Scientific Center of Innovative Researches
(Tallinn, Estonia)

«KROK» University
(Kyiv, Ukraine)

Academy of Economics and Pedagogy
(Prague, Czech Republic)

CORPORATE MANAGEMENT: FROM CREATION TO SUCCESS

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The monograph is the result of multifaceted research on corporate management. In particular, the authors focused on the managerial, financial and psychological aspects of corporate governance, as they are the most vulnerable to the challenges and threats of the new reality. The key provisions of the study focus on the formulation of new scientific hypotheses, methods and tools for corporate management. The publication is intended for researchers, civil servants, university professors and students, practitioners, and a wide range of readers interested in corporate management issues.

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CONTENTS

INTRODUCTION

Corporate governance is the most attractive research topic due to its multi-vector and constant relevance. Representing a certain contradiction of understanding and causing disputes about belonging to certain knowledge (economic, social, psychological or legal sciences), corporate governance is to some extent investigated by each of them.

Despite extensive research previously conducted by scientists and experts, problems related to corporate governance are constantly generated by modernity and again and again arouse lively interest.

The authors of the monograph try to solve many problems in the field of corporate governance by studying the managerial, financial and psychological aspects.

Management aspects include a comparative analysis of existing models and categorical apparatus of corporate governance; establishing the peculiarities of the development of corporate governance in corporations and in general; formation of global infrastructure in the context of social, economic and environmental intentions.

Due to the study of financial aspects of corporate governance, the authors of the monograph proposed the institutional infrastructure for the formation of financial support for corporations; the factors of development of digital transformation of banking and transport infrastructure of Ukraine are singled out; proposed to use "green" finance as a marker of modern corporate governance.

An integral part of corporate governance is the psychological climate, which directly affects the well-being of corporations and their employees through a variety of activities, including training.

We hope that our monograph will help to look at corporate governance comprehensively, covering its various aspects.

The materials of the monograph can be useful for economists, managers, financiers, practitioners, scientists, doctoral students, graduate students, students and all others interested in corporate governance.

Sincerely, Editor-in-Chief, professor Iryna Mihus

CHAPTER 1
MANAGEMENT ASPECTS OF CORPORATE GOVERNANCE

THE ROLE OF CORPORATE GOVERNANCE IN ENSURING ECONOMIC SECURITY OF ENTERPRISES IN THE CONSTRUCTION INDUSTRY

Iryna Mihus[1], Vasyl Dmitrenko[2]

[1]Doctor of Science (Economics), professor, "KROK" University, Kyiv, Ukraine, e-mail: irynamihus@gmail.com, ORCID: https://orcid.org/0000-0001-6939-9097

[2]Ph.D. (Economics), Professor, Cherkasy Institute of Fire Safety named after the Heroes of Chernobyl, Cherkasy, Ukraine, e-mail: dmytrenkovi@ukr.net, ORCID : https://orcid.org/0000-0003-1860-418X

The formation of domestic entrepreneurship on a new civilizational basis, which provides for the integration of Ukraine into the world economic space, leads to intensification of the implementation of domestic companies principles and standards of corporate governance. The following facts testify in favor of the growing relevance of corporate governance for Ukrainian enterprises. First, in developing countries, the introduction of corporate governance is one of the most important prerequisites for public business. It provides for the systematization of general principles of enterprise management, a clear and transparent distribution between the main stakeholders (stakeholders) of authority and responsibility for increasing the value of the company. Secondly, the quality of corporate governance is becoming one of the most important factors that helps reduce the uncertainty of the environment of operation and development of companies by providing information transparency for all its stakeholders. Third, the implementation of transformational corporate governance projects in the company becomes an impetus for qualitative and large-scale changes in the management system, and therefore it is practically impossible without competent consulting assistance.

In the process of privatization and privatization of domestic enterprises in Ukraine there is a gradual formation of the institution of corporate governance. With the formation of large Ukrainian business, the intensification of corporatization processes, the spread of holding companies, the need for the formation and implementation of corporate governance standards has become significantly more relevant.

Despite the growing need to apply corporate principles of business management in joint stock companies, most such companies in Ukraine do not have de facto corporate governance or the level of its quality is considered low.

Today in the world there is a tendency to strengthen the foundations of the regulatory system of corporate relations, creating generally accepted principles (standards) that underlie effective corporate governance and can be applied in a wide range of legal, economic and political conditions. The emergence of generally accepted standards of corporate governance is primarily due to the growing attention to corporate governance in the context of globalization of financial markets,

liberalization of capital movements. This is an attempt to establish generally accepted, transparent and understandable worldwide "rules of the game" in the financial market. The development of international standards of corporate governance is also society's response to global financial crises and due to the desire for stability of financial markets. After all, good corporate governance is a guarantee of investor confidence - both domestic and foreign - and contributes to the establishment of normal production and economic activities, job creation, payment of taxes to the budget, increase profitability and long-term production efficiency, increase stock value.

Thus, it can be argued that corporate governance reform has become an integral part of the modern world economy.

The modern development of corporate governance in Ukraine is characterized by the existence of a number of problems of a conceptual nature, the uncertainty in the interpretation of which significantly complicates the implementation of the strategy of national model of corporate governance.

Today there is no single definition of corporate governance in either foreign or domestic scientific literature. Different interpretations of the essence of this concept remain quite common, so it is necessary to consider and systematize different approaches to the definition of corporate governance [1].

Leading foreign economists Berle A. and Means G. are considered to be the founders of corporate governance [2]. A number of classics of economics - P. Drucker [3], J. Keins [4], A. Marshall [5-6], M. Porter [7], P. Samuelson [8], E. Chamberlyn [9] - provided this aspect of economics is important. Further, their research was developed in the works of such well-known foreign scientists as I. Akoff [10], J. Banquet [11], D. Lorsch, R. LaPorta [11], N. Minov & R. Monks [12-13], A. Radigin [14], B. Steward [15], W. Salmon [11], W. Shein [16] and others.

Some aspects of corporate governance and valuation are considered by domestic scientists in the study of the issue: improving the mechanism of corporate relations A. Voronkova [17], V. Yevtushevsky [18], G. Kozachenko [19]; building the organizational structure of corporate governance and management systems O. Kuzmin [20], H. Nazarova [21-22], Ye. Palyha [23]; evaluation of the effectiveness of corporate sector enterprises A. Achkasov [24], I. Blank [25], O. Vakulchik [26], G. Volynsky [27-29], O. Ivanilov [30], V. Lushkin [31], M. Chumachenko [32]; cost management of enterprises in terms of their adaptation to the transformation processes of the transition period O. Mendrulom [33, 34], R. Tianom [35]; system development of organizational and economic mechanism of corporate governance, creation of systems to support management decisions, investment analysis and mathematical research methods – V. Anin [36], A. Krushevsky [37-39], V. Onishchenko [40], O. Respected [41, 42], V. Torkatyuk

[43-46], V. Fedorenko [47]; of corporate management of financial and construction groups in the investment process - S. Ushatsky [48-49], O. Fedosova [50]; of strategic management - V. Michels [51], A. Nalivaykom [52], O. Tishchenko [53], L. Shevchenko [54]; L. Shutenkom [55-57]; of corporate governance at the regional level - P. Bubenko [58], A. Golikov [59-60], M. Dolishni, G. Kovalevsky [61-63], V. Nikolaev [64], G. Onishchuk [65], V. Sergienko [66].

A comprehensive study of the works of foreign and domestic scientists has shown that almost all of them focus on the problems of creating and developing corporate relations. The issues of assessing their economic efficiency have receded into the background, despite the fact that traditional methods of assessing the economic efficiency of management are practically not suitable for joint stock companies. Thus, given that the phrase "corporate governance" has become international and widely used not only in Ukraine but also in countries with long traditions of market economy, CIS countries, Eastern Europe, relevant research on solving conceptual problems of corporate governance taking into account national characteristics formation of the corporate sector of the economy. Therefore, it is important to systematize and generalize modern approaches to the definition of corporate governance, taking into account national characteristics and the current state of the corporate sector.

The analysis of scientific works and the legal base allowed to systematize the approaches to the definition of corporate governance.

