerial information;	+			+	+	+
	– determine the powers and instructions for each team/group;	+			+	–	+
	– to involve remote branch offices in the process for testing data consolidation (managerial information);	+			+	–	+
	– to approve the list of documents regulating the process of setting up;	–			+	+	+
	– to approve the program of motivation and training of the personnel	–	+		+	–	+
2.	Setting up an economic model	–	+	±	+	–	+
2.1	Carrying out business diagnostics:	–	+	+	+	–	+
	– assessment of the management system of the company (analysis of the distribution of powers and responsibilities according to the levels of management, as well as the effectiveness of the work of structural units and their interaction);		+		+		+
	– verification of the accounting systems existing at the enterprise regarding the completeness, reliability and efficiency of providing information;		+		+		+
	– analysis of financial and economic indicators used at the enterprise;		+		+		+
	– assessment of the level of motivation of structural units and personnel in solving the tasks facing the company;		+		+		+
	– analysis of the existing planning and control system;		+		+		+
	– determination of the level of automation of information flows and processes of making managerial decisions		+		+		+
2.2	Development of the company's strategy and the system of balanced indicators, efficiency:	–	+	±	+	–	+
	– development of the mission of the company;		+	–	+		+
	– strategic analysis (selection of priority directions of development and definition of strategic goals from the point of view of customer and owner satisfaction, efficiency of business processes and personnel);		+	+	+		+

Table 4.1(continued)

1	2	3	4	5	6	7	8
	– construction of strategic maps at any level of management;		+	+	+		+
	– creation of a balanced system of indicators;		+	–	+		+
	– development of a data collection vehicle for calculating indicators		+	+	+		+
2.3	Description of business processes	–	+	+	+	–	
	– assessment of business processes efficiency;		+		+		+
	– identification of weak pockets (duplication of responsibilities, documents, lack of necessary actions and documents);		+		+		+
	– construction of a business process improvement chart;		+		+		+
	– application of certain methods of business processes modeling and creation of software that supports them		+		+		+
2.4	Improvement of organizational, functional structures of the company:	–	+	+	+	–	+
	– definition of target benchmarks and criteria for improvement of the organizational structure;		+		+		+
	– formation of the structure of administrative and functional subordination;		+		+		+
	– distribution of areas of responsibility and functional functions between subdivisions and employees;		+		+		+
	– organization of information interaction of units;		+		+		+
	– development of the control system for the achievement of the indicators set by the system of balanced indicators;		+		+		+
	– recording changes in the organizational structure in the main organizational documents – “Regulations on the organizational structure” and job instruction		+		+		+
2.5	Financial structure development:	–	+	+	+	–	+
	– consolidation of income and expenses by structural subdivisions, allocation of financial liability centers within the company, their classification and distribution by levels, decentralization of management when making operational strategic decisions;		+		+		+
	– consolidation of indicators of the system of balanced indicators by the centers of responsibility;		+		+		+
	– establishing interconnection with indicators of the budgeting system		+		+		+

Table 4.1(continued)

1	2	3	4	5	6	7	8
2.6	Creation of information base:	–	+	+	+	–	+
	– development of SIMI classifiers for unifying the collection of initial information;		+		+		+
	– development of an administrative account plan for the collection and registration of initial information;		+		+		+
	– development of the base document regulating the recording of managerial information – "Regulations on managerial information provision"		+		+		+
2.7	Construction of a management reporting system:	–	+	+	+	±	+
	– development of classifiers of documents by type and types		+		+	–	+
	– creation of an album of standard forms of documents (primary documents and reports) for each department of the enterprise;		+		+	–	+
	– creation a registry of management reports		+		+	–	+
	– definition of the rules for collecting, registering, storing and providing information that is necessary for making managerial decisions, building maps of forming documents in departments		+		+	–	+
	– elaboration of the base document regulating the construction of the management reporting system – "Statement on SIMI and reporting"		+		+	+	+
2.8	Construction of expenditure management system and calculation of cost	–	+	+	+	–	+
	– determination of the cost center (with specification from the workplace to the units and the company in general);		+		+		+
	– development of the classification of expenses for the purposes of SIMI;		+		+		+
	– cost analysis and operational control of their changes, determination of the possibility of standardizing certain types of expenses;		+		+		+
	– approval of the base document regulating the rates of expenditure – "Regulations on the rationing of costs";		+		+		~
	– approval of the main document describing the stages of the construction of the expenditure management system – "Regulations on the expenditure management system";		+		+		~
	– definition of methods of calculation of the cost price of products that are planned to be used		+		+		+
2.9	Construction of budgeting system:	–	+	+	+	–	+
	– development of the budgeting procedure;		+		+		+
	– budgeting organization;		+		+		+

Table 4.1(continued)

1	2	3	4	5	6	7	8
	– development of forms of budgetary control		+		+		+
3.	Taking a decision on a software product: self-development of the managerial information system or the selection and implementation of the existing software product	–	–	–	+	+	+
4.	Preparation of information systems at the operational level:	–	–	+	+	–	+
	– hardware upgrade, network and system architecture; – integration of various company information systems (physical and logical integration); – control of the flow of documents and workgroups based on Intranet technologies			+ + +	+ + +		+ + +
5.	Implementation of automated SIMI	+	+	+	+	+	+
5.1	definition of the strategic objectives of the project and the tactical plan for the introduction of the automated system	+	–	–	+	–	+
5.2	pre-project survey (industrial audit) – checking the compliance of business process organization with standards	+	–	–	+	–	+
5.3	training of specialists of the implementation group	+	–	+	+	+	+
5.4	business process modeling – specific tasks, responsibilities, participants, terms	+	–	–	+	–	+
5.5	development and coordination of the setup of reference books and system classifiers according to the requirements defined in the previous stages	+	–	–	+	–	+
5.6	adjusting the system in accordance with the decisions and testing the functions of the project team;	+	–	–	+	+	+
5.7	test runs at separate units	+	–	–	+	+	+
5.8	users training how to work with the system	+	–	+	+	+	+
5.9	experimental and industrial exploitation	+	–	–	+	+	+
5.10	introduction of the system into industrial exploitation;	+	–	–	+	–	+
5.11	post-project survey / industrial audit /	+	–	–	+	–	+

Note: "+" present, "-" absent, "~" optional

Undoubtedly it is necessary to start the setting of the system with the organizational measures (p/p. 1) that is sufficiently described by (Kolesnykov S., 2003) [13] but it would be advisable to involve the measures (Abramova I., 2003) [2] and [14] to approve the motivation program and the list of documentation.

After the necessary organizational measures are taken, one can move to the most important stage – "Statement of the economic model", which begins with the business diagnosis (p/p. 2.1). Proposed as sub-stages of the economic model statement to take as a basis the sequence outlined (Abramova I., 2003) [2], since they reflect the process of constructing a full-fledged SIMI model.

The construction of strategic maps at any level of management is a formulation of the tasks facing the system of internal managerial information and the definition of information managerial needs, which fully reflects the individual peculiarity of business, the competitive situation and the strategy of the enterprise (p/p.2.2).

The description of business processes (clause 2.3) involves the use of certain business process modeling techniques (SADT / IDEF0, DFD, IDEF3, ORACLE, BAAN, ARIS) and their supporting software (Design / IDEF, BPWin, Power Designer , Oracle Designer 2000, BAAN EME, ARIS Toolkit).

In the course of improving the organizational structure of the company there is a redistribution of functions and responsibilities among employees, reorganization of units (p/p. 2.4). The formation of the economic model also involves the development of a financial structure (p/p. 2.5), the creation of an information base (p/p. 2.6), the construction of the managerial accounting system (p/p. 2.7.) and expenditure management and cost calculation systems (p/p 2.8.).

In the General Plan the attention was paid to the construction of the budgeting system which in our opinion is not included in the SIMI but is interconnected with MIS, so it is also necessary to pay attention to it. Development of budgeting involves the development of budget forms of the company's master budget and financial responsibility centers, the methods of filling these forms and consolidating budgets, centers of financial responsibility (CFR). Organization of budgeting is the appointment of responsible budget, developing the scheme of interaction of the CFR, the development of regulations on budgeting and document circulation (p/p. 2.9). Thus, the stage of the economic model statement covers all three SIMI subsystems: subsystem of key indicators, subsystem of management reporting and a subsystem of accounting for managerial information (including expendeture management and cost calculation). This stage covers the following four basic business models that are required for a reasonable construction of the SIMI subsystems: process, functional, organizational and financial models.

The decision as to independent development or implementation of

the existing automated MIS is very important and responsible step since the effectiveness of the implementation process depends on it (p/p. 3).

It should be noted that the presented work is devoted to the conceptual description of the system of internal management as a separate organizational and technical system of information support of financial and economic management of the enterprise on the basis of the system approach. Undoubtedly the functioning of such a system is impossible without its automation i.e. the consideration of the process of formation of SIMI without covering the general issues associated with automation will not be complete. But the author's work can not be completely devoted to all the details of the automation process, the aspects of the software and hardware of the automated information system because this is the task of another specialty.

Not giving attention to the detailed analysis of the scientific heritage on automation of managerial information systems by well-known scientists (V.N. Amitan, V.M. Glushkov, Ya.G. Bersutsky, L.S. Vinarik and O. M. Shchedrin, S. Bira , M.M. Lepi, K. Shannon and others) and the development of detailed recommendations as for the automation of SIMI, the authors considered in more detail the very formulation of the economic model of SIMI as one of the main stages of the implementation of SIMI at the enterprise (association).

Therefore, in the proposed General Plan only some important, in the authors' opinion, stages related to the automation of SIMI are concidered.

The preparation of information systems at the operational level (p/p. 4) allows specialists to significantly simplify the implementation process, as it will accelerate the process of gathering informative data. In the process of integration the following steps must be performed:

1) determine the management requirements as for information (cutoffs (analytics) of the information, the degree (level) of completeness of the information, specification of parameters, fractionality, efficiency, accuracy), as well as to determine the extent of the possibility of extracting from existing information systems the information for management;

2) it is necessary to formalize the requirements of management to information in the form of information and logic scheme which provides information objects and interconnections between them which will clarify the requirements of management and determine the possibilities of providing information and transformation of data into managerial information;

3) the development of integration technology (development of the logical physical structure of data in the central database and data in "portions", transmitted from the units, the choice of database for the central database and data formats, transmitted from the units, the development of organizational mechanisms of regular or continuous integration which determines how the integration system will function: when and by whom the integration mechanisms are launched, how the synchronization of reference and normative data is provided, what data and in what terms are arriving).

As sub-steps of the direct process of implementation of the automated system of SIMI, we propose to take as a basis the sequence set forth by (Kolesnykov S., 2003) [13] (p/p. 5). The stage of defining the strategic objectives of the project and the tactical plan for the implementation of the automated system involves the establishment of the basic implementation plan: the organization of the project, its structure, objectives and scope, the structure of the project team, the implementation methodology, the indicative plan for the preparation of the project team, the coordination of the main stages, methods for assessing the quality of work (p/p. 5.1). The production plan involves the training of both SIMI users and specialists for further implementation. The training program for the implementation team should be at the program level for consultants (p/p. 5.3).

Test runs in separate units are performed as follows: real data are to be entered into the system in a limited volume, by simulating the real situations – for example, shipment, placing in property – successively tested business functions, each unit performs its "key" example (p/p 5.7) In the course of experimental and industrial exploitation, it must be ensured that the functionality of the system fully meets the requirements of the enterprise. At this stage, specialists receive standard reports and verify the identity of the data; it is possible to carry out special verifying procedures; the system is introduced fragmentarily by separate areas of accounting (management) into industrial exploitation; job placement instructions are being recorded, the job descriptions of the participants in the accounting process are being corrected, all the input options and the procedure for the use of standard directories are presented (p/p. 5.9).

Thus, in order to solve the problem of enhancing the efficiency of the implementation of SIMI at domestic enterprises, general methodology of SIMI statement, consisting of five main stages: organizational measures, statement of the economic model, decision making as for software product, preparation of information systems at the operational level,

implementation of the automated SIMI.

Conclusions. The methodology makes it possible to efficiently set up SIMI on the basis of the creation of a complete economic model of the enterprise that includes business process models, organizational, functional and financial structures, strategic and informational models.

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Riashchenko Viktoriia
Dr. oec., Professor, Department of Management and Marketing, Director of the Entrepreneurship program ISMA University
Živitere Marga
Academician, Professor, Dr.oec., Researcher of the Centre for Entrepreneurship, Innovation and Regional Development (CEIRD)
Ventspils University College
Bezpartochna Olesia
Master's Degree in Finance and Credit
Poltava Institute Economics and Law
(Riga, Ventspils, Latvia; Poltava, Ukraine)

INNOVATIONAL DIRECTIONS IN THE TOURISM INDUSTRY DEVELOPMENT

INTRODUCTION

Webster's Dictionary defines Innovation as: new method, new idea or a new product. During the last 100 years many inventions and innovations have been thought of to increase the speed of travel from one destination to another. It is especially essential for business travel and for tourism; in particular, as tourism is one of the powerful stimulants for the expansion of globalization due to the effective computer communicative and information components. In the current global conditions, tourism is increasingly vulnerable due to the effects of such negative factors as natural disasters, epidemics, terrorist acts, criminal nuisances, as well as the impact of such purely economic factors as the financial crisis, fluctuations in the securities market, the reduction of consumer spending, increase in petroleum prices, tight credit policies, and escalating unemployment. Therefore, the development of the innovative orientations is a vital contribution to the intensive development of the economy, enhancing the development of the latest achievements of science and technology in production efficiently satisfying consumers in a variety of high quality and competitive products and services.

In fact, recent world practice shows that the tourism industry is fairly accurate to the yield and to the dynamics of development only after the extraction of petroleum and gas refining. In fact, according to the **World**

Tourism Organization, tourism business provides 10% of the turnover of the service and the service market; in particular, it accounts for 7% of total world investment and 5% of all tax (http://www.oecd.org/sti/inno/34609098/pdf).

The international hospitality and the catering industry is one of the largest industries in the world. Each year progressively more accommodations and meals are. The hospitality and catering industry is currently the third largest employer of labour worldwide. The direct contribution of Travel & Tourism (Ruggles-Brise & Aimable, 2012), of which the hospitality industry is considered to be part, to GDP was USD 1,972.8 billion (2.8% of total GDP) in 2011, and rose by 2.8% in 2012, and is forecast to rise by 4.2% per annum, to USD 3,056.2bn in 2022 (in constant 2011 prices). In 2011, Travel & Tourism directly supported 98,031,500 jobs (3.3% of total employment). This rose by 2.3% in 2012 and is forecasted to rise by another 1.9% per annum to 120,470,000 jobs (3.6% of total employment) in 2022. Total contribution of Travel & Tourism to employment, including jobs indirectly supported by the industry, was 8.7% of total employment (254,941,000 jobs) in 2011. This rose by 2.0% in 2012 to 260,093,000 jobs and is expected to rise by 2.3% per annum to 327,922,000 jobs in 2022 (9.8% of total) (https://stenden.com/fileadmin/user_upload/documenten/research/Innovation_in_Hospilality/Lectorale_Rede_Dr_Gehrels_Innovation_in_Hospitality.pdf).