The approach, which involves the division of participants in corporate governance into the institution of owners and the institution of managers and taking into account their interests - is to protect the interests of a certain group of participants in corporate relations (investors) from inefficient management. At the same time, corporate governance is determined depending on the number of stakeholders taken into account in corporate relations. Thus, in the narrow sense, corporate governance is to ensure the activities of corporate managers in the interests of owners and shareholders. That is, corporate governance is seen as ways and means of guaranteeing all external financial investors (shareholders and creditors) a return on their investment. In a broad sense, corporate governance - taking into account and protecting the interests of both financial and non-financial investors (staff of the company, suppliers, local authorities, etc.), the state as a regulator of corporate relations, company owners (shareholders), their managers and all other employees in the process of achieving corporate goals.

Quite close to this definition is the interpretation of corporate governance as "establishing a balance of interests of different groups of stakeholders (shareholders, including large and minority, holders of preferred shares, government agencies, management)" [66]. Yu. Vynslav notes the traditional nature of this definition [67].

Approach to the definition of corporate governance as corporate rights management. Yevtushevsky V. considers corporate governance as management of corporate rights [68] In this case, corporate rights in a broad sense are the right of ownership of a share (share) in the statutory fund (capital) of a legal entity, including the right to manage assets in case of its liquidation in accordance with current legislation. Thus, considering corporate rights as the most common object of corporate governance, we can describe such management as the process of regulating the owner of the movement of his corporate rights for profit, corporate governance, reimbursement of expenses by obtaining a share of property in its liquidation, possible speculative transactions with corporate rights [68].

The subjects of corporate governance are the direct owners of corporate rights (citizens, legal entities, the state), the owners and management of an individual enterprise - the issuer of corporate rights or their owner.

More succinctly, corporate governance is a system of relations between the company's bodies and its owners (shareholders) regarding the management of the company's activities.

An approach to defining corporate governance as a system of relations. Corporate governance as a system of relations between shareholders, management bodies of a joint-stock company, its managers, as well as other stakeholders (employees, suppliers, consumers, creditors, state and local authorities, the public, etc.) to ensure the effective operation of the company stakeholders ”is defined in the Concept of Corporate Governance Development in Ukraine.

Stakeholders mean persons who have a legitimate interest in the activities of the company, ie to some extent depend on the company or may influence its activities. Stakeholders include primarily employees (both those who are shareholders of the company and those who are not its shareholders), creditors, consumers of the company's products, the territorial community in which the company is located, as well as relevant government agencies and bodies. local government [69].

This approach should include the definition of the Organization for Economic Cooperation and Development (OECD unites 29 countries with developed market economies): "Corporate governance is the internal means of ensuring the activities of corporations and control over them ... One of the key elements of economic efficiency is corporate governance, which includes a set of relations between the board (management, administration) of the company, its board of directors (supervisory board), shareholders and other stakeholders (stakeholders). Corporate governance also determines the mechanisms by which the company's goals are formulated, the means of their achievement and control over its activities are determined "[70].

In order to determine the corporate governance rating, Standard & Poor's defines “corporate governance as the interaction between managers, directors and shareholders in order to manage and control the company, as well as to obtain by all financial stakeholders their shares in the company's revenues and in its assets "[71].

An approach to defining corporate governance as a system that provides shareholder control over the company. A good corporate governance system allows investors to be confident that their investments are used effectively by the company's management in financial and economic activities and, thus, increases the value of investors' share in the company's share capital.

The approach in terms of management psychology defines corporate governance as management that generates corporate culture, ie a set of general traditions, attitudes, principles of behavior of participants in corporate relations.

An approach to the definition of corporate governance as the management of an integration association. For example, by definition of Khrabrova I. [72], "corporate governance is the management of organizational and legal design of business, optimization of organizational structures, building within the company's inter-firm relations in accordance with the accepted goals." S. Karnaukhov defines corporate governance as "management of a certain set of synergetic effects." Yu. Vinslav characterizes corporate governance as a system of management relations between interacting economic entities (including managers and subordinates) regarding the subordination and harmonization of their interests, ensuring synergy of both their joint activities and their relations with external counterparties (including government agencies). achieving the set goals ”[73].

An approach to the definition of corporate governance as a set of norms, rules and processes of the regulatory mechanism. According to the World Bank, corporate governance combines the rules, regulations and practices of the private sector, which allows the company to attract financial and human resources, to conduct business efficiently and thus continue to operate, accumulating long-term economic value by increasing the value of shares and taking into account the interests of all persons involved in the management of the company (participants in corporate relations) and society as a whole. These persons of the company include: shareholders, creditors, employees, suppliers, customers, the local community as a whole, and others affected by the company's activities [74].

According to the CFA Financial Markets Integration Center, corporate governance is a system of internal control and management procedures of an individual company. It provides a structure that defines the rights, role and responsibilities of the various stakeholders within the organization. Corporate governance is the regulation of constraints, balance of influence, balance of interests

and initiatives that companies need to minimize and manage conflicts of interest between insiders and external shareholders [75].

Povazhnii O. joins this approach: “The process of corporate governance is a set of processes of regulating the interests of participating groups and managing the corporation as an organization (involves managing its main resources, which include production, marketing, finance, personnel and R&D)” [76-77].

Approach to the definition of corporate governance as a system of elected and appointed bodies. Referring to world practice, this approach is supported by Rumyantsev SA, defining corporate governance as a system of elected and appointed bodies that manage the activities of public companies, which reflects the balance of interests of owners and aims to ensure the maximum possible profit from all activities of the company. with the norms of current legislation [78].

Research has shown that corporate governance is a special type of management, the object of which is a joint stock company. The essence of corporate governance is determined by the specifics of the object of management. In this study, a joint stock company is understood as a set of special investments of human and physical capital.

According to Yu. Vinslav, the subject of corporate governance is the organizational and managerial relations concerning the formation and use of share capital (property), as well as given that modern joint-stock companies have other legal entities, relations concerning the effective organization and coordination of actions, which are in contact with each other, as well as with the external environment [67].

Momot T. proposes to define "corporate governance" as a comprehensive system of internal and external mechanisms aimed at optimizing the structure of corporate relations to ensure harmonization of interests of all subjects of corporate relations and the implementation of an effective investment process in a joint stock company to maximize its capitalization [46].

We believe that "corporate governance" is a modern, progressive type of management within the economic system, which is characterized by a corporate strategy, corporate style of managers at all levels, corporate culture, financial and information openness, protection of shareholders and owners of other securities the issuing company [79].

One of the fundamental aspects of defining the principles and mechanisms for improving the effectiveness of corporate governance is to understand its essential content. An overview of approaches to the interpretation of the essence of corporate governance allows us to state the existence of at least seven approaches to the interpretation of this definition (Table 1).

Table 1. Basic approaches to the definition of "Corporate Governance"

Approach	The concept of "corporate governance"
Regulatory and legal	A system of legislation, regulations and business practices in the private sector that allows a company to conduct business and continue to operate, accumulating long-term economic value by increasing the value of shares
Organizational and legal	Management of organizational and legal registration of business, optimization of organizational structures, construction of internal and interfirm relations of the company according to the accepted purposes
Relational	The system of relationships between investors, owners, managers and stakeholders to ensure the effective operation of the company, the balance of interests of participants in corporate relations
Administrative	Management of corporate culture, ie a set of general traditions and attitudes, the principles of the company's behavior in relation to its main subsystems and elements, as well as in relation to society
Organizational and managerial	The system of bodies, positions, mechanisms and functions that exercise regulatory influence on the company's activities
Financial	A system of bodies and mechanisms of managerial influence, which ensures continuous optimal movement of financial flows of the company
Financial and property	The chosen method of self-government, which ensures fair and equal distribution of performance between all shareholders, as well as "financially interested persons, primarily creditors and investors"

Source: compiled by the authors based on materials [80-82]

Such a variety of approaches to understanding the essence of corporate governance leads to a multifaceted assessment of its effectiveness. Note that the effectiveness of corporate governance should be considered in three areas:

1) legal support of the rights of the company's owners, their interests and powers regarding the formation and management of property;

2) economic, legal and mental component of the formation of the mechanism of corporate governance;

3) ensuring the effectiveness of the developed corporate governance system and increase its efficiency.