INNOVATIONS AND CREATIVITY IN THE TOURISM INDUSTRY

As defined in the previous section, innovation is the discovery path to the introduction of scientific achievements, advanced experience in the fields of management, labor organization, and technology. Tourism especially is one of the important sectors of the economy of any country; in fact, in several countries, it is among the primary sources of income. Now will study the following examples: Island States of Macao (89.5%), Antigua and Barbuda (75.8%), Anguilla (71%), Aruba (70%), Maldives (61.3%), Seychelles (54.5%), and Bahamas (53.6%) (http://bujet.ru/article/237360.php). The touristic sphere certainly affects every continent, country or city as the tourism industry is an inter branch sector of the economy, which encompasses not only accommodation facilities, but also transportation, communications and much more. Given the successful development, tourism brings certain advantages,

with which its' importance for the economies of different countries and for our Republic of Latvia in particular is related.

Innovations and creativity in tourism are systemic events that have a qualitative novelty, leading to many positive developments in the industry. On one hand, the innovation process receives its recognition through the tourist market and the degree of customer satisfaction. On the other hand, mainly due to the adoption of joint decisions by tourism organizations and management bodies of different levels. The introduction of innovations in tourism is influenced by the economic factors in a particular country, the social status of the population, national legislation, as well as intergovernmental and international agreements. Therefore, there are several reasons for introducing touristic innovations: saturation of many classical and traditional directions, danger of a large loss of market share in inbound tourism, increased competition and increased supply, technological revolution and expansion of the field of application of information technologies, and the transition from the supply economy to the demand economy. Innovative activities and inventions in the touristic sphere include (Burich, GA, Startsev, V.A. 2012) the following criteria:

- Implementing changes to the existing tourist products (aimed at improving the quality of services, as well as changing the consumer properties of the tourist product) or creating a qualitatively new tourist product (using innovative forms of marketing, planning and design).

- Introduction and use of innovative technologies in the hotel industry: management systems, booking, online communication with business partners and potential clients, virtual tours, teleports, smart home (The innovative hotel with solar panels on the roof for heating water, wind generators for power generation, window glass from recyclable material, and with furniture designed and made from recyclable material. The finish uses non-toxic paints. The food waste is processed into fertilizers. In addition there is no staff in the hotel and its functions are performed by the computer service system), use of smartphones to pay for services, smart mirror with interactive menus, online consultants, "intellectual" numbers, electronic receptions, etc.

- Introduction and use of innovative technologies in the culinary industry: the use of new types of food raw materials, use of innovative process equipment; use of innovative technologies for storage and prolongation of shelf life of products, and application of innovative technologies in the sale of products, customer service, etc.

- Introduction and use of innovative technologies in the

transportation services for tourists: use and introduction of new transportation including all the latest technical achievements, use of the latest technologies for servicing tourists at railway stations and airports, as well as during transportation, introduction and use of new booking systems, passenger registration and services, bonus programs, etc.

- Introduction and use of innovative technologies in the field of travel insurance for tourists: the use of new innovative programs for insurance of tourists developed by the insurance companies. Introduction and the use of innovative technologies in excursion services for tourists. The use of innovative technologies in the development of an excursion product, technical innovations on excursions, scanans, Military Historical Sites (Military-Historical reenactment of events such as a reenactment that takes place every year in Daugavpils – taking the fortress (http://www.grani.lv/daugavpils/83736-fotoreportazh-s-festivalya-voenno-istoricheskoy-rekonstrukcii.html), thematic, ethnographic reconstructions with the use of interactive and animation methods, master classes, game elements, theatrical. Virtual tours, city-quest, photosprint, extreme excursions, adventures, corporate, career-oriented, etc. The use of audio guides, radio guides for GPS guides and other innovative equipment for excursions.

- Introduction and the use of innovative technologies in the tourist firms: the introduction of innovations related to the development of tourism business in the system and management structure, personnel policy, introduction of modern forms of accounting, economic planning of the firm, the reconstruction of old and the creation of new tourist products, automated sales management, booking and selling tours online, in other word, a new manager. Introduction and the use of marketing innovations: creation of qualitatively new websites of travel agencies: providing accurate and best information, internet-representative offices, online booking systems and services for tourists, online payment systems, demonstration on the sites of "virtual tours", online communication in real time, the creation of internet offices and online stores. Delivery of advertising at a qualitatively new level, market research based on new information technologies; effectively use social networks for advertising purposes, etc.

Thus, the innovative activities in tourism are aimed at creating a new or changing existing product, developing new sales markets, introducing advanced IT technologies and modern forms of organizational and managerial activity. This is why innovations in tourism are pertinent and

are indispensable criteria for its development. Innovation management and their implementation for the development of tourism – these factors are the main and most significant in this area.

Innovations in tourism are defined as directions in which there is a certain novelty, as well as a number of principles leading to a positive state of affairs in the industry. In the tourism industry, as nowhere, various structures interact, such as local authorities, the country's leadership, travel companies, operators, and hotel owners. With the integrated coordinated actions, there will be a positive effect in the development of the tourist industry.

INNOVATIONS AND CREATIVITY IN TOURISM IN LATVIA

The Travel & Tourism Competitiveness Report 2017 paving the way for a more sustainable and inclusive future is described in the following figure below:

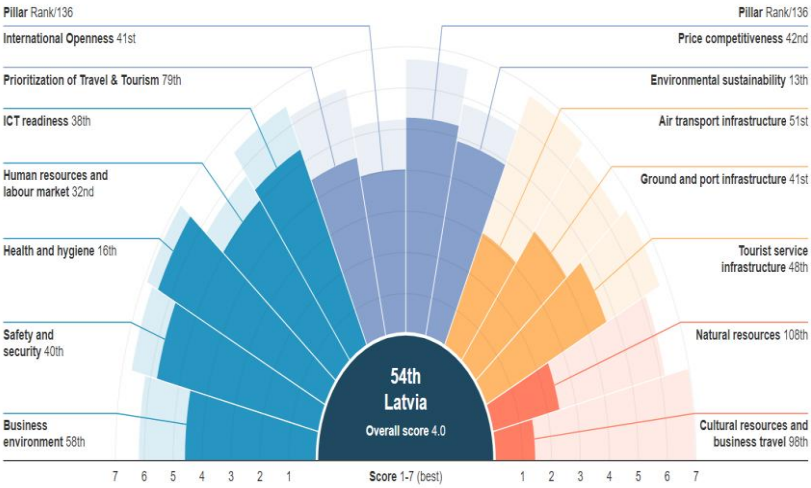

Figure 4.2 Travel & Tourism Competitiveness Index2017 edition for Latvia

Source: The Travel & Tourism Competitiveness Report 2017

Latvia ranks 54th in terms of competitiveness in the tourism industry among 136 countries according to research of the World Tourism Organization (UNWTO) and the World Travel and Tourism Council

(Novikov V.S., 2007, 208). As we can see from the figure above, the most competitive characteristics of the tourism industry for Latvia are: Environmental sustainability (13th) and the Health and hygiene (16th). The lowest competitiveness indicators of the Latvian tourism industry are the Natural resources (108th), Cultural resources and business travel (98th), as well as the Prioritization of Travel & Tourism (79th). Clearly the Natural Resources are hard to influence, but the innovations in the directions of Cultural resources and business travel, Prioritization of Travel & Tourism must develop and improve.

Now it is vital to observe the following: Government prioritization of travel and tourism industry (http://jtl.lv/turisma-inovacijas-latvija), increase T&T (Travel & Tourism) government expenditure percent of the government's budget, the number of World Heritage cultural sites, oral and intangible cultural heritage number of expressions, sport stadiums, number of large stadiums, number of international association meetings, expand the cultural and entertainment tourism digital demand, boost the effectiveness of marketing and branding and Country brand strategy rating.

There are already successful examples of introducing innovations in Latvia's tourism industry. In fact, the Latvian company "Dd studio" has created a permanent digital exhibition, which can be visited at the Balvi Museum. The exhibition is dedicated to the unique intangible cultural heritage of North Latitude which includes ethnography, traditional singing, stories, skills of ancient crafts, as well as other cultural heritage of North Latitude. This exhibition has been recognized this year as the most modern exhibition in Latvia. The exhibition is arranged in five museum exposition halls and in contemporary forms of expression using various multimedia and innovative technologies, North Latitula's traditional music, folklore, customs, psalms, Mayan chants, human skills, as well as other values that are reflected. The elements of the exhibition are exhibited using modern artistic expressions and technologies such as video projections, innovative graphic designs, and touch screen applications. The aim of the exhibition is to present in an interactive and attractive way to get people interested and acquainted with the historical and cultural heritage; in particular, attracting people in the target groups of different ages, thus ensuring the preservation and transfer of the heritage and knowledge.

For example, during the fourth consecutive season in Valmiera, the first Gauja tram in Latvia, flying through Valmiera's scenic and historic sites, is floating through the Gauja River. During the season, the tram

will call the city's quay at a certain time in order to take and explore the Gauja River and the valleys and its guests. The Gauja tram is an engine-equipped boat for entertainment and excursions around the Gauja River Valley, built in the industry of the active recreation organization "Eži". The tram home and the only start and stop are the boat mooring in Valmiera's Old Town. The Gauja tram runs along the Kazu River and the Iron Bridge. Gauja tram is headed by "Gauja tram" – a guide that tells interesting, historical stories and tales about Valmiera during the trip. Gauja tram can accommodate up to 30 passengers.

Another example is the Baskājis Trail; it is a 2.7 km long trail on the steep bank of the Gauja River in the Feeling Park and is made up of various natural elements such as pebbles, VSS glass beads, spruce and pine cones, sand, slabs, peeled mulch, chestnuts and other materials, so that sensations when walking on the trail with bare feet should be as contrasted as possible. After a long walk, everyone has the opportunity to pamper their legs in the foot baths with seasonal additives (like buds, flowers, leaves, berries), and to relax or, on the contrary, to warm up with a drink. The feel of the park will soon be complemented by the "Taka kokos", which will be a high sensation trail – universal, suitable for people of all ages and physical abilities, natural, visually appealing, equipped with simple elements of activity. The trail will be used for walking, watching, and exploring.

EXPANSIONS OF THE INNOVATIONS LEADING TO SUCCESSFUL IMPLEMENTATION OF IDEAS

In modern business, one of the main components of success is good, unconventional and fresh ideas. Here are some examples of the best innovative ideas at the Deutscher Tourismustag branch conference in Hamburg.

In the land of Schleswig-Holstein, one of the popular regions of summer family vacation, they decided to systematically take up the eternal problem of their parents. On vacation they sometimes want to spend an evening together, without your favorite children. Tourists caught in such situations often at their own peril and risk leave their children after dinner alone and unattended in the hotel room. The option is not the most optimal and reliable.

In order for parents to no longer face such a dilemma, the land tourist organizations started the "Nightlife für Kinder" project (http://www.staedte.sh/de/nightlife-fuer-kinder), that is, from the

popular mix of English and German – "Night Life for Children". The project is a kind of evening-night garden with programs for all stages of child development: from the smallest to almost teenagers.

Another project, celebrated last year by the jury, is being carried out in the East German Magdeburg. He was called in pure German language – "Mein Besuch schläft besser" (https://www.deutschertourismuspreis.de/innovationsfinder/magdeburg-marketing-kongrress-tourismusgmbh-mein-besuch-schaeft-besser.html), that is, "My guests sleep better". The answer to the question of how they manage to do this, to the banality is simple - they sleep in a hotel. In particular, not because inhospitable burghers live in Magdeburg, just for their friends and acquaintances the townspeople can book rooms at special and very profitable rates. This particular project involves 15 city hotels.

The winner of the contest was also one tourist product from the series "You Cannot Do It Naturally." Residents of the city of Brunsbuttel on the North Sea decided to organize their own Olympics with new sports adapted to this region. Its zest – watts – is the name of the coastline of the North Sea, flooded during tides. Here at low tide hours you can make long excursions along the muddy bottom, which many tourists do.

The program "Watlimlepic Games" includes, for example: "Wattleleyball" (volleyball on watts), team race with the eel instead of the baton, throwing rubber swamps to a distance, "shooting" tea bags at a target, etc.

The introduction and dissemination of innovations in the tourism sector can increase competitiveness and minimize the impact of negative endogenous and exogenous factors. One of these areas is the development of the information component of the tourism industry. It is necessary to increase the quantity, as well as improve the quality of such services: Reservation of hotel rooms, tickets for transport via the Internet. Expansion of advertising services; in particular, the distribution of electronic catalogs with video clips and a list of hotel services. The use of complex promotional events; for example, booking rooms with a flexible system of discounts in case of extended residence of tourists in hotels, solemn events (weddings, birthdays) in the lives of visitors.

Innovations surround us everywhere, including in the touristic sphere. There are many ideas and concepts, however, many of them simply cannot fully reveal themselves. Now we will describe the main

directions of innovations that will change the tourism beyond recognition during the next several years. The first innovation in tourism concerns transportation. In fact, car rentals are getting more and more popular; however, this activity may disappear. The cars with autopilot will come to replace those who will deliver customers along the necessary routes, with the exclusion of opportunities for deception or other unpleasant situations. Such an innovation will develop for excursion trips.

The second innovation will be virtual reality, which allows you to visit the resorts almost live. Emotions that a person experiences during such shows will be the main reason for buying a tour, and this fundamentally changes the tourism marketing (https://www.poehalisnami.ua/tourist/virtualreality?ctnid=kiev).

The third innovation that can change the attitude to modern tourism and improve the level of customer comfort is the electronic keys from the rooms in the hotels. The bottom line is that you are sent an Android application key from the hotel room. With this application and a specialized key, you can easily get into the room and start the rest without any problems and long expectations.

The fourth innovation refers to the rapid travel abroad on burning tours. It is aimed at issuing an electronic passport, which is in your phone. On-line, you can get a visa, renew it or perform certain procedures. Of course, the implementation process itself will be delayed, but everything goes to full automation and simplification.

The latter invention relates to fiction as it involves the use of chips during flights. Those who fly frequently are bored to undergo the tedious procedure of check-in for a flight, so everything can be simplified by using the online registration and check in and the chips. These innovations will create permanent changes in the journey. At the heart of this trend, the main factor of improvements is the customers' convenience.

Very competitive international tourist market, poorly developed tourist infrastructure, lack of an innovative approach to tourism development in Latvia are contributing factors that lead to the acute need for the introduction of a new system of organization of tourism, which faces the following challenges:

- Promotion of Latvia as a tourist destination and domestic market;
- Stimulating the development of small and medium-sized businesses in all areas relevant to tourism;
- Attraction of investments for the implementation of innovative

projects in the field of tourism, as well as restoration and development of tourist infrastructure facilities;

● Development of transport accessibility and improvement of the quality of the transportation system.

Many world's destinations and countries are recognizing the benefits of collaborations and clusters. In fact, clusters can offer good opportunities for increased productivity, innovations and new business formations (http://wellnesseducation.pc.ut.ee/wp-content/uploads/2016/05/Baltic-Health-Tourism-Report.pdf). In addition, clusters can help in the management of common resources (e.g. seas, rivers, lakes, mountains); the sharing of good practice (e.g. creating innovative experiences); developing and differentiating products and creating USPs (e.g. establishing complementary not competitive facilities); and developing quality systems and brands (Bertsch, G., Schobersberger, W., Blank, C., & Osterman, H., 2011).

Steinhauser and Jochum (2006) suggest that wellness (or health) clusters help build trustworthy and strong brands and quality criteria and describe how the Alpine Wellness brand between Austria, Switzerland, Italy and Germany was a successful example for more than ten years. Nordic Wellbeing (Scandinavia, Finland and Iceland) is a newer cluster which is focused on research, product development and promotion (Nordic Innovation, 2011).