In the developed world there are different models of corporate governance. The corporate governance model is a reflection of the most significant characteristics, properties and patterns of corporate governance as an object of socio-economic reality, created by the researcher to gain new knowledge about the corporate governance system in accordance with the purpose of the study [83]. Experts distinguish three models of corporate governance: Anglo-American, Japanese and German.

The Anglo-American model (used in corporations in the UK, US, Australia, New Zealand, Canada and some other countries) is characterized by the presence of individual and institutional investors and the number of independent (growing) shareholders. "external" or "outsiders"), as well as a well-developed legal framework

that defines the rights and responsibilities of three key players - the board of directors, managers and shareholders [84].

The Japanese model is based on close ties with a key bank and financial and industrial network (keiretsu). The Bank provides its corporate clients with loans and services for issuing securities, maintaining current accounts, and consulting services. This bank is often the main internal shareholder of the company. Independent shareholders are virtually unable to influence the firm's policy, so their number is quite small [84].

The German model is based on the banking system (banks act as creditors, voting agents, depositories), shareholders and employees [83]. The German model has three unique features that distinguish it from other models: bicameral board, consisting of executive and supervisory (supervisory) boards; legal restrictions on shareholders' voting rights, ie the company's charter limits the number of votes a shareholder has at the meeting, which may not coincide with the number of shares he owns [83].

The purpose of corporate governance according to the classic version is to protect participants in corporate relations from inefficient activities of hired managers. According to the definition of Lozgacheva TM, the purpose of corporate governance depends on the degree of involvement in the sphere of corporate relations of certain categories of potential participants [85]. The degree of involvement of participants through corporate governance is largely determined by economic, legal, historical and ethical norms and traditions.

The analysis showed that the main goals of corporate governance are: increasing the level of competitiveness based on creative self-realization of the executive body of the company and staff, ensuring the integrated use of available resources, coordination of social partnership, comprehensive focus on the consumer.

At the same time, given that the main interest of effective owners of a joint stock company is the maximum possible increase in the value of the company, the main purpose of corporate governance should be defined as strategic management of the value of the company in the interests of its owners by minimizing threats.

The global financial crisis may be a significant impetus for the introduction of corporate governance standards in Ukrainian companies. As a rule, difficult economic conditions can not only hinder the successful development of companies, but also create the conditions for finding ways to improve or radically change the principles of public administration and management practices of real business. One of the reasons for the global economic downturn, analysts recognize unreasonable financial decisions of investors, which led to significant losses of national and private capital. Most experts believe that corporate governance should become an effective mechanism for ensuring the interests of owners and investors, the introduction of a

new management logic, which is based on approaches to prioritizing the welfare of company owners.

The above problems determine the impact of corporate governance on the economic security of construction companies and their economic activities in general, which necessitates the construction of a modern Ukrainian model of corporate governance, which would become a subsystem of the economic security of such enterprises.

We propose to consider the system of economic security of enterprises in the construction industry in the implementation of corporate governance as a system that has the following components (Fig. 1).

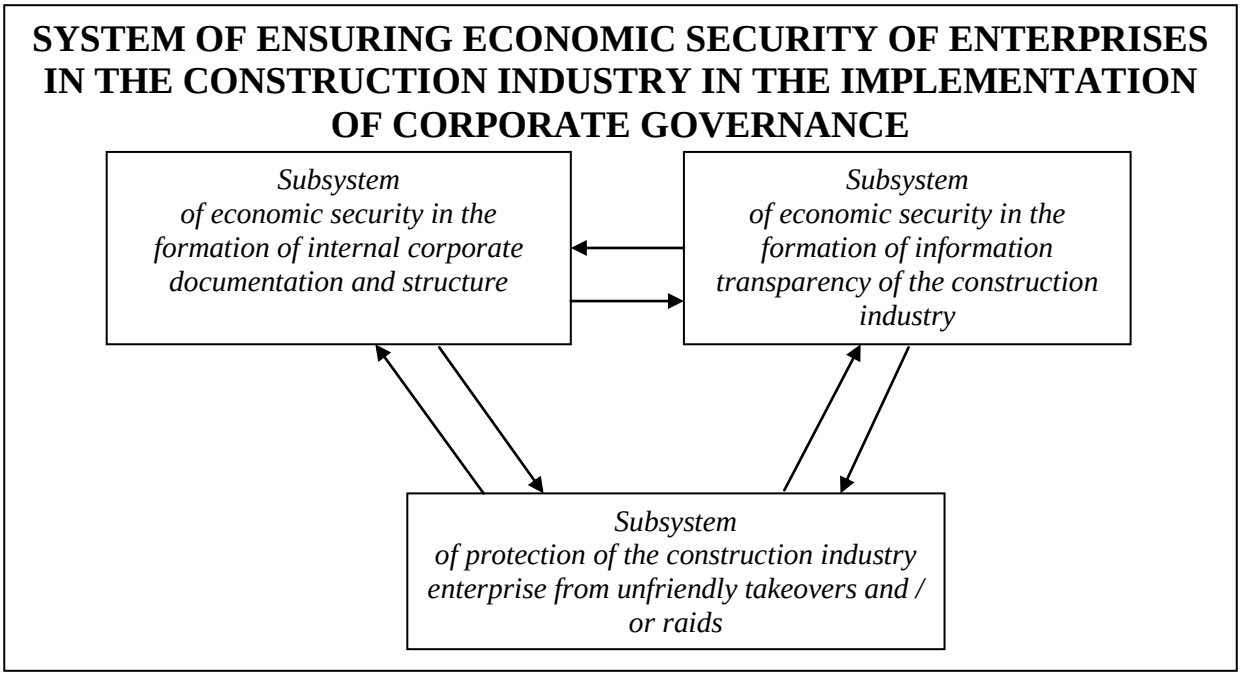

Fig. 1. Model of the system of economic security of enterprises of the construction industry in the implementation of corporate governance

Source: compiled personally by the author

The author proposes that the main elements of the system of economic security of construction companies in the implementation of corporate governance include the following: objects, entities, regulatory and legal support of corporate governance, information support, threats, methodology for assessing the state of corporate governance (Fig. 2).

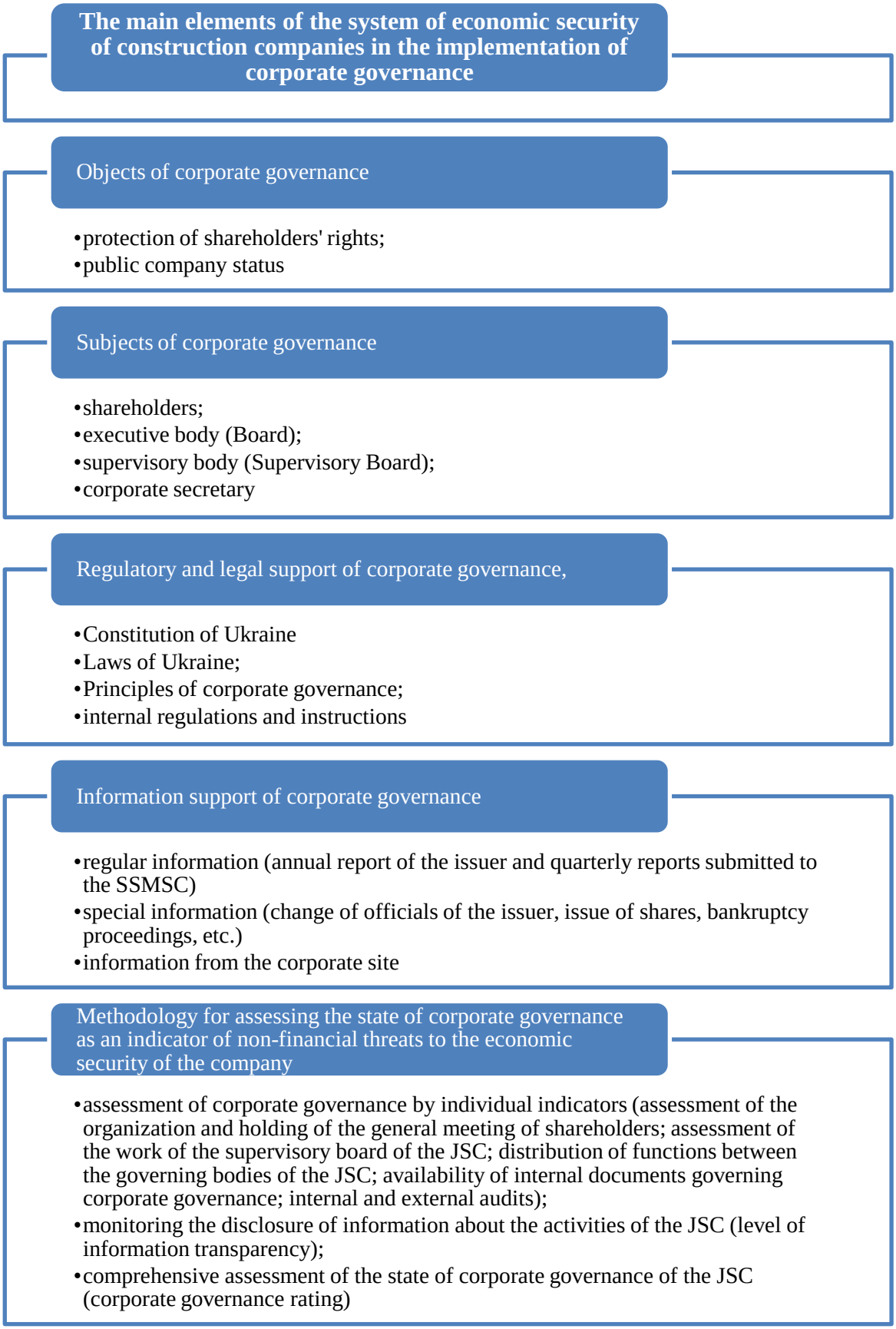

Fig. 2. The main elements of the system of economic security of enterprises in the construction industry in the implementation of corporate governance

Source: compiled personally by the authors

Objects of corporate governance are:

- protection of shareholders' rights to receive information on the activities of construction companies, to receive dividends, to manage its activities, to decide on additional issues of shares and their acquisition, etc .;
- acquisition and maintenance of public company status.

The subjects of corporate governance are [86]:

- shareholders;
- executive body of the JSC (Management Board);
- supervisory body of the JSC (Supervisory Board);
- corporate secretary.

Regulatory and legal support of corporate governance in Ukraine is:

- Constitution of Ukraine [87];
- Laws of Ukraine "On Business Associations" [88], "On Joint Stock Companies" [89], "On Securities and Stock Market" [90], etc.);
- Principles of corporate governance [91], which are implemented in Ukraine or operate in those jurisdictions where the company plans to issue and publicly place shares;
- internal regulations and instructions adopted by the joint-stock company in accordance with the legislation of Ukraine and the Principles of Corporate Governance.

In accordance with the legislation of Ukraine and the practice of joint-stock companies, information management of corporate governance is [92]:

1) regular information (annual report of the issuer and quarterly reports submitted to the SSMSC);

2) special information (change of officials of the issuer, issue of shares, bankruptcy proceedings, etc.);

3) information from the corporate website, which discloses additional information on the state of corporate governance (minutes of the general meeting of shareholders, prospectuses of securities issues, exchange rates of the issuer's securities on stock exchanges, etc.).

Thus, information support of corporate governance combines the rules of law, regulations and takes into account the practice of management in the corporate sector, which allows the company to attract financial and human resources, effectively conduct business and continue to operate, increase the value of shares and respect the interests of all subjects of corporate relations. Thus, the system of corporate governance includes a set of legal and socio-behavioral norms and rules within which the company operates and on the basis of which the relationship between its members.

Today in the world there are a large number of standards (principles, recommendations, codes) in the field of corporate governance at the international and national levels, as well as at the level of individual companies. Among them, the most authoritative are the Principles of Corporate Governance of the Organization for Economic Cooperation and Development (OECD), which were developed in 1999 on the basis of appeals from a number of international organizations and 22 developed countries, including the G7.

The OECD Principles define the main aspects of good corporate governance, namely [70]:

1. Shareholders' rights (the corporate governance system must protect the rights of shareholders).

2. Equal treatment of shareholders (the corporate governance system must ensure equal treatment of all shareholders, including minority and foreign shareholders).

3. The role of stakeholders in corporate governance (corporate governance system should recognize the statutory rights of stakeholders and encourage active cooperation between the company and all stakeholders to increase public wealth, create new jobs and achieve financial stability of the corporate sector).

4. Disclosure and transparency (corporate governance system should ensure timely disclosure of reliable information about all significant aspects of the corporation's operation, including information on the financial position, results of operations, composition of owners and management structure). It should be noted that these principles are of general importance, create a "global" vision of the components of effective corporate governance and should be combined with the specifics of a particular country and best practices in the private sector.

The main threats to the economic security of construction companies arising from inefficient corporate governance are:

1) the presence of corporate conflicts between shareholders, between shareholders and the company's management, between majority (large) and minority (small) shareholders;

2) unregulated internal provisions;

3) hostile (unfriendly) takeover and raider capture;

4) change in the share of authorized capital of minority shareholders due to small additional issues of shares;

5) untimely disclosure of information about the activities of the JSC, etc.

The authors argue that the methodology for assessing the state of corporate governance as an indicator of non-financial threats to the economic security of enterprises in the construction industry currently includes: assessment of corporate governance on individual indicators; monitoring the disclosure of information about

the activities of joint stock companies and determining the level of their information transparency.

At present, unfortunately, there is no comprehensive assessment of the state of corporate governance of construction companies, which would use an integrated indicator (corporate governance rating) to reflect the impact of non-financial threats on the economic security of the company in the issuance and placement of its securities.

Therefore, best corporate governance practices should ensure that:

- members of the supervisory board act in the best interests of shareholders;
- the joint-stock company acts legally and ethically in relation to shareholders and their representatives;
- all shareholders have the same rights to participate in the management of the company and the fair consideration of cases by the supervisory board and board, all the rights of shareholders and other stakeholders are clearly described and brought to their notice;
- the supervisory board and its committees are structured to operate independently of the board, individuals and organizations that control the board and other non-shareholder groups;
- appropriate control and procedures accompany the daily operational work of the board;
- shareholders learn about the operational, financial and management activities of the joint-stock company from clear, accurate and timely reports that fully characterize the actual state of affairs.

The above confirms the place and importance of corporate governance in the system of economic security of construction companies and requires its inclusion as a separate subsystem.

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DEVELOPMENT OF CORPORATE GOVERNANCE IN THE CONTEXT OF GLOBALIZATION OF INTERNATIONAL BUSINESS

Olga Sunigovets[1]

[1]*PhD (Economics), Associate Professor, Associate Professor of the Department of Management of Innovative Entrepreneurship and International Economic Relations, National Technical University «Kharkiv Polytechnic Institute», Kharkiv, Ukraine, e-mail: oms.ukr.kpi@gmail.com, ORCID: https://orcid.org/0000-0003-1623-5798*

Successfully managed companies achieve high results in the long run, have access to capital. High management standards reduce investment risk. One of the most pressing problems of business research is the problem of corporate governance. Improvement and development of corporate governance mechanisms are important primarily for large business structures. Improving the efficiency of integration interaction of enterprises will allow them to meet the global challenges of the world market, ensure their competitiveness and efficiency. The problems of corporate governance are inextricably linked with such major processes as increasing globalization of the world economy, increasing competition in industries, increasing the role of private companies in the economy, which causes increased interest in the study of corporate governance.

Long-term success of companies at the global level is impossible without improving the quality of corporate governance. The corporate governance system covers a number of strategic aspects, the solution of which determines the organizational efficiency of the company. The construction of the corporate governance system is determined in terms of its constituent elements and their quality, the practice of corporate governance must meet the requirements of modern world development trends, the best examples of global achievements in corporate governance. Corporate governance contributes to the competitiveness of companies.

Corporations are the basis for the development of economically developed countries, the successful operation of the corporate sector has brought Western countries to the forefront in the world. Integration processes are an integral part of the world economy.

In economically developed countries, the economy of corporations dominates, the economy of intersectoral vertical integration in the context of developing integration processes.