Industry and spatial clusters are distinguished geographically. The former unite the enterprises of one industry, the latter - geographically concentrated enterprises of related industries. In the touristic sphere, the spatial appearance of clusters is most acceptable as the formation of a tourist product and its implementation require the coordination of enterprises that formally belong to different branches of management, but are concentrated in one particular territory (destination). The spatial cluster assumes the establishment of contacts between private enterprises, authorities, educational institutions, research institutes, etc., allows creating and promoting the "brand" of the region. The following features of the spatial cluster can be distinguished:

● The development of the cluster takes place in accordance with a single goal and a unified strategy;

● Cluster members are geographically localized;

● Cluster members freely share information among themselves;

● The cluster system includes all the structures that ensure its functioning, including educational institutions and infrastructure facilities.

The development of tourist clusters in the Baltic States is going at a slow enough pace, which is due to the following reasons and problems:

- Insufficient investment in tourist infrastructure;
- The inefficient use of the mechanism of public-private partnerships;
- Poorly developed clustering policies of the Baltic region.

In order to eliminate these negative factors, it is vital to improve the cluster mechanism by including an innovative component in it. In particular, the innovative component of the tourist cluster is due to the high competition in the tourism industry, since innovation is not only a new product or service, but also a way to reduce costs. In this regard, we can talk about the necesity to introduce a new effective structure, which is called the „tourist-innovation cluster."

Future discussions might focus on which destinations to develop and for what forms of tourism and markets, including regeneration of facilities and services, as well as considering joint promotion of close destinations; for example Jūrmala in Latvia .

Baltic States still suffer somewhat from the lack of a distinctive tourist image in many parts of the world and the countries are often perceived to be synonymous with their capital city or some nationalities fail to recognize the differences between the countries. For these reasons, it is currently beneficial to establish the image of the Baltic States jointly in order to put them on the fast-growing and highly competitive world map of medical tourism. According to the research, collaboration can help to improve not only image but also improvement of quality, new product development, packaging, education and training, exchange of information and the pooling of financial resources. Future product development in medical tourism is likely to focus on coastal wellbeing, spa and water-based treatments, forest therapy and Baltic lifestyle possibly including a Baltic menu (http://wellnesseducation.pc.ut.ee/wp-content/uploads/2016/05/Baltic-Health-Tourism-Report.pdf).

CONCLUSION

The introduction of innovations in the touristic sphere requires the diversification of innovative technologies in the related industries. In this sense, it is possible to create the transportation networks with the transition to environmentally friendly alternative fuels. The hotel sector is also increasingly using resource-saving technologies.

Furthermore, an important role for the development of tourism is played by so-called organizational innovations in the management structure. These are associated with the development of entrepreneurship, the reorganization and absorption of competing firms, personnel policy (training, updating and replacement of personnel, upgrading the skills of tourism workers). Moreover, a very important improvement and enhancement is an increase in the number of payment system services that will prevent financial inconveniences for tourists and contribute to improving the quality of service in hotels, shops and other places where visitors stay.

The marketing research also remains an innovative environment in the touristic sphere. In fact, the inventions of new goods and services, research of new markets and emerging markets, promotion of current products to the global market, support of constant indicators of growth in demand for tourist trips – these and other operations would not be possible without the introduction of and enhancement of innovations.

Therefore, thanks to the application of scientific knowledge and methods of implementing innovative transformations, it is now possible to create new tourism products, significantly improve the quality of hotels, transportation system, develop new markets and improve the competitiveness of the tourism sector in the context of globalization.

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Skakalina Elena
PhD of Engineering, Associate Professor
Poltava National Technical University named after Yuri Kondratyuk (Poltava, Ukraine)

INTELLECTUAL TECHNOLOGIES IN MANAGEMENT OF BUSINESS ENTITIES

One of the main trends in the development of information technology and information systems (IT and IS) in the 21st century will be the solution to the problem of the comprehensive integration of these technologies and systems with existing and future production and socio-economic structures and related control systems (CS). Therefore, one of the urgent scientific problems is the task of optimizing the

management of complex geographically distributed systems, which include production and economic systems. The main type of production and economic system is a modern enterprise, that is, an economic entity. Such an entity can be agroholding, an oil and gas company, an energy complex, information systems, branch management systems, large banking structures, and similar complex geographically distributed systems.

As the main properties of complex systems, one can distinguish the following [1]:

1. A large number of interconnected and interacting elements
2. The complexity of the performed function to achieve the purpose of functioning
3. Hierarchical structure, the ability to divide the system into a subsystem
4. Availability of management, intensive information flows and an extensive information network
5. Interaction with the external environment and functioning under the influence of random factors.

The analysis of existing models of management of complexly organized territorially – distributed systems (COTDS) as integrated structures and degree of compliance of COTDS implemented in COTDS ERP, BMP and other systems of corporate management for the modern needs of COTDS in optimizing all existing types of production and accompanying activity of economic entities allows us to reach a reasonable conclusion on the significant inconsistency of the methods used in these systems to optimize production and logistics processes. The objective challenges of modern activities in the conditions of COTDS require the use of intelligent information technology at all levels of management of complex objects in a minimization of such key parameters as the full cost of implementing ERP, BMP and other corporate governance systems, the timing of their implementation, the availability of staff with the appropriate level vocational training. The analysis of classical optimization techniques implemented in the well-known ERP systems shows that quite often they do not provide adequate managerial decisions due to significant time expenditures for finding the optimal solution. The use of innovative logistics as an independent competitive power will allow national COTDS to maintain leadership in the process of achieving the goal and implementing strategies in a rapidly changing world market.

Taking into account all of the foregoing, one can state the existence

of an important scientific and applied problem, the relevance of which is determined by the objective need to create new innovative information technologies for optimizing the management of production and logistics processes under the conditions of COTDS, in particular, algorithms, methods, etc. to increase the efficiency of their implementation through a combination of project management methods and evolutionary algorithms, which provides the opportunity to obtain a synergistic effect.

Let's introduce the following statement: in order to achieve the optimal result in the process of managing a complexly organized geographically distributed system, it is sufficient to input at least one control action on the θ set at the input of such a system. Elements of this set are the following information technologies [2]:

Θ1 – information technology for the optimization of production activity of a complexly organized territorially distributed system (SOTS) by means of project management;

Θ2 – information technology of optimization of logistic activity of COTDS with the use of modified genetic algorithms and fuzzy sets;

Θ3 – information technology of optimization of financial risks COTDS;

Θ4 – information technology for forecasting financial indicators of production activity of COTDS on the basis of neural network modification of the group method of data handling.

The strategy of combining methods is applied in the work, since the application of one method is often insufficient to obtain a qualitative and adequate solution. Therefore, different methods combine, "launching" them either sequentially or in parallel. Generally, the following combining strategies are used: staged start, iterative launch, competition, division into data blocks (decomposition – divide the data into separate fragments, which are processed separately or by one method, or – different). In the investigated subject area of existence of the most important in the national production activity of COTDS – agro-sector and oil and gas-the applied methods of decomposition and phasing-in.

The trends in the development of modern economy testify to the growing role of logistics, which, in the face of growing competition, reducing information barriers and globalization, is becoming one of the most important components of the strategic development of enterprises. Leading world companies emphasize their activities on strategic logistics in order to be able to cover suppliers, logistics intermediaries and consumers.

At present, logistics is one of the fastest growing areas of productive

activity. This process is connected not only with the growing demand for logistics services, but also with the strengthening of the mutual integration of the business opportunities of logistics and the simultaneous infrastructural development of the respective territories. The most significant development of methods and algorithms for interaction between the subjects of logistical processes is due to the rapid development of information technologies, which entailed a wide spread of network organizational forms of business, on-line document circulation, transition to electronic payment systems, virtualization of logistics processes, etc.

On the basis of innovative transformations of the information infrastructure of logistics, a transition to a new level of intellectual management of processes is carried out, new logistics concepts of "Party Logistics" are being formed. One of the main trends in the development of the world market is the increase in the concentration of capital for core business. Subsidiaries can be created to perform non-core functions. However, at the present stage, these functions are increasingly being outsourced. This tendency is also fully observed in the sphere of logistics services. As an example, we can cite the United States, where the turnover of logistics services is about 40 billion dollars.

Currently, logistics is one of the fastest growing areas of activity. This is due not only to the growing demand for logistics services, but also to the development of the infrastructure capabilities of this business. The most significant changes in the ways and forms of interaction between logistics entities are due to the development of information technologies, which entailed the spread of network organizational forms of business, the virtualization of logistics processes, the dissemination of electronic document management, the use of electronic payment systems.

On the basis of innovative transformations of the logistics information infrastructure, management tools are developing, new logistics concepts are being developed, such as "Party Logistics", which are based on determining the level of involvement of independent companies (logistics providers / operators) to solve business problems of the customer. Exact methods of solving logistical problems allow solving problems of only small dimension (for example, the number of destination points is not more than 50). To solve practical problems of large dimension, which reflect the existing economic realities, it is necessary to develop new approaches that are based on the use of innovative computer and information technologies. One of the most

promising modern scientific trends is the use of integrated approaches that lie at the junction of various scientific directions. To solve complex multicriterial optimization problems, to a class of which logistical tasks belong, various methods are successfully used, including evolutionary algorithms, which include genetic algorithms.

The optimization tasks of transport logistics are not amenable to a quick and effective solution. Modern results of research on methods of solving the main problem of routing (VRP – Vehicle Routing problem) [3], include a variety of mechanisms for finding and improving an acceptable solution [4-7]. VRP belongs to the class NP - complex problems. For small dimensions, integer linear programming methods are used, for large dimensions - metaheuristics, which have become widely used in practice. Within the framework of the second direction, a hybrid genetic algorithm (GGA) is proposed, which differs from the classical genetic algorithm using the apparatus of the theory of fuzzy sets (FST) to regulate the size of the initial population.

The genetic algorithm is a heuristic search algorithm used to solve optimization problems using mechanisms that imitate biological evolution [8, 9]. In this case, in the case of a genetic algorithm under evolution, we mean the evolution of a certain population of individuals (chromosomes) – solutions, the suitability of each of which is determined by the value of the target function that corresponds to this solution. In the simplest case of a canonical genetic algorithm, the simulation of such an evolution reduces to the simulation of the emergence of new individuals-descendants (new solutions) based on the intercourse of the parents-parents (old solutions), the simulation of the selection of the most adapted individuals (solutions with the best values of the target function) and the simulation of random mutations (rare random changes to solutions).

At the initial stage (n = 0) of the classical genetic algorithm, the initial population of the chromosomes is randomly generated, each of which represents a sequence of genes encoding an alternative solution (for example, a chromosome can encode a variant of the carriage of a particular VEHICLE (V) on a particular route). At the same time, each gene can carry the value of the corresponding type of V and the length of the route. Then the cycle begins, at each iteration of which the current population is applied sequentially: the reproduction operator randomly selects the chromosomes for crossing with the probability proportional to their fitness function (determined by the values of the target function of the corresponding pairs – V& route); a crossover operator simulating

the creation of the descendants of chromosomes, borrowing separate parts of the genetic code from parents (the formation of new matching pairs of V& route that inherited different types of V and routes in different previously selected old pairs); the operator of a random mutation, with a given (small) probability, changes the chromosome in a random place randomly; and, finally, a recombination operator that determines the chromosomes that will be included in the next population (it selects the most suitable for further evolution of the pair of V& route in accordance with the value of their target function). As a target (fitness) function, the monetary value of the entire plan of transportation is applied. The cycle continues until the maximum number of iterations n is reached or a satisfactory solution is obtained. Scheme of traditional GA:

*BEGINNING / * genetic algorithm * /*
Create an initial population;
Evaluate the suitability of each individual;
stop: = FALSE
UNTIL DOES NOT STOP EXECUTE
*BEGINNING / * create a new generation population * /*
REPEAT (population size / 2) TIMES
*BEGINNING / * playback cycle * /*
Choose two individuals with high adaptability from previous generation to cross;
Broken selected specimens and get two descendants;
Assess the suitability of descendants;
Place in a new generation of descendants;
END
IF the population agrees TO stop: = TRUE
END

In the GGA after the creation of the initial population and the calculation of the fitness function for each pair of V& route, the operation of the FST is started. We define the set of linguistic variables "Value of fitness – functions" as "Very Bad", "Bad", "Satisfactory", "Good", "Very Good". Those pairs of V& route (chromosomes), values of fitness-functions of which arrive in the "Very Bad" FS, are excluded from further processing. Thus, the dimension of the current population decreases and the time of convergence of GGA decreases, which is relevant for problems of large dimension. Hybrid GA scheme:

*BEGINNING / * genetic algorithm * /*
Create an initial population;
Evaluate the suitability of each individual;
Formation of 5 fuzzy sets
*"VB-very bad", "B-bad", "S-satisfactory", "G-good", "VG-very good" individuals depending on the suitability value / * FST * /*
Reducing the dimension of the initial population by removing from it the fuzzy set "VB"
stop: = FALSE
UNTIL NOT STOP EXECUTE
*BEGINNING / * create a new generation population * /*
REPEAT (population size / 2) TIMES
*BEGINNING / * playback cycle * /*
Choose two individuals with high adaptability from previous generation to cross;
Broken selected specimens and get two descendants;
Assess the suitability of descendants;
Formation of 5 term sets "VD", "B", "S", "G", "VG" individuals depending on the value of the fitness function
*/ * FST * /*
Reducing the dimension of the initial population by removing from it the term set "VB"
END
IF the population agrees TO stop: = TRUE
END

The software implementation of the proposed GGA is performed on the .NET Framework platform and the MS Visual Studio development framework, the programming language C #. Experiments were carried out to evaluate the possibilities of the author's GGA. The first stage of the GGA testing was performed on the test functions of De Jong, Rosenbrock, Rastrigin [10-12]. The second stage of testing was carried out on real data obtained at the objects of the following subject areas: agrarian sector, oil and gas industry, distribution of gasoline in the network of gas stations.

The following characteristics of the GSA were used in the work: the type of crossover is one-point, parameter coding is real, which gives additional advantages over the speed of the GGA, as a new generation generation strategy, the NM apparatus is used. The results of the first stage of the experiments on the test functions showed that the GA showed the best results, both in terms of the rate of convergence, and in the probability of reaching the absolute optimum (Table 4.2), in

comparison with the classical GA.

Table 4.2

Results of the first stage of testing

Type GA	Testing function		
	De Jong	Rosenbrock	Rastrigin
KGA	0.89	0.86	0.84
GGA	0.92	0.90	0.88

The results of the second experiments confirmed the results of the first one. The value of the total cost of the entire transport plan obtained with the use of GGA showed better results than KGA (Table 4.3).

Table 4.3

The value of the total shipping plan

Domain Object	KGA ($)	GGA ($)
DO#1	21598.70	16124.61
DO#2	83305.60	65984.84
DO#3	58179.20	47630.10
DO#4	112384.67	94781.93
DO#5	25384.98	12021.75
DO#6	97359.50	82840.36
DO#7	25292.50	16977.14
DO#8	11091.83	7308.28
DO#9	273595.78	223387.96
DO#10	308625.32	317943.95
DO#11	233056.21	215091.83

The main advantage of using evolutionary algorithms in general and genetic algorithms in particular in solving optimization problems is their ability to operate with a variety of solutions – a population that allows one to reach the global extremum without getting stuck in the local. At the same time, the information about each person in the population is coded in the chromosome (genotype), obtaining the optimal solution (phenotype) is obtained after the implementation of the evolution (selection, crossing, mutation) after decoding. The proposed GGA allows the process of controlling the size of the source and current populations using the FST apparatus and has the advantage of using real coding. The obtained results testify to the expediency of applying this modification to solve logistic problems in various subject areas.