Theoretical and methodological foundations of integration processes, the development of principles for determining the effectiveness of vertically integrated structures are the interests of scientists P. Joscoe, J. Stacky, A. Strickland, A. Thompson, O. Hart. The effectiveness of the corporate governance system is studied by A. Burley, J. M. Keynes, J. Lamben, W. Oiken, P. Drucker [1], M. Porter, P.

Samuelson, E. Chamberlin and others. These studies were continued by foreign scientists I. Ansoff, W. Butner, D. Meyer, B. Maine, D. Sailer, D. Sullivan, D. Tobin, M. Hessel and others.

Synergetic effects can create corporate relationships both in the form of competition and in the form of cooperation. Effective corporate governance should promote a common focus of interests of all participants in corporate relations. The principle of corporatism provides a single vector of interests, harmony and non-violation of interests. Corporate legislation, corporate culture, corporate governance in Ukraine are at the stage of formation.

The key elements of good corporate governance are developed on the basis of generalization of the experience accumulated in world practice and are described in the principles of corporate governance of the OECD, which are actively implemented in the domestic practice of corporate governance. Current trends in the globalization of economic processes, the active development of integration processes, corporate governance in Ukraine determine the need for more objective consideration of the functioning of economic systems, research of corporate governance, improving the quality of corporate governance to world standards.

Corporate relations and their impact on innovative development in the context of globalization of international business. In the context of global destabilization of the economy, strategic uncertainty of corporations, the innovative direction of development, changes in the organization and management of economic processes are studied, the ability to produce goods and services is associated with indicators of innovation, innovative activity, quality of life, quality of corporate governance. Innovative economy is a type of economy in which the accumulated knowledge provides the generation of innovations that meet the dynamically changing needs of society. The concept of innovative economy, formulated by the OECD (Organization for Economic Cooperation and Development), is based on the principles of flexibility, adaptation to changing conditions of development.

The main factor of economic stability in general and economic structures are knowledge and information, which is the basis of innovation, new technologies. At the present stage of development, the role of corporations as a major participant in economic development, internal and external economic relations is growing. Attention is paid to corporate governance systems, features and patterns of corporate growth, contradictions of economic interests of industrial business corporations. For modern business in an innovative economy, the corporation is the most capable institution, as one that has financial, organizational and technological, intellectual capabilities and resource potential.

The problems of systemic development of corporations, due to increasing competition and the introduction of institutional mechanisms, are real. The issue of

effective functioning of corporations, the quality of corporate governance in the innovative economy is relevant.

A corporation is a group of individuals united by a common interest. A corporation is a subject of economic relations. Modern corporations unite a large number of enterprises, which allows you to concentrate the resources needed to implement innovative projects, access to foreign markets. The consolidation provides both stability and the ability to solve large-scale problems.

The Institute of Corporate Governance in Ukraine is still being formed. The corporate governance system is designed to regulate the relationship between the company's managers and their owners, to coordinate the goals of stakeholders, ensuring the effective operation of the company.

In theory, there are two main models of corporate governance: outsider and insider. The ownership structure distinguishes two corporate governance management systems. Outsider systems are characterized by broad shareholder ownership, the influence of managers to a greater extent on decision-making, the use of various forms of interception of control over the corporation.

Insider management system occurs when the concentration of ownership in the hands of several people who own large parts of corporate assets.

The structure of ownership and the degree of its concentration, the mechanisms of financial regulation, the development of the stock market, legislation contribute to the formation of various systems of corporate governance.

In each country, the corporate governance system is gaining its specific features and characteristics. The basic models of corporate governance are Anglo-American, German, Japanese.

Special features of the Anglo-Saxon model are the high degree of dispersion of share capital and, accordingly, the determining role of control and management; German - a high degree of employee participation in the management of the corporation, the distinguishing features of the Japanese model is the developed practice of cross-ownership of share capital, a high degree of its concentration among medium and large shareholders.

The Ukrainian model of corporate governance is still at the stage of formation and is transitional, in which elements of different models are formally represented, there is a combination of elements of outsider and insider models.

In Ukraine, there is an extremely scattered ownership structure with a great similarity of the Ukrainian model of corporate governance to the German (continental) model. Scattered ownership is a hallmark of the outsider model, the current trend of increasing concentration of ownership is a manifestation of the formation of elements of insider control. The introduction of cross-ownership of shares, the formation of complex corporate structures of various types are inherent in

the insider model. Financial difficulties affected the intensification of the processes of redistribution and consolidation of property, the concentration of share capital.

Concentration of ownership in various forms is recognized as the main economic mechanism of corporate control, which helps to increase economic efficiency. There is also a concentration of property. The size of assets involved in the corporation determines the level of financial flows, there is income that is weakly related to business efficiency, is incompatible with innovative development. The corporate power of the dominant groups is aimed at income generated by controlling the financial flows of enterprises and even contradicts the goals of the corporation and stakeholders. Withdrawal of income contributes to other types of opportunistic behavior.

The system of participation in the decision-making of employees, the state and business owners is a prerequisite for the development of corporate governance. Stabilization of the institutional environment of the economy will contribute to long-term effective development of corporate capital. A system of incentives and benefits for large businesses involved in innovation will be a determining factor in the development of corporations. Private-public partnership should be recognized as an effective means of concentrating resources on priority areas of innovative development, which will facilitate the introduction of various forms of their implementation.

Improving corporate governance in an innovative economy is an effective tool for business development, attracting investors, increasing competitiveness, entering the world market. The development of corporate business is through innovation. Successful is a corporation that creates innovations, which has a comprehensive view of the innovation process, and this is possible with effective corporate governance. Corporate governance is a way of managing a company that ensures a fair and equitable distribution of performance results among shareholders and other stakeholders. Corporate governance is a way of means and rules that help shareholders control the company's management and influence management in order to maximize the company's profits and value. Corporate governance - a system of relationships between company managers and their owners on issues of ensuring the efficiency of the company and protecting the interests of owners and other stakeholders. Corporate governance is a system of processes and rules that govern the company's behavior in the market.

New opportunities for the flourishing of existing relations in the form of cooperation, the development of integration relations determined the objective preconditions that have developed at the present stage of development of corporate relations, namely: development on purely market principles has determined the need to find ways to improve social relations in society; small production due to high costs

and the creation of uncompetitive products have become inefficient; most management decisions require significant financial infusions, which can be formed on the principles of consolidation of both financial resources and other reserves of production capacity.

In the new realities, the term corporate governance has come to mean the interaction of a wide range of people in all aspects of the company, including social and image. Under these conditions, the number of management problems that the corporation must solve as an association of people with different interests but common goals is expanding. The leading role of corporate governance in ensuring the stability of financial markets, investment and economic growth is recognized.

The need to build a socially oriented market economy, creating conditions for accelerated innovation, progressive scientific and technological progress through consolidated funds, finding ways to improve the welfare of the population and improve social relations in society have identified the need for corporate governance, pooling finances, small productions. Such development tasks have caused a cooperative and corporate movement in foreign countries.

For Ukrainian business there is a need for quality corporate governance, transparent asset management, proper corporate governance, which makes management accountable.

The World Bank's Doing Business rating influences businessmen's decisions about the feasibility of investing in the country, determines the basic security conditions for investment and protection of business interests, and is an order of an international investor. The final place of the country in the ranking is formed by the ten most important indicators in terms of business prospects, such as business start-up procedures, registration of property rights, taxation, international trade, obtaining loans, securing contractual obligations, protection of minority rights, etc.

Ukraine had the lowest position in the World Bank's Doing Business ranking in 2012 - 152nd place out of 183. In recent years, Ukraine has significantly improved its position in the ranking, rising to 64th place in 2020, as shown in Fig. 1.

This result is not the best even among the countries of the post-Soviet space. Lithuania is in 11th place, Estonia - in 18th, Latvia - in 19th, Kazakhstan - in 25th, Russian Federation - in 28th, Moldova - in 48th, Belarus - in 49th.

According to World Bank experts, five of Ukraine’s ten indicators have gained positive changes in Ukraine, namely obtaining building permits, connecting to power grids, registering property, protecting minority investors, and international trade. In Ukraine, legislation is significantly improved, the activities of corporations and relations between their members become more flexible, a culture of civilized corporate relations is formed.