Evolutionary algorithms provide enormous materials for further research due to the availability of a large number of modifications and

the parameters of their work. It should be noted that the effectiveness of the operation of the SA greatly depends on the setting of the parameters. But this does not diminish the value of GA as one of the most explored and developing algorithms of global direct search optimization.

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Chapter 5

PRACTICAL ASPECTS MANAGING INNOVATIVE DEVELOPMENT IN DIFFERENT SECTORS THE ECONOMY

Azarenkova Galina
Doctor of Economics, Professor
Golovko Olena
PhD in Economics, Associate Professor
Babenko Maksim
Postgraduate
Sturua Natalia
Student of 1th course of Master's Degree
SHEI "Banking University" Kharkiv Educational and Scientific Institute (Kharkiv, Ukraine)

FINANCIAL STABILITY OF THE BANK: THE ESSENCE AND FACTORS OF INFLUENCE

In conditions of economic globalization, when in one part of the world from time to time occur foreign exchange, banking and financial crises, the issue of ensuring stable economic development in each country, which depends to a large extent on the reliability of the banking sector, is exacerbated. In today's conditions of development of the Ukrainian economy, one of the most important factors in ensuring the trust of depositors, partners, and investors to banks is to maintain their financial stability and ensure financial development. In particular, the latter should be not only short-term achievements of banks, but also their strategic objectives, which, in turn, will depend on the dynamics of market transformations and shifts.

The problem of securing and strengthening the financial stability of banks is complex and not completely solved, not generated by the present, as it has its roots in the past. It is present in developed countries of a market type and acquired national significance for Ukraine, which is largely due to the specifics of the development of domestic banks [1].

In Ukraine, an adequate banking system is an integral part of the development of market relations, the state of payments, the continuity of

commodity and money circulation, the flexibility and elasticity of the monetary system, the strength of the national currency, and the development of the real sector of the economy depend on the precise and coordinated work. Stability of the banking sector is the basis of stable economic development in each country. Unfortunately, the banking system of Ukraine was most vulnerable to the manifestations of the economic crisis, which was caused by the processes of globalization and its consequences.

G. Azarenkova discloses the applied aspects of managing the financial flows of banks and economic entities of the non-financial sector of the economy and analyzes the financial processes of the interaction of such flows, determining the impact of different financial flows on the conditions of the functioning of banks [2]. V. Korneev examines the conditions of the movement of credit and investment flows of capital and their influence on the development of the banking sector [3]. A. Volzh'ev, on the basis of studying the mechanisms of transformation of bank resources, determines the conditions of the bank's functioning due to various influences from external and internal factors [4].

S. Kozjmenko, F. Shpygh, I. Voloshko conduct an analysis of the conditions of the bank's operation in terms of the basics of strategic management [5]. V. Glushchenko and A. Gradil, consider the conditions of functioning of banks as a result of various financial risks [6]. L. Petrichenko argues that the concept of "financial stability of the bank" characterizes the state of the entire set of financial relations of the bank, which provides for continuous functioning and development. It is appropriate to generalize the economic concept through the category of "financial relations", which is, in particular, a basic understanding of those processes that arise both in the middle of the bank and in interaction with the external environment [7]. However, among the whole set of financial relations of the bank can be identified as attracting, and those that are dependent on the attracting. P. Kallaur says that financial stability is not simultaneity of the system, but a characteristic of its ability to function effectively over a long period of time, maintaining a balance and maintaining its structure [8].

The above presentation emphasizes the importance of the financial component of stability, which is generalized in the ability of the influence of such a component on the organizational structure of the system. In general, stability can be considered from the point of view of such components as financial and organizational, which, in particular,

proves R. Mykhajljuk in his study [9].

The stability of the banking system, O. *Baranovsjkyj*, is quite broadly interpreted, which proves that it is the ability to withstand external and internal influences, maintaining a stable balance and reliability over time [10]. In accordance with the above, the main approaches to determining the general concept of financial stability of the bank can be filed in accordance with Figure 5.1. [1].

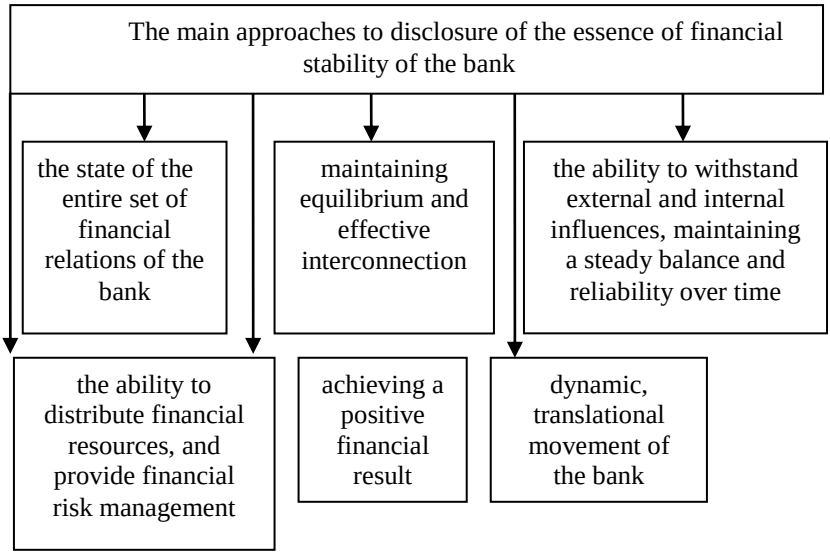

Figure 5.1 The main approaches to disclosure of the essence of financial stability of the bank

Thus, the essence of the concept of "financial stability of the bank" can be defined as the ability to store equilibrium for some time in individual areas of the financial relations of the bank, and the result should be considered a permissible deviation from the trend line selected indicators in time at which and determined balanced state bank and summarized the quantitative values of such stability.

On the financial stability of banks in Ukraine affect certain factors which in most cases are divided into external and internal, and which, depending on the qualitative and quantitative characteristics of their influence, have both positive and negative. They are divided into stimulant factors and de-stimulating factors. Stimulants include factors

whose high values are desirable from an economic point of view and indicate favorable conditions for increasing the competitiveness of the bank. The disintegrators include factors with opposite qualities. However, due to the orientation of banks for servicing certain target segments of the banking services market, the same factors can be both stimulators and disinfectants.

To these factors, V. Kovalenko, O. Krukhmalj [11] adds the following: high lending risks; dependence of the banking system on the financial condition of borrowing companies; increase of risks associated with the stock market; problems with the return of external borrowings; the level of the capital base of the banking system and the rather low quality of resources; problems of refinancing of banks; political interference in the banking system.

The lack of signs of instability in the bank's operations is a guarantee of its sustainable development and continuous functioning under the influence of exogenous factors. That is why identifying potential crisis characteristics in the activities of financial and a credit institution is an urgent need for most bankers of our state. Having analyzed the methods of assessing the financial stability of commercial banks, we can state that most methodological approaches to address this issue are based on a coefficient analysis of the activities of banking institutions.

These techniques include: structural analysis to identify the risks caused by the features of the structure of assets, liabilities, off-balance sheet position of the bank; to estimate the profitability of the bank as a whole and its separate operations separately; value of equity capital; analysis of risks.

PJSC CB "PrivatBank" is a system bank, therefore it is relevant and extremely important to study its condition [12]. The key factor in determining the crisis characteristics in the development of the bank can be the factor of time, in terms of which the dynamics of one or another of the investigated indicators of banking activity is revealed. For the appropriate disclosure it is advisable to take into account not only the statistical intervals of time for determining the estimation of financial stability, but how to determine the change in the general indicators of banking dynamics. In other words, a separate time interval should be chosen which is correlated with the general study period and calculates relevant financial stability estimates at such an interval throughout the period, based on the fact that the values of the financial stability estimates are variables in the interval from the established interval throughout the period under investigation.

For example, if you choose a year (or several years) as a research period, you can specify, in particular, three months as an interval of assessments of the financial stability of a bank's development. Such a definition can be based both on quarterly reporting and on possible changes within three months (in terms of quarters, the potential changes and expectations of potential market players are calculated), bearing in mind that the presentation of indicators of banking activity is presented in the context of each month. In other words, we calculate the slippery values of financial stability ratings of the bank. The expediency of such a calculation of estimates relates to the attempt or to identify the hidden situation in the bank, or vice versa, to consider in more detail the existing development trends, distinguishing periods of unstable fluctuations in the studied indicators of banking activity.

As an indicator it is expedient to weigh the value of the modified representation of the scale of variation relative to the average value of the studied series of data of this indicator:

$$RV = \frac{x_1 - x_k}{x_c} \tag{5.1}$$

where RV – the relative parameter of the modified representation of the scale of the variation of the interval at which the estimation is determined;

x_1 – initial value of the indicator of banking activity of the investigated interval;

x_k – the final value of the corresponding index of the investigated interval;

x_c – the average value of the corresponding indicator on the studied interval.

In the formalized form, the set of relevant ratings can be submitted formula 5.2:

$$\{RV_j\} = \overline{\left[\frac{i}{2}\right] + 1; n - \left[\frac{i}{2}\right] - 1}, \tag{5.2}$$

where $\{RV_j\}$ – the set of possible slip marks (the corresponding indicator of banking activity);

n – the period at which the relevant assessments are determined;

i- the interval at which the assessment is determined;
j – time of the current calculation of the value of the estimation;
[] – the whole part of the number.

The peculiarity of values of estimates by formulas is that almost all values are in the range from minus one to plus one. In particular, this depends on the methodology for determining the marked estimates and the assumption that the functioning and development of banking activity is gradual.

The presence of the values of the relevant estimates more than one (in the absolute measure of such an estimate) indicates a jump in the analyzed indicator of banking activity. Therefore, it is important to determine whether such a leap is controlled or not, and therefore it may also be a sign of a crisis phenomenon in a particular type of bank activity.

Note that the corresponding calculations according to formula 5.2 are conducted separately in the context of specific indicators of banking activity for a specified period of time. As a result, we have a whole series of ratings over the period of the study period, which allows us to establish the possibility of emerging crisis features in the development of the bank [1].

In order to evaluate the activity of PJSC CB "PrivatBank", the following indicators were selected: volume of loans granted to individuals, amount of loans granted to legal entities; amount of funds attracted from individuals; amount of funds attracted from legal entities.

The study period was 2013, 2014, 2015, 2016 and the first half of 2017 [12]. The calculations are performed using the Microsoft Office Excel software package. It is worth emphasizing that the negative values of the slip evaluations indicate a deterioration of the studied indicator in the activity of the object, that is, there are crisis phenomena.

The smallest number of negative values was in 2013-2014. In 2014 and 2015 there was an increase in negative slip assessments – 18 and 21, respectively, indicating an absolute reduction in the analyzed performance indicators of the bank. In 2016, the situation went a little bit to improve – 16 negative ratings (Table 5.1).

Due to the lack of data for the entire period, in 2017 we did not fully calculate: the indicators necessary for carrying out the calculations of the activity of the research object PJSC CB "PrivatBank" were, unfortunately, only as of 01.06.2017 (the first half). Therefore, when forming conclusions about the model, it is necessary to abstract from the

Table 5.1

Detected number of negative values in calculated moving estimates for the period from 2013 to 2017 (1st half year)

Number of negative slip ratings for 2013, pcs			
Loans granted to individuals	Loans granted to legal entities	Deposits from individuals	Deposits from legal entities
1	1	0	2
Number of negative slip marks for 2014, pcs			
4	4	5	5
Number of negative slip marks for 2015, pcs			
6	5	3	7
Number of negative slip marks for 2016, pcs			
6	4	3	4
Number of negative moving estimates for 2017, pcs			
0	3	0	0
Total			
17	17	11	16

crisis phenomena in the 2017 model. During the analyzed period there was an increase of deposits (both physical and legal persons) and loans granted to individuals. With the exception of loans granted to corporate clients - starting in February, their volume began to decline. What are the estimated slip marks for us? In addition, according to published quarterly reports (for the 3rd quarter of 2017), the loan portfolio for legal entities has somewhat decreased.

More problems are observed in the following indicators: funds raised from legal entities and loans granted (both to corporate clients and to private ones). Almost all of the above-mentioned sliding ratings in terms of individual banking performance indicators have a downward trend over the period under study (with the exception of 2013 and 2017).

Nevertheless, there has been a gradual improvement in the values of the slip marks during the recent research periods (Figure 5.2).

It is also worth paying attention to the boundaries that are calculated estimates. The higher the boundaries, the greater the probability of a crisis situation.

In Figure 5.2 is given: a) the data array belongs to the interval (-0.1; 0.15); b) the data array belongs to the interval (-0,15; 0,25); c) the data array belongs to the interval (-0,2; 0,3); d) the data array belongs to the interval (-0,2; 0,55).

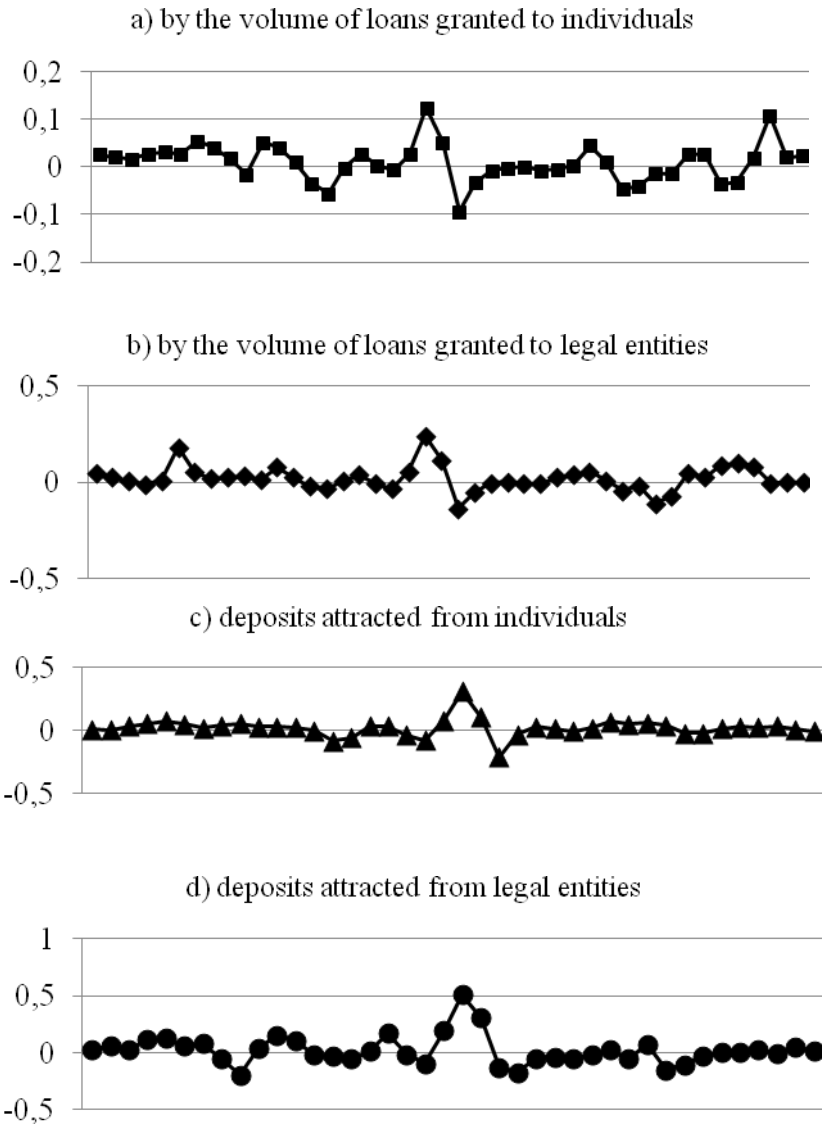

Figure 5.2 Sliding estimates of the financial stability values of PJSC CB "PrivatBank" for the years 2013-2017 in the context of separate indicators of banking activity (loans and deposits provided separately to legal entities and individuals)

The smallest amount of data is observed in the estimations of the indicator "loans granted to individuals". This indicates that the risk of crisis situations in the bank's activity is the smallest. The most problematic of the analyzed indicators can be considered as attracted funds of legal entities, because for the analyzed period, the most variability of the calculated estimates. This, in the first place, was facilitated by information attacks against PrivatBank. During the investigated period, a financial institution withstood six such informational attacks, when there was a significant outflow of funds previously raised.

In recent periods, the situation is relatively stable, but there is still a gradual decrease in the volume of funds attracted by legal entities. The rolling estimates reflect the realities of the present and recent events – political instability in the state and the economic crisis, which was not passed by PJSC CB "PrivatBank".

The improvement of the indicators at the latest intervals in 2017 gives an opportunity to talk about stabilizing the bank's operations, implementing effective deposit and credit policies, introducing new approaches to customer service and restoring public confidence. Therefore, if this positive dynamics continues, PJSC CB "PrivatBank" will continue to only strengthen its position in the Ukrainian banking market.

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Gotra Viktoria
Doctor of Economics,
Associate Professor
Ihnatko Mariia
Postgraduate
Uzhhorod National University
(Uzhhorod, Ukraine)

ENSURING GROWTH OF COMPETITIVENESS THE AGRICULTURAL PRODUCTION BY OPTIMIZATION OF INNOVATION PROCESSES

The main mechanisms for the development of modern economy are the market and competition. The functioning of the market will be more effective than the more intense competition on it and the better conditions created for its manifestation.

Formation of a competitive market is a main condition for ensuring economic and social stability of the Ukrainian economy. Particularly relevant is the search for ways to increase the level of competitiveness the domestic enterprises.

From the moment getting Ukraine a full member of the World Trade Organization (WTO) it became necessary to comply with the basic conditions of its agreements and the implementation of the agreements reached during the negotiation process on Ukraine's accession to the WTO in the following areas: access to the market of agricultural and food products; state support of agriculture; sanitary and phytosanitary measures; export competition in agricultural and food trade. Compliance

with these provisions and strengthening of international competition is possible only on the basis of intensification of innovation activity the business entities of agro-industrial production, since without it becomes impossible to ensure their sustainable development and the economy as a whole.

In Ukraine has a great potential for growth of agribusiness. First of all, it concerns the use of advanced agricultural machinery and growing technologies, and the improvement of the logistic component, which should help minimize costs. That is, Ukraine can substantially increase agricultural production, but, despite the attractiveness of the industry, the volume of investment is less possible. For the agrarian sector of Ukraine the association with the EU is more profitable, because the main markets for agricultural products are there [22].

Agrarian business is a key industry, the development of which can raise the welfare of our country and may become the most priority, because it depends little on imported energy and has a high export potential. Competitiveness of agricultural enterprises is the ability the entities of economic activity of the agrarian sphere to adapt to the new conditions of management, to use their competitive advantages and to win in competition on the markets of agricultural products and services, to use land resources as maximum efficiently, to fully satisfy the needs of the buyer by analyzing the structure of the market and flexibly respond to changes in its conjuncture. However, it should be added that the competitiveness of agrarian enterprises also depends on weather conditions, natural resources and the length of the production cycle [13].

Today, Ukraine is one of the leading producers of agricultural products in the world, which allows ensuring not only the needs of the domestic market, but also successfully exporting food and agricultural raw materials. The top ten countries to which the most exported Ukraine's agricultural products are include China, India, Egypt, Spain, Turkey, Netherlands, Italy, Saudi Arabia, Iran and Poland. China, India and a number of other countries have pushed the Russian Federation into a leading position in the 15^{th} position in the ranking of countries-importing of Ukrainian agricultural products [18].

Strengthening the processes of globalization and exacerbating the problems of providing food products to the world's population will require further development of the domestic agro-industrial complex and its integration into the global food system. And the present demands not only the consolidation of the results, but also the provision of a qualitative leap in the development of the agro-industrial complex.

Ukraine, unlike developed countries (USA, Canada, EU countries), uses only a third of its powerful natural resource potential. This is evidenced by our lag behind developed countries by the indicators of efficiency the domestic agricultural producers (low yields of agricultural crops, livestock productivity, etc.). Thus, according to FAO, Ukraine is twice as low as its rivals in the global agro-food market (in particular, on the productivity of cows from Canada, on the grain yield of developed countries of the EU and the USA). In other words, due to increased productivity agriculture could generate a much larger contribution to the country's economy [5].

The export potential of the agroindustrial complex of Ukraine is still very weak, the liberalization of foreign trade of agricultural products is not supported by the stimulation of its export. As a result, the Ukrainian agrarian sector is not sufficiently integrated into the world food market. This is evidenced by a small part export of the gross output of the industry, which is 12%, while in Poland and Hungary this indicator equals 25%, and in Germany – more than 50% [21, p. 169].

The emergence of competitive relations in the Ukrainian economy has a peculiar character. Their formation took place under the conditions of reformation of monopolized state-owned property, lack of basic market institutions, market infrastructure, clear legislative and normative provision. These processes had and have their own specifics, which influenced the development of competition in the economic of the country and caused certain of it features.

In the agrarian sector economy of the competition certain peculiarities are also characteristic of the particularities of agriculture itself. So, firstly, it manifests itself in conditions of inconsistency of demand and supply of agricultural products. As a result of the intensification of the crisis in the Ukrainian economy there was a sharp decline in production volumes of certain types of agricultural products, especially livestock products. Because of this today, many important types of products (meat, milk, vegetables, fruits) demand far exceeds the supply. Secondly, the insufficient supply of agricultural products guarantees its almost complete sales at rather high prices without much competition, and therefore competition, in the absence of any struggle by commodity producers, does not fulfill its most important function – to stimulate the development of production and scientific-technological progress. Thirdly, competition is known to be a certain mechanism for coordinating production, which operates through a system of prices and markets. In the agrarian sector this coordination can not be carried out

only by taking into account fluctuations of prices under the influence of demand and supply. Successful operation of this mechanism is possible only in the implementation of the regulatory role of the state. Fourthly, the methods of competition in the agrarian sector also have their own peculiarity [19]. Fifthly, the agrarian sector covers such production in which all kinds of competition can operate simultaneously: a perfect, monopolistic, oligopolistic, pure monopoly [7, p. 44-45].

Thus, competition in the Ukrainian economy, in particular in agriculture, is characterized by a large number of unique factors and features, which account is necessary for the creation and implementation of an effective competitive policy of the state. Competitive policy at the present stage is involves implementing a complex of measures to create an effective competitive environment, reducing the share of the monopoly sector in the economy of Ukraine, improving the rules of competition, introducing modern methods of state regulation of the activities of natural monopolies, reducing the share of the monopoly sector in the gross domestic product, protection and supporting competition, developing its institutional support [4].

The main instrument, a condition for increasing the efficiency of domestic agricultural producers is innovation. Creation and practical implementation of various types of innovations is an inexhaustible source of accumulation of various changes. S. Ilyashenko remarks on this subject, namely, that the very innovative activity, the essence of which consists in the creation, implementation and dissemination of innovations, affects on all aspects of the development of human society, changes even the environment of life and human activity, ways of ensuring its existence and development [8].

The most effective ways of activating innovation development in the agrarian sector of the economy, based on the analysis of existing and potential problems, is the formation and implementation of a state policy of innovation development of agro-industrial production, according to which state authorities will have the opportunity to apply new market instruments for supporting and developing innovative activities of agrarian enterprises, namely: improvement of land relations (creation of a land market); development and improvement of the overall efforts of innovative programs; activization of innovation activity in the field of taxation; formation of the corresponding infrastructure of the agricultural market; solution of the problem of rural development [12].

The state should create favorable conditions for innovation activity, which would result in the development of all entities of the innovation

sphere. Any country is looking for an optimal balance of forms of state support for innovation, which depends on many factors, namely: the level of development of the national economy, the state of the scientific-technical sphere, the legal basis, etc. [1]. However, the role of the state is not only in financing fundamental research in the agrarian sector. It is necessary to realize the high level of management, the importance of introducing new technologies in order to ensure the long-term development of agro-industrial production, stimulating creative approach, competent selection of innovative priorities, unbiased selection of innovative projects, and also develop of mechanisms of indirect support for the modernization of the agrarian sector, first of all, the impact on the process of formation of the market of agro-innovations, since the decision on their implementation takes directly agricultural producer.

Agricultural science in Ukraine is 75% funded by the state budget (science as a whole – 39%), which indicates the inefficiency spent in the agricultural sector reforms, which resulted agricultural science remained isolated from agricultural production and slightly commercialized, contrary to international experience. The irony of the situation is that in a large-scale detechnologizing and deindustrialization of agro-industrial production almost retained its scientific potential, which from 1991 was reduced by 1.3 times, while the total number of researchers as a country decreased 2.6 times [11]. That is, for the needs of this sector are works the well-developed system of educational institutions. The problem is that the low level of demand is the results of agricultural science in agricultural production, which naturally leads to lower quality of its functioning. In such conditions it is expedient to form large agricultural enterprises and to activate the market integration of Ukrainian farms.

To solve these problems are necessary transformational changes both within the framework of the national innovation system and its agrarian component. At the same time on the level of the agro-innovation system, first of all, it is important to ensure the growth of innovation proposals, increasing the susceptibility of producers to innovations, as well as the formation of an effective communication science and production.

In Ukraine large-scale investments in Research & Development and technological-technological modernization of fixed capital in agriculture are carried out by a limited number of large highly profitable enterprises. For most domestic agricultural producers innovative methods and tools of activity are little known and practically inaccessible [16]. This tendency does not correspond to the practice of

developed countries, where most of the scientific organizations belong to the factory sector (the company sector), and therefore – are as close as possible to the final stages of the development and process production, including innovation [20].

The mechanism of realization of innovative potential of agroindustrial production in Ukraine includes a set of components of the innovative direction of development the agroindustrial formations, infrastructure of the market innovations, methods and principles of realization the state innovation policy, tools of activation of innovation transformations in the industry. According to domestic researchers, today the innovative potential of the sphere of agro-industrial production is realized by 5-7%, while in foreign countries this indicator is more than 55-60% [2].

As a result, becomes more and more relevant the problem of developing and implementing strategies, methods, tools and practical measures for realization of innovation activity, which are collectively implemented as part of the mechanism of innovative development of enterprises [10].

In order to increase the innovative activity of the entities agricultural sector and the investment attractiveness of agricultural production are needed consolidated efforts on the part of the authorities and agrarian business, aimed at the formation of innovation infrastructure. This implies the implementation of the following measures:

1. Implementation by the state and business of significant capital investments in enterprises that determine the scientific-technical and innovation policy in the agricultural sector.

2. Stimulate the implementation of research and development results by providing financial resources for their purchase, leasing. Possible options for budget financing are as follows: provision of target amounts with the condition of their return after a certain time; lending on a privileged, long-term basis of public-private partnership on a parity basis; share participation of the state in various investment projects, etc.

3. Reorganization of the management system the agrarian sector, its services and departments with local authorities in order to reconstruct the command-administrative type of state management of agrarian sphere in the consulting-informational, provide economic entities of all forms of activity with timely information on the current situation in the agrarian market, which provides consulting, engineering and marketing services to agricultural producers, which will increase the efficiency activity of enterprises and significantly reduce innovation-investment

risks.

4. Improvement of the normative-legal base of innovative provision of sustainable development of the agrarian sector.

5. Involve the unions and associations of producers of the agrarian sector in the formation of institutes for the development and realization of state innovation policy in the agrarian sector.

6. Training of specialists in the field of innovative management for agriculture.

Interesting is the experience of the European Union, where stimulation and support of technological and innovative development is carried out with the help of modern tools. One of them is a technological platform – it is independent of other partnerships aimed at developing scientific-research and experimental-production segments of the knowledge economy sphere, activating efforts to create promising commercial technologies, new products (services), attracting additional resources for research and developments by based on the participation of all stakeholders (business, science, government, society). The main task of the technology platform is the output of an innovative product on the domestic and foreign markets through experimental-technological works, experimental-industrial production and innovative infrastructure, technology transfer.

The technological platform "Agrotechnopolis" is formed as a format of the state innovation policy to support the activities of participants in the knowledge-based agrarian market of all forms of ownership, which are engaged in the creation, development of science-intensive technologies, production and sales of innovative products (breeding materials, seed, breeding and other genetic and high-tech resources, technical means of their use) that ensure the competitiveness of agrarian production and the functionality of market infrastructure. The mission of the technology platform "Agrotechnopolis" meets the European norms and priorities of framework program of the "Horizon 2020". Its formation includes: provision of civilized rules on the knowledge-based agrarian market in the field of creation and distribution of advanced technologies and promotion of production and sales of innovative products; promotion of the establishment of parity relations the participants of knowledge-based market (scientific institutions and their experimental base, consulting institutions, producers of science-intensive products, enterprises of agribusiness) in the form of statutory and contractual formations of various organizational-legal forms that provide innovation-investment activity and protection of interests of

promotion of sectoral and regional programs and projects of priority innovative development of agro-industrial complex. Implementation the tasks of technological platform "Agrotechnopolis" requires the creation of a unifying structure with a democratic form of foundation and functioning that does not restrict statutory rights, subjective intentions and object resources of participants the knowledge-based market of all forms of ownership and subordination in the field of agro-industrial complex. Such opportunity in the domestic legislation gives the organizational-legal form "Science park".

The scientific park is created with the participation of scientific institutions, higher educational institutions and other legal entities that have concluded the founding agreement, with the purpose of development of scientific-technical and innovative activity, effective and rational use of available scientific-technological potential, material-technical basis for commercialization results of scientific research and their implementation on the domestic and foreign markets [23].

In Ukraine, in contrast to European practice, where big business has initiated the establishment of the European Technology Platform (ETP) and features Russian practice based on centralized public policy, the founder of the idea of Ukrainian National Technology Platform (UNTP) was a proactive part of the scientific community and involved her small and middle business. Since 2006, the initiative group of scientists (in particular, prof. N.V. Boyko, Uzhhorod National University) and with the support of international experts ETP was launched activities to create a national technology platform "Food for life". During 2006-2012 when making special events and trainings this initiative was further developed to inform the business and scientific communities about the prospects of combining the interests of key participants the innovation process.

As a result of systematic meetings of stakeholders from the research sector and, in particular, small and medium-sized businesses, was identified one of the most urgent public challenges – to ensure healthy and long-term life of the Ukrainian population through meeting the demand in high-tech agro-products and high-quality food products. It also took into account the high export-oriented potential, the significant level of development of the domestic market of agricultural products and its multiplicative character in the conditions of high-tech development. As part of this process, the NTP was structured according to the cluster approach. Agreed with all representatives of clusters, the structure of the TP was approved and officially proclaimed in April

2012 in Uzhhorod.

UNTP "AP" has become one of the decisive initiatives aimed at strengthening the innovative potential and ensuring the efficiency of investments in agricultural research. De jure and de facto, the UNTP "AP" is the first technology platform created in Ukraine. One of its tasks is the use of an effective tool to strengthen the innovative potential of Ukrainian small and medium-sized enterprises in the food sector.