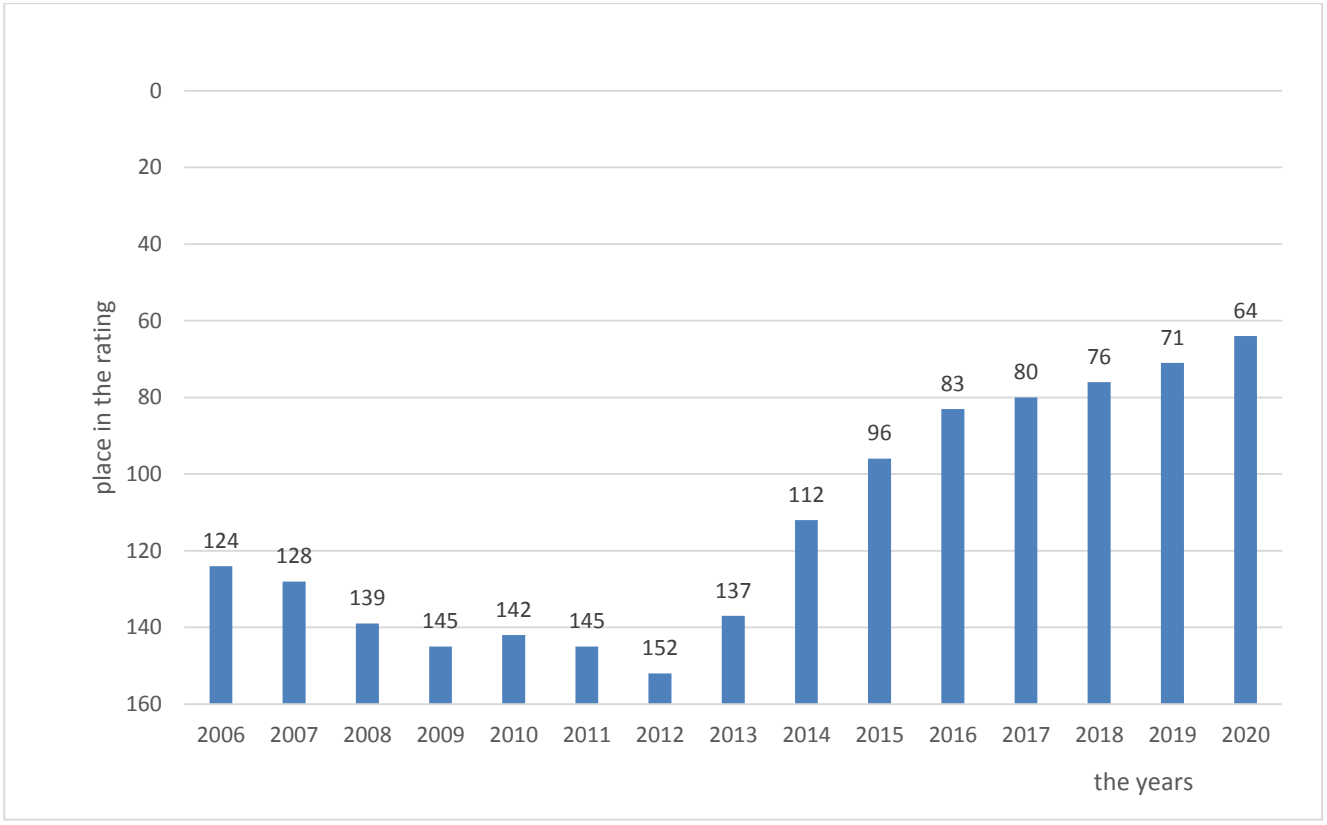

Fig. 1. Ukraine's place in the Doing Business ranking from 2006 to 2020. [developed by the author on the basis of [2]]

Thus, the pace of market relations stimulates the search for appropriate forms of governance that can meet the accelerated development of market competition, which is intensifying in the global economy, aimed at capital competition for production and commercial activities ensuring the efficiency of production.

The quality of corporate governance and an effective system of corporate governance as a condition for the development of international business. Peculiarities of corporate forms of management are independent legal status, share ownership of participants, concentration of managerial functions at the highest level of management.

The corporation is a complex hierarchical structure that requires regular management influence. The two main forms of such influences define corporate management, such as business management and development, and corporate governance, which focuses on establishing mechanisms to ensure accountability and balance of interests of all participants in corporate relations. Ensuring the balance of interests of participants in corporate relations (shareholders, management and stakeholders) is the main purpose of corporate governance. The basic function of corporate governance is to ensure the functioning of the corporation in the interests of owners who provide the company with financial resources.

Corporate governance, as proposed by the World Corporate Governance Forum, studies the structures and processes for managing and controlling an enterprise. According to the international approach defined by the World Bank, corporate governance includes three basic components: legislation, private sector management practices and regulations that allow to attract financial, human resources, efficient business activities and accumulate long-term economic value by increasing the value of the shareholder. capital, embodying the interests of shareholders and society as a whole.

The main structural components of corporate governance are: the rights of owners (shareholders); governing bodies; disclosure of information; social responsibility of the corporation (business). Within these blocks, the International Leading Corporate Governance Practice (CGBP) is being formed. It is these elements in the interaction are able to provide the basic functions of corporate governance, sustainable development of the corporation.

Corporate governance encompasses the relationship between management, the board of directors (supervisory board), controlling shareholders, minority shareholders and other stakeholders. Accordingly, the three most important bodies of corporate governance are the general meeting of shareholders, the board of directors (supervisory board) and management (board), thus distinguishing in the structure of corporate governance levels of ownership, supervision and control and executive management. The interaction of levels establishes counter-flows of capital movements and transparent reporting.

Separation of ownership, control and management functions creates the so-called "agency problem", high-quality corporate governance by increasing transparency and accountability can reduce asymmetric information and, as a result, prevents the withdrawal of funds and asset appropriation, provides more efficient investment and risk management, improves the results of the company's operating activities.

Good corporate governance does not necessarily imply a strong hierarchy of all decision-making processes, it involves accountability. Strong corporate governance can be in a flat horizontal management structure. Most foreign companies have a horizontal structure of relations and at the same time high-quality corporate governance and accountability. In Ukrainian companies, the force is hierarchy, for the division of responsibilities.

Ukrainian companies need to learn to delegate authority to a wider range of people, the introduction of micro-management is becoming important, to implement experience and knowledge in the decision-making and implementation process.

From the point of view of corporate governance, creditors play a disciplinary role by imposing restrictions on the space for decision-making at the discretion of

management, setting additional limits on the amount of costs, transfer of assets, the allowed level of risk. In Ukraine, the debt capital market is insignificant and the cost of debt capital for Ukrainian companies is extremely high, apparently due to weak public institutions.

International financial institutions are the only investor that can actually offer debt capital on terms comparable to those of developed economies.

International financial institutions are potential investors of Ukrainian enterprises, which by investing can encourage private investors to invest and as a result reduce the cost of financing for the company. In addition, lenders create additional incentives to maintain a high level of corporate governance.

Investors prefer to invest in companies with a high level of corporate governance by improving the protection of shareholders 'and creditors' rights, especially in countries with weak public institutions. Research conducted by McKinsey & Company found that most investors in the world are willing to pay a premium to the share price of companies with a high level of corporate governance, the percentage of such investors in all regions of the world is about the same, is 75-78%.

The size of such a premium, depending on the region, ranges from 13 to 30%, corporate governance at the enterprise level weighs more in countries with weak investor protection [3].

A modern company operates in physical and digital reality, must have the ability to develop steadily in the face of adverse external conditions, uses long-term planning as a key element of enterprise success and its main asset is people [4].

The requirements of the main global trends in corporate governance are:

- increasing the role of safety and environmental protection;
- stakeholder interests as the main goal of the company;
- corporate culture and its development;
- a broader view of the variety of Soviets;
- development and growth of investor activity.

Improving the quality of corporate governance will meet the challenges of today's world. Corporate governance of modern enterprises in Ukraine is improving relative to current trends.

Assessing the quality of corporate governance takes into account improving the efficiency of resource potential, increasing productivity, transition to an innovative model of development, which involves the development of a new institutional business environment, infrastructure, improving the efficiency of guarantees, social policy and responsibility. Improving the quality of corporate governance is associated with ensuring the economic interests of corporate entities.