In the conditions of openness of the economy, the growth of food shortages in the world can be considered as a major challenge for Ukrainian agro-industrial production. This will stimulate the inflow of investment resources in the industry and further recovery of exports. In the context of these trends the role of UNTP "AP" is to direct private and public investment in strategically important technologies and priority agro-food sub-sectors. This form of public-private partnership should become in the future an instrument for strengthening the innovative potential of Ukrainian enterprises, especially the food sector, in particular through their participation in the Framework Program EU from research and innovation "Horizon 2020". After all, this initiative was considered as a reflection of the ETP "Food for life", based on the successful international experience of building technological platforms with using the results of the most promising projects of the Platform participants and the experience of their participation in international consortia and European projects.

Summarizing the experience of establishment and development of national technological platforms in Ukraine, it is important to emphasize that this type of public-private partnership allows: 1) to concentrate and mobilize the efforts of all stakeholders of the innovation process – various departments, business, scientific community, investors and public to achieve the goals of specific strategic priority areas, in particular, in the agrarian sector of the economy; 2) to agree and coordinate the activities of various departments, state corporations, infrastructure institutions, regions within framework the existing mechanisms for the implementation of national science-technology policy – government programs, innovation projects, sectoral strategies and programs, corporate development programs, etc. The mechanism of agree and coordination is the use of technological mapping, the definition of a goal tree, the formulation of indicators for their achievement, the establishment of specific terms and the allocation of areas of responsibility between specific participants, etc. [9].

Ukraine must, without losing time, switch to the innovation-

investment model of development. And we must start, first of all, with agriculture. Innovative approaches to the development of the agrarian sector are a powerful stimulus for the growth of the national economy as a whole and a means of addressing a wide range of socio-economic and global challenges, both in developed and developing countries. A special need for them arises in a period when the country's economy is at the stage of overcoming the economic recession [3]. Under such conditions, the system of state priorities should be directed towards the formation of innovative potential in all spheres of social development, including in the agrarian sector, while focusing on the restoration of human capital, the growth of capitalization of the market value of companies that carry out innovative developments.

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Koman Iaroslav
Aspirant
Institute of the Oil and Gas Engineering
Ivano-Frankivsk National Technical
University of Oil and Gas
(Ivano-Frankivsk, Ukraine)

GEOTHERMAL ENERGETICS AND ITS ECONOMICAL COMPONENT

The world have entered new energy era which is characterized by the increasing of need for fuel. Despite sharp changes of demand and price of oil, the tendency of the growth of fuel and energy consuming will still be left, even though the distribution of consumption between the sectors and countries can be changed in a way. At the same time, tendencies of society development require growth of the effectiveness of natural sources utilization, new decisions which can solve problems of the lack of electro energetic power, reduce harmful environmental pressure and modernize energy according to the requirements of 21 century in a short period of time and with smaller efforts.

Modern technologies of energy recovering sources utilization (geothermal warmth of the earth, sun and wind energy) differ by its ecological purity and are close to traditional ones by its effectiveness. That is why the development and utilization of alternative energy is relevant not only because of the global harmful effect to the environment. One important aspect of the alternative energy sources utilization is their environmental performance. Ukraine has valuable potential of the geothermal energy. It is caused by geothermal features and specifies of geothermal sources of the country.

First of all, we can relate to geothermal resources thermal water and the warmth of dry heated fossil fuels. [1]

It is known that geothermal resources are divides into petrochemical and aqua thermal. In case of the receiving energy from the depth of 400 m, we discuss energy of the cover layer of the earth. In this work there is shown theoretical analysis of the impact of utilization of geothermal resources technologies and the results of experimental resources of the !! of the heated energy of the cover layer of the earth by pump system. There are determined the dependence between the temperature fluctuations of geothermal field and the term of system exploitation period and the intensity of heated energy selection.

Ecological impact of geothermal heat stations to the environment

comes to:

1. The act of mineralized geothermal water and steam

2. Lowering of the earth surface above geothermal layer which is being developed.

3. The higher (according to the equal capacity) the heat action of TEN according to the environment. That is why the development of geothermal energy is connected with rather significant negative ecological consequences.

4. The stock of geothermal energy is big, but not inexhaustible. Geothermal energy is the restorative energy source.

5. Geothermal power station does not require fuel supply from external sources for its work.

6. Geothermal power station does not require external energy (fuel) for its work. Its pumps use energy which is produced at that station.

7. Exploitation of geothermal power station does not require additional expenses except those ones for the preventive technical service or repair.

8. Geothermal power station does not require significant land allocation

9. Common geothermal electro station which is located at the seaside or near the ocean can be applied for water desalination. It can be used for consumption or for irrigation. Desalination occurs in natural way after the distillation – warming of the water and cooling of the steam.

The analysis of the features of steam from the depths at the territory of Ukraine showed rather clear dependence of its intensity from the technical development history or another structural element. The intensity of heat steam is the biggest in the places of tectonic and magmatic activation during the Mesozoic and Cenozoic era of geological development of the earth, which occurred about 100 million years ago.

According to the location of the petrochemical energy sources, the intensity of warmth will change. By the degree of availability of petrochemical energy utilization, there are 4 territorial classes in Ukraine:

- Highly perspective (technically available, suitable for production and economically beneficial for appliance);
- Really perspective (technically available but it's economical expediency is possible after the improvement of production technologies);
- Potentially perspective and not very perspective (technical

availability and economical expediency of utilization is possible only after the development of new technical means and technological methods of exclusion).

With modern technologies of warmth exclusion from hydrothermal resources, the systems of chink with the depth up to 3 kilometers are economically justified.

Highly perspective sources of geothermal energy usage are located first of all in Transcarpathian region, West-North part of Bilche - Volytsk's (external) zone of Frontcarpathian region, steppe Crimea and in the cavities of Dnipro and Donetsk region.

Really perspective territories are with such structural elements of the earth cover as Plicate Carpathian, Boryslav-Pokuttia's zone of Frontcarpathian region, megaanticlinories of mountainous area of Crimea, and others.

The most perspective regions geothermal energy development is Transcarpathia region, where according to the geological and geophysical information mountainous rocks can reach 230-275 at the depths of 6 kilometers.

There is a unique place in Transcarpathia region with the square of 30 (2) kilometers in Zaluzhya village with the isotherm of dry rocks +200° in the depths of 4 kilometers. Those stocks will be sufficiently for the work of few geothermal electro stations or conservatory agricultural complex.

But we should mention that according to its technological features, only 4% of predicted resources of petrochemical energy can be used with the energy purposes.

According to the temperature, geothermal resources are widely used in electroenergetical sphere, agriculture, balneology and other spheres. New energetic technologies of geothermal resources utilization are close to traditional ones by its ecological purity and effectiveness. In modern GeoTEN the coefficient of capacity utilization reaches 90% which is in 3-4 times higher that on other recreational energy sources. Those GeoTEN which work with the technology of circulation schemes and binary cycles. Global market of geothermal energy always grows. If in 2014 there was a capacity of GeoTEN in 24 countries with the amount of 8,91 GWt and annual production of energy was 56,8 TWt per hour; in 2015 it was 10,71 GWt and annual production in GeoEN was 67,2 TWt per hour; and in 2016 it grew up to 12,64 GWt and 73,55 in accordance. It is expected that up to 2020 the overall capacity of GeoTEN in the world will grow up to 21.4 GWt. The world leader according to the set

economic capacity of GeoTEN is USA – 3,450 GWt (pic.1). During the last 5 years geothermal energy grew the most in such countries as Kenia (+395 MW), USA (+352 MW), Turkey (+306 MW), New Zealand (+243 MW), Indonesia (+143 MW), Italy (+73 MW). [1-4]. Geothermal electro stations are classified by such features as:

- By the method of terms dynamic cycle realization - it is divided into condensational and binary
- By the type of implementation in technological cycle of working body- GeoTEN with steam turbines and GeoTEN with turbines on low boiling working body
- By the technological scheme of steam cables - side and those with transversal connections
- By the types of relieved energy- condensational and those which relieve only electricity
- By the level of generating energy objects in the power consumption schedule- side and half side.

However, for technical parametrization of the development of new geothermal resources it is necessary to compare zones of abnormal meanings of warm stream in the Earth's cover with its geological and hydro geological conditions. Also we must determine horizons, whose water will be used as a coolant, estimate its operating stock of chinks. Even more we must study the need and practical preparation of administrative region of geothermal deposit in their familiarization of its resources. An interest to alternative sources of energy is caused by the depletion of the stock of carbonate fuel and by the necessity to solve the list of important ecological issues. Today global economy decided to combine traditional and alternative sources of energy [6].

Inexplicable warmth energy of the Earth takes the first place among them. Since 1995 the worldwide geothermal congresses are being regularly held once in 5 years and there is emphasized that fact, that the utilization of the Earth's warmth is one of the most arterial ways in the energetics of the third millennium. It is expected that up tp XXI century part of geothermal resources in energy balance of the world economy will grow up to 30%. Factors which slow the development of geothermal energetics in Ukraine are:

- High price of chinks and low transportable qualities of thermal water
- The necessity of reverse pumping of waste water and significant experiences for its preparation
- Inability of thermal energy accumulation for a long period of

time

- Corrosion-aggressive features, typical for thermal water in big depths
- Familiarization of technologies of high chinks building
- Wide development of geothermal circulation systems technologies
- Development of effective methods of fight with corrosion and salt deposion
- Development of effective technologies for low potential geothermal heat utilization. Realization of a number of tusks will an opportunity to significantly improve the output of existing geothermal production and solve important energy problems. The brunch of application and effectiveness of geothermal water application depends on its energy potential, general stock and the debit of chinks, chemical conditions, mineralization and some other factors. The most effective sphere of its application is heating, hot and technical water supply for objects with different appointments. The biggest energetic effect can be reached by the creation of special heating systems with higher temperature fluctuations.

Exploitation of geothermal sources can be based only on the previous geological researches. To determine the potential of the area for geothermal heat supply in industrial and household enterprises, it is necessary to conduct the risky antecedent research. This feature is one of the main differences of geothermal energy and other renewable sources.

According to the conclusions of MEA, new unconventional energy technologies which exit even today or are at the stage of technical preparation, can lead the world to the stable energy supply. But still, to cope with all the obstacles connected with its development, we need clearly planned programs of scientific developments and operations. It is very important for development of new energy technologies and for reducing its price. It is necessary to stabilize the funding of mew developments and operations. The government needs to create stable and predictable legal, normative and political environment to create an incentive for low carbon technologies development [6]. Today unconventional energetics is one of the main ways of global energy development, because it is environmentally friendly, safe and uses inexhaustible resources.

We should also underline the fact that the governmental support plays important role in widening of alternative sources application.

Effective schemes of stimulation significantly affects the temps of unconventional technologies development, widening of the market, creating of competitiveness environment in the energetics and as a result – improvement of technologies and lowering the price.

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Loyak Lilia
PhD in Economics, Associate Professor, Department of Hotel-Restaurant and Resort Business
Shpet Yana
Student Master's Degree, Specialty "Hotel-restaurant business" (educational program "Resort business")
Faculty of Tourism
SHEI "Carpathian National University named after Vasily Stefanik"
(Ivano-Frankivsk, Ukraine)

CONCEPTUAL ASPECTS OF INNOVATIVE DEVELOPMENT MANAGEMENT OF ENTERPRISES IN THE TOURISM INDUSTRY

Current economic development stage in Ukraine can be seen as a complex and controversial process of economic structures transformation that causes creation and development of new businesses. One of the most perspective ways to create competitive environment is the development of small business. Today it is clear, that the success of market reforms will be largely determined by the realization of small business potential of tourism industry, the dynamic and mobile economy industry.

The basis of tourism business is small enterprises with short life cycle which depends on external factors. Researches of many authors show that the analysis of support system of small industry in Ukraine by the State Organization and local authorities found its lack. The essence and the role of small businesses in tourism industry is that they have a lot of advantages in comparison with big businesses and that they have significant complex advantages. By studying level of demand on the local tourism markets in perfection, small business entities offer services for certain customers and consequently they adapt their activity for consumer needs. But small business enterprises in tourism industry are a stage of development and need constant improvement and development of effective management system and its functioning.

Business environment in tourism industry is characterized by greater competitive pressure among entrepreneurship entities. It manifests itself the most clearly within small entrepreneurs. Success of small enterprises can be characterized by intensity of the way it uses innovative component in tourism industry. Introduction of innovative theory in

service sector greatly happens in the past decade. Successful tourism innovators prove that the creation and introduction of something new is not only desirable, but necessary in competitive pressure and in times of economic instability it should be perceived as a condition of survival. Innovational process, innovational products and innovational introduction are the basis for providing appropriate level of competitiveness of small business in tourism industry, thus ensuring sustainable development.

Today tourism has become a phenomenon of daily life of nearly third of the world's population. Moreover, at the beginning of XXI century, tourism took third place among leading industries in global economy by amount of income. In many countries worldwide tourism is one of the highest priority industries, whose contribute to the gross national income is 20-45% and the revenue from foreign tourism is the main source of foreign exchange earnings. Tourism business encourage the development of other sectors, such as constructions, relationships, good industry, agriculture, trade, national consumption production this business attracts entrepreneurs because of many reasons: [10].

Small company in tourism industry is not just a business enterprise with small number of offered products; it is absolutely new structure which assumes the development in our economy and is able to provide wide freedom of choice and additional jobs, to ensure fast cost recovery, to respond quickly to the change of consumer demand. Small businesses also contribute to overcome sectoral and regional monopoly, increasing competition, introduction of scientific and technical achievements, improving of country's export capability, and significant strengthening of economy base of the country [5].

Valuable contribution to the competitive environment creating is the contribution of small businesses in tourism industry. It is known that under the conditions of free market economy, competition is the reflection of competitive relations between economic elements, when their stand-alone activity effectively limits the capacity of each of them to affect on general conditions of turnover of services on a certain market, and stimulates the productions of needed goods. Activity of market participants becomes dynamic; it is connected with economic responsibility and risk which turns entrepreneur into specific social engine of economy development. Small business helps to adapt competitive relations, as it is antimonopoly that manifests itself in various aspects of its functioning. On the one hand, small business experience monopolization with a much lesser degree than big business,

because of amount of elements it consists of. On the other hand, under the condition of narrow specialization and innovational use, small business is an existing competitor that undermines monopoly positions of big corporations. That exact feature played a significant role in weakening and overcoming of the tendency of great asset.

There is a huge amount of works, dedicated to the innovational process researches of different economic industries. At a given stage of innovational activity, improvement and solution of the issues in question is focused on the researches of Ukrainian scientists S. Vasylchak, M. A. Yohna, O. I, Amosh, Y. M. Bazhal, L. I. Fedulova, O. M. Barykin, I. M. Nikonov, and others.

Modern scientists differently understand the concept of "innovative development strategy of the enterprise". M. A. Yohna and M. M. Stadnyk understand the innovative way of development as a way of economic growth, based on constant systematic innovations and aimed to significantly improve all economic system activity aspects, periodic redevelopment, caused by S&T development, goals and targets of system progress, opportunity t use certain resource factors to create innovative products and to form competitive advantage.

Study of scientific works, methodological development and practical guidance of tourism development issue, confirms that the question of innovative progress and implementation in tourism is not sufficient enough and it has negative impact on the situation it the sector. That is why the solution of this problem in Ukrainian tourism industry is particularly relevant. Under the innovative approach to the tourism industry development, it is necessary to take into account specifics of this national economy area:

- tourism – is a dynamic and multidimensional activity, one of the most important factors of State's foreign policy realization, which contributes to employment growth, creates real opportunities to involve investment, has an interactive process of tourism service granting, requires information, modification and extending the rate, etc.;
- innovation is always focused on achieving particular results (improvement of the image of Ukraine as a tourism country of national tourism product competiveness, ultimate satisfaction of tourist's needs, sustainable use of available resources, sustainable development of tourism);
- tourism is characterized by the propensity for innovation process which acquire more dynamic growth and are more widespread than innovation in the society and culture in general;

- tourism uses the resources, that belong to administrative-territorial entity, and that is why innovation development is not possible without government, because it requires innovational policy mechanism;

- the directions of innovations in tourism industry not always coincide with types and directions of innovation implementation in other economy sectors [5].

At a current stage of advancement of science, much attention is paid to both theoretical problems of innovational development of small enterprises in tourism industry, and practical aspects of its functioning. Because of the enterprise development level, with the majority of macro or small tourism businesses and innovation actors, outlined in the Ukrainian law on the innovation, Ukraine practice includes following kinds of innovations: innovative programs and projects; new skills and knowledge products; production machinery and processes; production and enterprises infrastructure; formation mechanisms of consumer market and tourism products marketing; organizational and technical decisions of a productive, administrative, commercial or other nature, which can significantly improve the structure and quality of production, service and (or) social sphere; raw materials, ways of its production and processing (for manufacturing plants in tourism industry: institutions for restaurant business, tourism product on a national, regional, destination level, etc.).

Innovational development strategy of small business in tourism industry should take into account factors and conditions, which contribute to innovations and also constraints that prevent effective innovations in tourism (Figure 5.3).

Creation of an environment, where can occur sustained economic growth of tourism business. First of all, it is a removal of external barriers for business competitiveness. It guarantees, that the infrastructure can satisfy business needs that the land is available at competitive price and that enterprises have a full-time position, taking into account their impact on environment. Development of the partnership, alliances, networks and information flows, which will affect the result of the whole strategy, lies in the conducting of inter-cluster business, which operates for mutual benefit. The organizational “agility”, speed of decision-making and response to the client needs, at some point helps to form universal adaptive tourism product, whose targeting and personalized approach become a key element of the attraction and targeting of tourist. It includes business cluster information to develop general marketing, export or research initiatives.

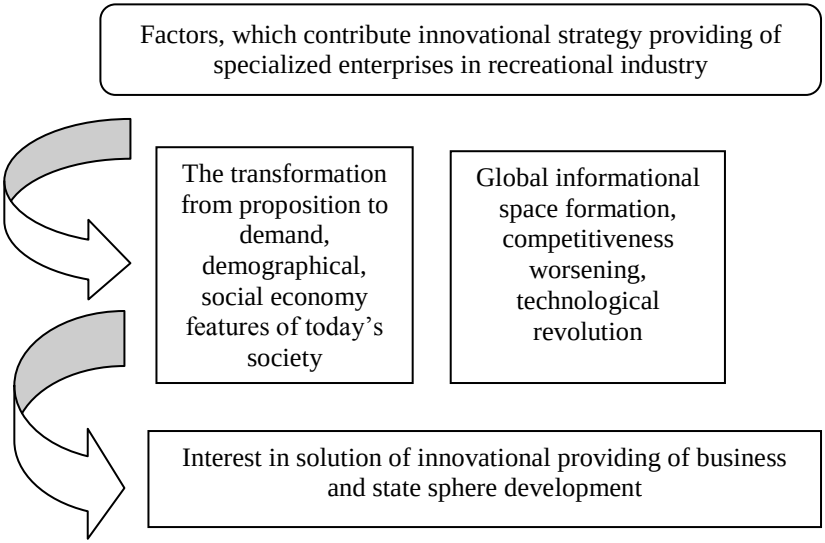

Figure 5.3 Factors, which contribute innovational strategy providing of specialized enterprises in recreational industry

Source: author's conclusions

But this question is much broader and includes the partnership between local authorities and business, between the region and central authority and also between education sector and business [11].

Today the most important innovational feature is its novelty which contributes to increase in the number of potential consumers (tourists); consumer request modification and the extension of tourism production functioning. We should consider main innovational principles of tourism, such as:

1. Principle of scientific. This consists of the use of scientific knowledge and methods of innovative implementing.

2. Principle of systematic. Strategy of innovational development of tourism of the country should take into account factors and conditions, necessary for meeting trends of the region (economic, financial, human), social impact over society.

3. Innovation compliance with the tourist requirements.

4. Principle of positive result. This consist prevention of reckless creation and introduction of innovation, which can be dangerous for tourist, biosphere and society in general.

5. Immanence of investment processes principle. To undertake the necessary research, development and materialization of innovation, relevant resources are used. When the commercial realization is finished, the means are returned back to the investor and can be used again invested again in the innovation process.

6. The appropriateness of innovation activity and its results are exactly the same as society development. An innovation that does not meet a certain stage of development of definite society, are not useful.

7. Principle of connectedness. Innovation ends when a product, that should cause the need for next innovation development and provide financial support of that process, appears on the market.

8. Principle of security. Any innovation must guarantee security of human and the environment. Organization process includes the possibility of damage and ways how to address the negative impact. In our view innovation in tourist industry should be classified like this:

I. Product innovation. Creation of new tourism products. We can add here such innovational kinds as rural (green) tourism, villa tourism, eco-tourism, adventure tourism, business tourism, submarine-based tourism, cruise tourism, ornithological tourism, expedition tourism, prison tourism etc.

1) Exploring of mew tourism segments. This includes both extreme nature territories (caves, mountain hiking, rafting) and new natural environment (space). Market development can also operate with the help of new target audience of tourism products consumers.

2) Exploring of new tourist recreation territories.

3) Involving to a tourist segment new kinds of resources, where the proportion of particular grade of resources, where increases importance of special class of man-made objects (reservoirs, ponds, forested parks, etc.)

II. Government innovations.

1. New methods of marketing cycle realization in tourism. We can add here a complex study of tourism market: demand, prepositions, conjectures, prediction of tourism competitiveness, strategy of tourism product sale stimulation, advertising campaign and other.

2. Justification of new methods and forms of tourism recreational activity.

3. Providing of state and regional system of governing over tourism industry (establishment of tourism development conceptions at state and regional level).

III. Service innovations.

1. Introduction of advanced methods of study, preparations and retraining of employees in tourism industry.

2. Development of innovational models of service deployment in tourism.

3. Introduction of national model of service, taking into account culture and traditions of tourism recreational areas.

IV. Technological innovations.

1. Introduction and further development of computer technologies in system of hotel and ticket booking (Sabre, Amadeus, Galilei, Worldspan).

2. Development of new kinds of material and technical providing of tourism service, improvement of service quality (for example, providing hotels with voice mail system, video network, computers, modern air conditioning, etc.)

3. Innovations in transport service system, which will make tourist transferring shorter and more comfortable.

4. Greening pf service technologies. It is necessary as a result of the amount of recreational using of nature. In tourism industry innovational activity develops according to 3 main ways:

1. Organizational innovations, connected with the enterprises development.

2. Marketing innovations that allow satisfying needs of consumers and attracting new clients.

3. Periodical innovations, which aim to change consumer properties of tourism product and its place at the market. After innovational activity research of tourism industry, we should pay attention to the innovational process – complex process of creation, spreading and using of new practical instrument (innovation) to improve already known human need. [7].

Tourism business in many cases is an initiator and experimenter in modern advanced technologies introduction. It always changes its forms and ways of propositions and service, opens and absorbs new possibilities.

Under modern conditions, where operates small business, increases competitiveness and requirements become more strict, there is a necessity to find new effective methods of its development, which can provide the implementation of this mission.

Cluster approach in tourism sphere will activate the enterprise through the concentration of business activity. That is why it contributes to the creation of new jobs, incomes, improvement of quality of life. It

can be achieved with the help of competitiveness growth, possibility of integration of intellectual, nature recreational, labour, financial and moral resources in providing the production quality and service provision. Existing experience shows that economic clustering level acts as a catalyst to the country's competitiveness level and its separate regions.

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Savenko Ksenia
PhD in Economics, Lecturer,
Department of International Business and Economic Analysis
Simon Kuznets Kharkiv National University of Economics
Solodovnik Olesia
PhD in Economics, Professor of the Department of Finance and Credit
Kharkiv National University of Civil Engineering and Architecture (Kharkiv, Ukraine)

DIRECTIONS OF LEVELING CONSUMER ECONOMIC THREATS IN THE COURSE OF THE PUBLIC-PRIVATE PARTNERSHIP IMPLEMENTATION IN THE FIELD OF HOUSING AND COMMUNAL SERVICES

In present conditions of reforming the housing and communal services market in Ukraine, attempts to employ public-private partnership for the sustainable functioning of the industry are becoming particularly relevant. Insufficient practical experience and lack of scientific research concerning the impact of changes in the form of management of housing and communal services companies on the economic security of housing and communal services consumers predetermine the need to study and develop measures and solutions on this issue.

Up to present, many domestic and foreign scientists are still focused on research of approaches to the development of housing and communal companies' development models. Such scientists as Velisov V.M. [1], Mikheev A.V. [2], investigated the political and legal aspect of partnership between the public and private enterprises. In the works of Varnavskiy V.V. [3] and Teslia Yu.N. [4] the process of institutional adaptation of public-private partnership to the conditions of the real economy was considered, also to Zelenina D.E. [5] and Dezhkina I.M. [6] devoted there works to the issues of its legislative support. With the provision of financial stability of housing and communal companies were concerned works of Storakan T.M. [7] and Cherneshova L.N. [8]. At the same time, the issues of the influence of changes in the form of management of housing and communal sector companies on the economic security of housing and communal services consumers remain untouched.

Therefore the research should be directed in the following dimensions:

- the review of regulatory and legal aspects and categorical apparatus of public-private partnership;
- research of national experience in the use of concessions in the production and / or provision of housing and communal services;
- definition of threats to economic security of housing and communal services consumers in cases of application of public-private partnership in the housing and communal sphere;
- development of measures for leveling consumer economic risks.

The Law of Ukraine "On Public-Private Partnership" defines the organizational and legal framework for the interaction of state public partners with private partners and the main principles of public-private partnership on a contractual basis. According to the fourth article of the Law, in the list of areas where public-private partnership can be applied, alongside with other areas, the housing and communal services sector is defined. This law regulates the relations of public or private partners in the following type of activities [9]:

- in the production, transportation and supply of heat and distribution and supply of natural gas;
- collection, purification and distribution of water;
- waste handling, except for collection and transportation;
- production, distribution and supply of electricity;
- real estate management;
- production and implementation of energy saving technologies, construction and major repairs of residential buildings completely or partially destroyed in a result of hostilities on the territory under antiterrorist operation;
- installation of modular buildings and construction of temporary housing for internally dislocated persons.

Types of activities designated as the housing and communal sphere in the public-private partnership application can be divided into housing and communal services which include:

1) residential service – service for the multi apartment house management;

2) communal services – services of:

natural gas supply,

electric power supply,

hot water supply,

centralized drinking water supply,

household waste management, and activities related to the construction, overhaul and reconstruction of housing and communal services.

Regarding the above listed housing and communal services, it should be noted that this is almost complete list of services specified in Art. 3 of the new Law of Ukraine "On Housing and Communal Services" in addition to the supply of heat power and centralized water disposal. The law regulates the relations that arise in the process of providing services for management of a multi-apartment house, heat supply, hot water supply, centralized water supply, centralized water disposal and domestic waste management, as well as relations arising in the process of electric power and natural gas supply and distribution of consumers in residential, manor, garden, country houses. The providers of services in the field of housing and communal services are enterprises, institutions and organizations that produce, perform and / or provide housing and communal services. [10]

The same law provides definition of the category of housing and communal services consumer. It is a person or entity who owns (co-owns) a real estate object in which the corresponding housing and communal service is received or owns such an object on the right of economic management or operational management and with whom a corresponding agreement on the provision of a housing and communal service.

The objects of public and private partnership are the existing, in particular, renewable (by reconstruction, modernization, technical re-equipment) objects in state or communal ownership. The main form of public and private partnership implementation in the housing and communal sphere is concession.

The Law of Ukraine "On Concessions" defines the concepts and legal principles of concessions regulation for the state and communal property as well as the conditions and procedure for its implementation in order to increase the efficiency of the use of state and communal property and to satisfy the needs of Ukrainian citizens in goods (works, services).

"Concession" is a provision for the purpose of meeting public needs by the authorized executive body or local self-government body on the basis of a concession agreement, for a fee and on a time basis to a person or entity (business entity) the right to create (construct) and / or manage (exploit) the concession object (fixed term paid ownership), upon condition of the acceptance by the business entity (concessionaire)

the obligations on the creation (construction) and / or management (exploitation) of the concession object, property liability and possible business risk. [11]

Concerning the list of objects of the housing and communal sector that the concession may be granted to, these are the objects of the state or communal ownership used to carry out activities in the following spheres of economic activity:

- water supply and disposal in accordance with the procedure established by the Law of Ukraine "On the peculiarities of leasing or granting a concession on objects in the areas of heat supply, water supply and disposal, which are in communal ownership";
- garbage collection and utilization, waste treatment;
- heat supply in accordance with the procedure established by the Law of Ukraine On the peculiarities of leasing or granting a concession on objects in the areas of heat supply, water supply and disposal, which are in communal ownership" [12],
- distribution and supply of natural gas;
- production and (or) transportation of electricity;
- construction of residential buildings;
- provision of services in the housing and communal sector.

That is, services for the supply of heat and central water disposal in accordance with this law can also be attributed to activities where public and private partnership can be applied.

Summarizing the results of the analysis of the legislative framework, we may argue that all housing and communal services in Ukraine can be provided and / or produced applying public and private partnership in the form of a concession.

Though, until recently, the number of concession agreements was insignificant, over the past few years there has been a tendency for a gradual increase in the number of projects carried out on the basis of public and private partnerships.

According to the data of central and local government executive bodies, published on the official web-site of the Ministry of Economic Development and Trade, on January 1, 2016, 177 projects were implemented on the basis of public and private partnership (146 concession agreements, 31 joint activity agreements were concluded). Moreover, as for August 1, 2016, 185 projects are implemented on the basis of public and private partnership (153 concession agreements, 31 joint venture agreements, 1 public-private partnership agreement). As of January 1, 2017, 186 projects were implemented on the basis of public

and private partnership (154 concession agreements, 32 joint venture agreements, 1 public and private partnership agreement). [13]

The implementation of these projects in the areas of economic activity is presented on Figure 5.4.