At insufficient level of quality of corporate management there are: imperfection of personnel policy, inefficient work of managers, underdeveloped corporate culture, improper management of business processes, ignoring of innovative activity. The corporate governance system is an organizational model that provides representation and protection of the interests of investors and shareholders. It can be defined by a set of principles and mechanisms for corporate decision-making and monitoring their implementation.

Its main purpose is to increase the corporation's profits, ensure the sustainability of development in compliance with applicable law, taking into account international standards. The level of achievement of corporate governance goals characterizes the effectiveness of the corporate governance system, its integrity properties and the synergistic effect of the existing system. Building an effective corporate governance system is a complex multi-stage process, the stages of which are:

- development of common principles of the corporation (mission, philosophy of the corporation, etc.);
- defining the basic goals of the company and identifying ways to motivate its owners;
- the choice of organizational structure adequate to the goals.

Corporate governance is determined by the relationship between the participants in the management system and these relationships are different in different countries. They are determined in part by legislation and the regulatory system, in part by voluntary adaptation and, to a greater extent, by the action of market forces. The system of corporate governance depends on legal, regulatory and institutional conditions. Trust-based corporate governance mechanisms that are understandable to the parties to international economic relations and in line with international principles make it possible to take advantage of the opportunities of global capital markets.

Creating the foundations of corporate governance, taking into account specific economic, social, legal and cultural conditions, the development of their own policies by market participants are based on the principles of corporate governance.

Principles of corporate governance:

- promoting the development of transparent and efficient markets, not to contradict the principle of legality, to clearly define the division of responsibilities between the various supervisory, regulatory and law enforcement agencies;
- protection of shareholders' rights and promotion of their implementation;
- ensuring equal conditions for all shareholders, including minority shareholders and foreign shareholders, and providing opportunities for effective protection in the event of a violation of their rights;

- recognition of the rights of stakeholders, established by law or by mutual agreement, to encourage active cooperation between corporations and stakeholders in the creation of material values and jobs, maintaining the viability of financially stable enterprises;
- ensuring timely and accurate disclosure of information relating to the corporation (financial position, results of operations, ownership and management of the company);
- ensuring strategic management of the company, effective control over the work of the board of directors, as well as the responsibility of the board of directors to the company and shareholders.

These principles underlie the programs of cooperation between countries.

Adherence to the basic principles of corporate governance is a factor in making investment decisions. The system of corporate governance is designed to stimulate participants in corporate relations in the development of strategies for the development of companies, the implementation of which can lead to increased business value.

The corporate governance system should have a division of rights and responsibilities between the parties to the corporate relationship and clear rules for decision-making.

Within the framework of corporate governance, the tasks of. the company, the means for their implementation and control are determined.

The general elements of corporate governance are:

- the company's management system and control over activities;
- a structure that defines the distribution of rights and responsibilities;
- decision rules, limits for achieving goals and control over results.

The parameters for assessing the effectiveness of corporate governance systems are the ownership structure, transparency and availability of information, policies and mechanisms for implementing corporate governance, corporate governance risk management and management system, the degree of ownership and prevention of corporate conflicts, corporate governance history. A quality model of corporate relations should promote the innovative development of corporations, build on quality corporate governance and promote the use of the creative potential of the subjects of corporate relations.

The quality of corporate governance is influenced by: activities on stock exchanges, participation of foreign investors, industry affiliation of the corporation, type of activity, level of innovation, structural proportions of ownership and the share of state participation.

Enterprises, implementing high-quality corporate governance, are able to provide a powerful impetus to the development of the Ukrainian capital market. In

the study of the quality of corporate governance, ensuring the economic interests of corporate entities, it is important to take into account the factors influencing economic growth and sustainable development.

International corporate governance. Trends in the world economy, namely the concentration of capital, integration of industrial and financial capital, diversification of forms and activities, globalization and internationalization, have identified the problem of adapting the corporate environment to the requirements of international economic relations, new rules of corporate business. Most of the global corporate sector - multinational companies, international companies are a powerful mechanism for influencing international economic relations. International corporations unite national markets, the world economic space, transforming international relations into global ones.

Corporate governance is a form of relationship between shareholders, management and other stakeholder groups. This is a system of management relations formed between the participants of corporate relations, which aims to obtain a synergistic effect on the achievement of goals both from their joint activities and from their relationships with external counterparties. Its essence is to ensure a balance of interests between different groups of stakeholders, compliance with the interests of shareholders and ensuring accountability of management. At the international level, there is a high degree of development of information transparency of corporate business and its social responsibility.

The subjects of corporate governance are the governing bodies of the corporation:

- majority and minority shareholders;
- one-tier and two-tier board of directors;
- senior management.

Relationships between the subjects of corporate relations are the object of its influence. Foreign investment and partnerships with Western firms are factors in the implementation of corporate governance, the implementation of international standards of corporate governance and this determines compliance with the international level of corporate governance.

In the context of globalization and under the influence of integration processes, increased attention to corporate governance, there is a need to universalize the rules and regulations of corporate interaction worldwide, optimize institutional mechanisms for regulating the normalization of corporate relations at the interstate level. Corporate governance has become an important part of a global organizational system that is clearly recognized internationally. International standards and norms of corporate governance are aimed at significantly improving national corporate governance systems.

Authoritative international organizations have led the development and implementation in business practice of international standards of corporate governance, as generally accepted rules. International organizations, such as the OECD, have developed international corporate governance standards and regulations to simplify the process of creating corporate governance codes. The formation of the institutional basis of corporate governance is laid down in the principles of the Confederation of European Shareholders' Associations, the International Corporate Governance Network, the Organization for Economic Cooperation and Development. The main problems of corporate governance development, the need to build effective mechanisms of corporate governance have intensified the ideas of information openness, transparency, sustainable development, corporate social responsibility. The main criteria recommended by the OECD for inclusion in corporate governance codes are:

- basic bases of formation of bases of corporate management;
- shareholder rights, the main functionality of the owners of organizations;
- equal rights of shareholders;
- the role of other stakeholders in corporate governance;
- the procedure for disclosing information about the activities of the organization, transparency;
- responsibility of the general meeting of shareholders.

The criteria combine all the basic principles of corporate governance, emphasizing the problems of rights and equal treatment of all shareholders and other stakeholders, the role of non-financial stakeholders, disclosure and transparency, the responsibility of the general meeting of shareholders. The system of corporate governance standards consists of:

- international standards;
- national standards (codes of corporate conduct of developed and developing countries, Standards of corporations);
- corporate governance models.

Following international standards in countries with economies in transition is a reserve for creating a favorable investment climate, increasing competitiveness and investment attractiveness, expanding foreign economic relations.

The formation of the structure of corporate governance should be based on the principles recognized by international and domestic activities of the functioning of corporate institutions. The most important are the observance of equality of shareholders' rights, accountability, honesty, transparency and responsibility.

An integral part of the effectiveness of corporate governance is the observance of the rights of owners, accountability of management and supervision of the board of

directors, a high level of transparency and compliance with the key interests of stakeholders. These basic provisions formed the basis of the basic principles of corporate governance of the OECD, which are grouped into the following consolidated groups:

- providing the foundations of an effective corporate governance structure;
- sphere of property rights (shareholders' rights, equal treatment of all shareholders and key ownership functions);
- institutional investors, securities markets and other intermediaries;
- the role of stakeholders in corporate governance;
- transparency and disclosure of information by corporate structures;
- responsibilities of the board of directors.

The structure of corporate governance must be built in such a way as to promote transparency and fairness of markets, provision and efficient allocation of resources, must meet the requirements of the law [5].

The corporate governance structure must ensure the protection of shareholders' rights, fair and equal treatment of all, the ability to obtain effective compensation for violations of their rights.

Mechanisms for the functioning of institutional investors, the securities market and other intermediaries should promote the development of good corporate governance, and to ensure its effectiveness, regulatory and legal infrastructure should be developed, taking into account the conditions of its operation. A ban on market manipulation is imposed. Regarding the role of stakeholders in corporate governance, the rights of stakeholders under the law or multilateral agreements are recognized, and active cooperation between the corporation and stakeholders in creating wealth, jobs and financially sustainable enterprises is encouraged.