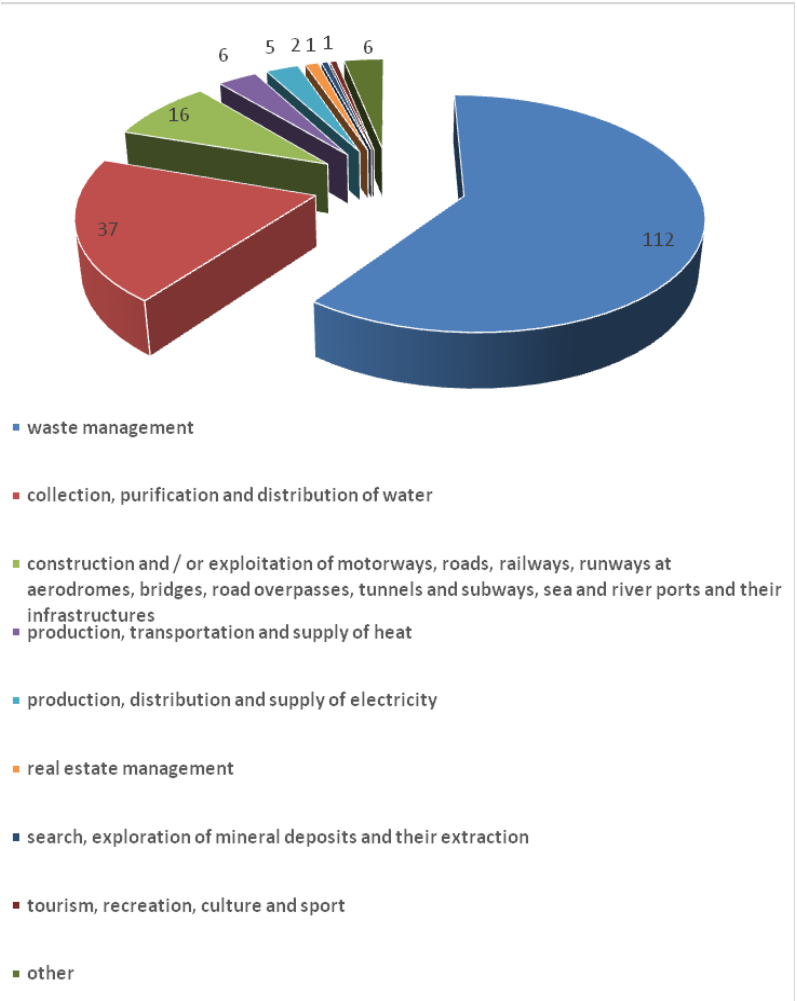

Figure 5.4 Breakdown of projects implemented on the basis of public and private partnership as for January 1, 2017 by the spheres of economic activity of Ukraine

Source: compiled by the authors according to [13]

As a result of the analysis of spheres of economic activity regarding implementation of public and private partnership projects in Ukraine, it can be argued that the majority of private investment falls into the sphere of economic activity related to the provision and / or production of housing and communal services that makes up about 87 percent of the total number of projects implemented in Ukraine as of January 1, 2017.

The housing and communal sector includes projects for such activities as:

- waste management (112 projects, representing 60.5% of the total);
- collection, purification and distribution of water (37 projects, representing 20% of the total);
- production, transportation and supply of heat (6 projects, which is 3.2% of the total);
- production, distribution and supply of electricity (5 projects, representing 2.7% of the total);
- real estate management (2 projects, 1.1% of the total).

At the same time, today there is a positive tendency for the preparation of projects in accordance with the procedure provided by the Law of Ukraine "On Public and Private Partnership". So, taking into account the provisions of the new order of competition conduction, as yet there were announced 2 tenders for the determination of a private partner:

- December 26, 2016 Kremenchuk city council of Poltava region: for realization of the PPP project "Construction (reconstruction) of the communal property object: the system for collecting and utilizing biogas at the solid waste landfill located at the Deyevska Hill in Kremenchuk";
- December 22, 2016 Krasyliv City Council of Khmelnytskyi region: for the implementation of the PPP project "Construction of a multi-apartment residential building at Centralna St., 33 in Krasyliv" for providing housing for Krasilov residents who need it and are registered for housing.

Private investment in the regions of Ukraine can be divided of as follows. The record number of public-private partnership projects was carried out in Poltava region, with its share about 61% of the total number of projects, including 71.24% in the form of a concession. The second place was occupied by Kyiv, Mykolaiv and Odesa regions, which account for 5.9%, 8.1% and 7.5% of the total number of projects, respectively. The third group includes Donetsk and Zaporozhia regions, the number of projects is 7 and 6 projects, respectively (Figure 5.5).

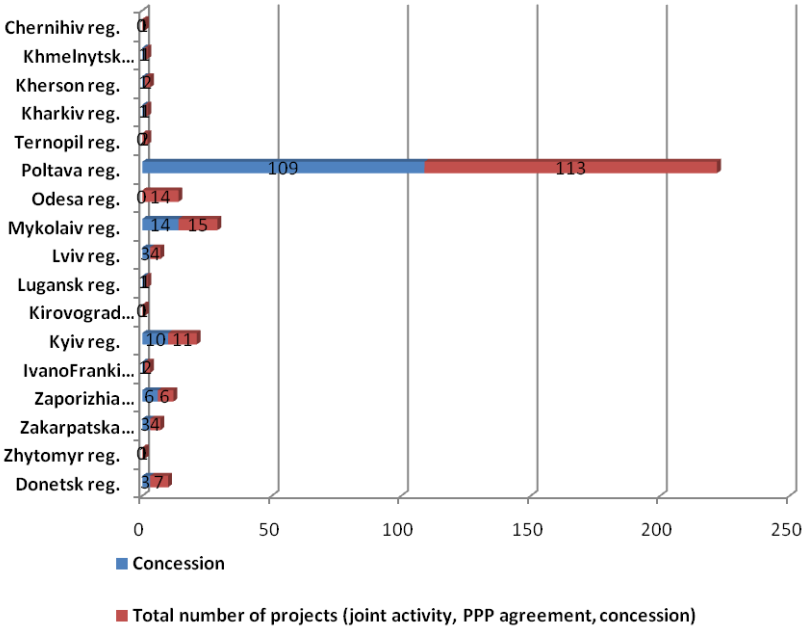

Figure 5.5 Analysis of the distribution of forms of public-private partnership implementation in the regions of Ukraine

Source: compiled by the authors according to [13]

It should be noted that the concession on objects of communal property rights is granted taking into account the interests of the region and territorial community in providing consumers with goods (works, services) living on the territory of the respective administrative-territorial unit.

In this case, the most urgent issue is the probability of risks occurrence, which will lead to the application of this form of public and private partnership for the housing and communal services consumer in the territorial-administrative unit. Granting a concession by an executive body or local self-government body on objects of the housing and communal sector will lead to the following consumer risks, which entail a threat to the economic security of the consumer:

- unreasonable increase of tariffs by private investor;
- passing the housing and communal sector object to an unqualified private investors;

- deprivation of executive bodies or local authorities of administrative levers, which makes it impossible to interfere in the situation in case of some extraordinary circumstances;
- lack of possibility of modernization of the concession object as a result of the imperfect tariff policy of the private investor;
- financial fraud, such a tendency is noticed when: the investor has fully won the tender, concessionaires conclude a concession agreement. Further, they get some benefits from the accumulation of finance, and when it comes to investing their own funds back off;
- the use of the concession as a convenient mechanism for "grabbing" communal property for the local administrative elite;
- unpredictable growth of investor expenses through concluding a concession agreement blindfolded, without taking into account the state of the concession facility.

As a result of the compilation of a list of economic threats to the housing and communal services consumer caused by the use of such a form of public and private partnership as concession, and observation of the tendency of the emergence and concentration of threats in the internal environment of the business entity – a private investor, we came to a certain conclusion: the development of measures for leveling of selected problem areas (threats) should be carried out through strengthening of financial and economic security of communal enterprises of housing and communal sphere of Ukraine granted with a concession. For example, the inability of a private investor to formulate the right tariffs, will lead to debt accumulation, non-payment of loans, and in the worst case scenario – to bankruptcy, thus, as a consequence, to the failure of provision and / or provision not in full or poor quality and / or an overpriced housing and communal services to the consumer. Measures that can increase the level of economic security of housing and communal services consumers are as follows:

- restoration of mechanisms for establishing the boundary level of the payment tariffs for housing and communal services for enterprises-providers and producers of the services to prevent unreasonable tariff increases by a private investor;
- formation of a list of technical and economic indicators of the activity of private investors in the selection process when passing the housing and communal sector object to reduce the risk of transfer to unqualified private investors;
- housing and communal services are the sector receiving the most complaints from service users, and that determines the necessity to

establish the interaction between private investors and local authorities, which will allow to interfere in the situation in case of some extraordinary circumstances;

- provision of the appropriate tariff policy of a private investor that will allow him to stay in the tariff corridor designated by the state and will stimulate him to upgrade the passed property or infrastructure;
- increased local authorities monitoring of the activities of concessionaires and termination of a concession agreement in case of detection of financial fraud;
- strengthening of public control over the privatization procedure of the property granted with concession. In the case of the adoption decision on the privatization of the concession-granted property, after the expiration of the concession contract, the former concessionaire has the right to repurchase the property in accordance with the specified conditions of privatization if for the fulfillment of the terms of the concession contract he has created (built) a property or made its improvement of the value not less than 25 percent of the value of property at the time of privatization. True compliance with this requirement is mandatory;
- approval of the list of the communal property objects, which may be granted a concession on, conduct taking into account the expert opinion on the status of the concession object made by the relevant body of the local council. The decision on granting a concession on the object of communal property based on the results of the concession contest is made by the authorized local government. It must correctly formulate the terms of the competition and fairly prescribe the parameters and the state of the infrastructure of the housing and communal services. If, at the level of the tender agreement, it is impossible to prescribe these terms and parameters, the authorized local government body must ensure that the concession objects, for example, engineering networks, will serve a certain term. And these guarantees must be backed up by cash.

Conclusions and perspectives of further research. As a result of the study, the following conclusions can be drawn:

1. Strengthening the level of economic security of consumers in the sphere of housing and communal services within the private investment in industry objects under use of one of the forms of public and private partnership, concession, is considered as a process involving a comprehensive assessment of public and private partnership actors, the process of preparation and conclusion of PPP contracts, concessions on

housing and communal objects, determination of the impact of internal and external threats, as well as the development of a system of measures to ensure an adequate level of security through substantiation and implementation of relevant strategies.

2. Active investment position of business entities in the part of public and partnership relations in the sphere of housing and communal services contributes to the development of a competitive environment in the market of housing and communal services of territorial and administrative units of the state, which in turn affects the quality of housing and communal services.

3. Indifferent attitude of private investors to the level of financial and economic security of municipal housing and communal services granted to them on behalf of concessions, leads to a decrease in the level of economic security of housing and communal services consumers.

4. Application of developed measures in the implementation of public and private partnership concerning increase of the level of economic security of housing and communal services consumers, allows minimizing the effect of negative factors, increasing awareness and certainty of the future, ensuring the manageability and effectiveness of changes.

Further research in this direction will be aimed at developing a thorough monitoring and analysis of the application of various forms of public and private partnership, including concessions, as the most common form of private investment in housing and communal services, taking into account the economic security of service users. According to the results, it is necessary to develop economic indicators and the concept of the behavior of executive authorities in relation to concessionaires, depending on their level of professionalism. Those who work well should be encouraged, and to those who parasitize on investments in the housing and communal sphere and as a result of economic activity create an economic threat to the consumer, there must be applied restrictive sanctions.

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CONCLUSION

In a market economy one of the most important factors in the effective functioning and development of economic entities is the successful implementation of their innovation activities. In turn, the spread of processes for the introduction of innovation by economic entities becomes a key condition for accelerating the socio-economic development of the country.

The results of the author's research in the collective monograph are devoted to solving problems of formation and development of an effective system management of innovative development and theoretical-methodical principles of organizational-economic management by choosing directions of innovative development the economic entities.

Innovative activities are usually carried out by economic entities from time to time, rather than on a regular basis, due to lack of financial and other resources, uncertainty and increased risk of innovation, lack of appropriate experience in innovation management and effective science-based tools formation of the mechanism management of innovative development.

The main advantage of the innovative way of development is ensuring economic growth without proportional increase in consumption of raw materials, formation of conditions under which investment into the creative and scientific potential of society becomes extremely advantageous. After all, innovative development the economic entities, based on the general principles of cyclical development of scientific-technological progress, determines the objective need for changes in generations of technology and technologies, provides of possible alternatives for the implementation of scientific-technological innovations, etc.

The presented results of the research in the collective monograph reflect the theoretical and practical aspects of the introduction of mechanisms for the management of innovative development the economic entities.

It is established that the increase of the efficiency activity the economic entities in the current harsh environment of the competitive environment is based on the improvement of the process management of innovative development the enterprise.

It is determined that the need for implementation of innovative development the economic entities are stipulated: the intensification of intensive factors the production development, which promote the

application of scientific-technological progress in all spheres of economic activity; the determining role of science in improving the effectiveness of the develop and introduction of new technology; the need for a significant reduction in the timing of creation and implementation of new technology; increase of technical level of production; the need to develop the creative skills of inventors and innovators; increase in costs and deterioration of economic indicators of economic entities when developing new products; rapid moral aging of technology; the objective need for accelerated implementation of new technology, etc.

The system management of innovation development is an open system that constantly interacts with the external environment of activity, providing flexibility and adaptability the economic entity to market conditions. Taking into account these functions makes it possible to conclude that the process of transition the economic entity to the innovative way of development requires the creation of a new system of its organizational management taking into account corrective actions.

Innovative development in the volatile market conditions of the transition economy is characterized by specific features that cause the formation of numerous models of management systems in each particular situation. The choice of a model depends on the conditions of activity the economic entity, the level of economic development, the formation of its innovative potential.

The current stage of expansion of globalization, informatization and market relations provides great opportunities for development at the expense of connecting to innovation processes more advanced economic entities, integrating participants of innovations within the framework of cooperation, attracting Internet technologies, using world achievements and opportunities of international institutions. According to practice the business entities in the formation of organizational potential insufficiently used the possibilities of world consolidation. The main reason for such a situation is the low level of readiness for changes the economic entities. The period of organizational change requires serious investment, which in turn limits the possibilities of the current economic growth the economic entity, regardless of the sources of funding for innovative development programs. At this stage, the formation and flexibility of the management system of innovative activity the economic entity enables to transform into a new way of development without unnecessary expenses. Innovative development is a systemic orientation of activity the economic entity to achieve high performance results at the expense of innovation factors, which are based on a continuous uninterrupted search of new means and

spheres of realization of the potential the enterprise in an unstable market environment. Innovative development at the level of an individual economic entity involves the implementation of the process of introducing promising innovations, the implementation of which should contribute to increasing the competitiveness of the enterprise.

The transition of the economic entity to the way of innovation development requires him to organize a management system capable of responding quickly to changes in both the external and internal environment of operation. Management of innovative activity the economic entity is a complex system of interrelated functions, the sequence of which ensures the formation of competitive advantages through innovative development factors.

The economic situation in recent years is characterized by an increase in the degree of globalization and business informatization, increased competition on the markets of goods and services, capital and labor. Such market development leads to the need to create a sustainable innovation policy, which is based on the integration of economic entities, concentration of capital. As the world experience shows, alternatives to innovative development today do not exist yet, since it is practically impossible to compete in foreign markets in the traditional field of activity. Only fundamentally new technologies, supported by managerial innovations, will create a new competitive environment and provide the prerequisites for achieving leadership positions on the market. In turn, increase of business activity and innovation will allow providing high rates of economic growth, increase of capitalization the economic entities and scale of production.

The generalized researches in the collective monograph indicate that the management of innovative development the economic entities should be considered as a systematic management of innovation activities aimed at creating and ensuring the achievement of economic growth through the rational use, increase and distribution of innovation and economic-technological potential, including material, labor, financial, information resources, in order to transform it into innovative capital, is capable of providing innovative development the enterprise. That is, while managing of innovative development the economic entities there is a systematic decision-making process and the transformation of innovation potential into innovative capital, the very realization of innovation potential leads to the innovative development of economic entities, and the systemic ensures the sustainability of development.

Management of innovative development the economic entities

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M. Bezpartochnogo, I. Britchenko