The principles of transparency and disclosure by corporate entities define the requirements for timely and accurate disclosure of information on all matters of the corporation, including financial position, results of operations, ownership and management of the company, and information distribution channels must ensure timely, equitable and non-costly access. users to the required information. The structure of corporate governance should contribute to the strategic management of businesses, ensuring the accountability of the board of directors to the corporation and shareholders, creating mechanisms for effective control over management by the board of directors.

Maximum implementation of the achievements of corporate governance of foreign companies, elements of the International Corporate Governance Best Practices (CGBP), building an effective system of corporate governance in companies will meet the urgent need to improve the management aspects of domestic business. Corporate governance allows you to ensure the sustainable development of

the corporation, increase value and ensure social responsibility to society. It is necessary to talk about the effectiveness of the corporate governance system and its development.

The system of corporate governance must develop and become more complicated, which will mean the formation of corporate dynamics, which is manifested in changes in the parameters of the elements of the elements of the corporate system. PhICS-model of corporate governance of the company can determine the change of parameters according to the evolution of system elements and this model regulates the implementation of international leading practices of corporate governance, forms a system of corporate governance according to business realities and the need for its development. The key factors of the company's development are the life cycle, investments, control and leadership style, development strategy.

The formation of the institutional environment and development have defined international standards, which include international (national) codes and principles of corporate governance.

The development of corporate governance at the global level is due to the spread of multinational corporations basic elements of corporate culture, requires participants in economic cooperation to voluntarily accept the basic principles as a basis for building an effective model of corporate governance.

Increasing globalization of the world economy and destabilizing trends complicates the development and increases the importance of competent corporate strategies, the effectiveness of management decisions.

The development of the corporate form of economic activity, the formation of corporate governance and theoretical studies of corporate governance have modeled the development trends of companies to the level of multidisciplinary big business with appropriate organizational structures of production and management. Studies of domestic corporate structures note the existence of an outsider model of corporate governance with manifestations of insider implementation mechanisms. In practice, there is significant conflict, fierce competition for control of management, significant management and business risks, heterogeneity and differentiation of the industrial sector.

Diversification and integration processes, the formation of the internal market, the realization of globalization through adaptation to the external environment, consolidated capital and its scale, forms and methods of consolidation are the modern main mechanisms for the formation of corporate entities. Improving and developing corporate governance mechanisms is important primarily for large business structures.

The main feature of modern corporate governance is the transition to the stakeholder model and consideration of the corporation as a coalition of stakeholders, each of which seeks to realize specific economic interests, corporate governance practice from the standpoint of stakeholder theory is characterized by corporate social responsibility of industrial business. The market value of the company's business is the main indicator of the effectiveness of corporate strategy.

The assessment of corporate governance is based on the relationship of all the required factors, such as the most used are the market value of the business, the effectiveness of a particular strategy, the activities of the company's management. Evaluation is an expression of the quality of corporate governance, assessment of the investment attractiveness of the company and the effectiveness of corporate development.

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FORMATION OF GLOBAL INFRASTRUCTURE IN THE CONTEXT OF SOCIAL, ECONOMIC AND ENVIRONMENTAL INTENTIONS

Danyila Olijnyk[1], Yurii Konizhai[2]

[1]*Doctor of Economics, Professor, Senior Researcher, National Institute for Strategic Studies, Kyiv, Ukraine, e-mail: olijnukd@i.ua, ORCID: https://orcid.org/0000-0001-8144-6482*

[2]*Student at Salzburg University of Applied Sciences, ORCID: https://orcid.org/0000-0001-7854-2561*

The dynamic changes that are currently taking place in countries based on long-term structural change are unprecedented and driven by a new geopolitics. That underpins the biggest global challenges facing the world today. The actual effectiveness of positioning the global presence of states according to the *Elcano Global Presence Index* is currently evaluated in three dimensions: economic (energy, raw materials, production, services and investment), military (number of servicemen on international missions and bases abroad) and "soft" (migration, science, technology, database, Internet bandwidth, technology focused on patents, education, information, tourism, sports, culture and humanitarian assistance). Ukraine ranked 52nd out of 70 countries in the global presence rating in 2017 [1].

The global presence of developed countries now aims to dominate the global infrastructure of the future on a strategic basis. For example, China implements the vision of the future in the "Made in China 2025" strategy[2] and "Beijing Wants A.I. to Be Made in China by 2030" [3]. In India, the strategy is to achieve the potential of digitizing production by 2030 [4] . South Korea plans to implement global hydrogen technology standards by 2030 [5]. In the US, strategic intentions for 2030 are dominated by production and military goals [6]. In the face of growing threats to electricity-based infrastructure, the US Department of Energy is launching a North American model of energy resilience to enhance multi-sectoral infrastructure and national security (*North American Energy Resilience Model, NAERM*) [7].

In this paper, we will focus only on the economic component, since the use of energy resources, services and investments now requires dramatic changes in the approaches of all market participants.

Ukraine has taken a course towards the completion of an integrated energy market with Europe and the development of a national energy strategy with low levels of greenhouse gas emissions for sustainable development aimed at improving economic efficiency, energy security and the environment (*Energy Security, Economic Efficiency, and Environment + Safety, "3E + S"*) and needs urgent decisions on access to clean energy and national energy and climate plans *(National Energy and Climate Plans, NECPs).*

The crucial role in integrating countries into the single energy market, which affects the survival of the planet, is played by timely and managed energy transition

and synergies between energy security, access, accessibility and environmental sustainability. The existing energy infrastructure has been built over the last decades on the basis of the use of coal, oil, natural gas and nuclear energy. At present, there is a departure from the basic values of security, reliability, on which existing energy systems were built, and a new paradigm of values of sustainability, flexibility and accessibility is being formed, which is provided with a completely new way of energy production, supply and consumption. Ukraine holds "umbrella" patents on a new way of organizing and operating the grid, which is regulated in strategic and regulatory documents as early as 2006 [8].

In a hydrocarbon-based commodity economy, the decarbonisation of domestic sectors of industry, energy, heat, gas production and transportation, as a rule, was carried out as separate processes. Achieving zero CO_2 emissions requires cross-sectoral integration, enabling the energy sector to supply them with clean energy, without which the transition to a carbon-free activity model is impossible. There are "carbon-free" (CO_2-free) and "carbon-neutral" hydrogen. The first type is "green" hydrogen, made from water by the method of electrolysis based on RES. The second type is "blue" hydrogen produced from natural gas using carbon capture and storage (CCS) technologies

Emphasis is placed on both the global transition to clean energy, energy security and the direction of the energy sector towards meeting international climate targets for reducing carbon emissions, focusing on all fuels and existing technologies to achieve this goal.

For reference. According to Carbon Tracker research, the world's fossil fuels for energy and mining companies account for 2,795 gigatons of CO2, which is incompatible with meeting the goals of maintaining a global average temperature rise of 2050 below 2 ° C. In these circumstances, the urgent task is to prepare the real economy and financial markets for the risks associated with climate and energy transitions and to generate the new way of thinking [9].

The Pan-European Strategic Framework for Greening the Economy [10] and the Green Economy Initiative [11] foresees that the development of the pan-European countries is aimed at ensuring the sustainable use of ecosystems and natural resources to meet the needs of present and future generations. The strategic framework builds on the political effort to implement the results of the Rio + 20 Conference and the 2030 Agenda for Sustainable Development. The main theme of the UN General Assembly for 2020 on Sustainable Development is defined as "Forced action and ways of transformation: implementing a decade of action and accomplishment for sustainable development"[12].

Future scenarios are based on the development of a sustainable energy model. The energy system, as a whole, will have to develop in the most optimal way in order

to meet the new tasks and needs of its consumers. Ukraine is one of the most energy consuming countries in the world. The annual loss of the national economy from inefficient use of energy is estimated at 15-17 billion U.S. dollar. The country has the highest energy intensity of GDP in the EU. This is mainly due to the poor condition of the energy infrastructure, high losses in energy conversion, transmission and distribution, low efficiency of fuel and energy resources in technological processes (mainly energy-intensive industries), as well as low efficiency in final consumption sectors.

For reference. According to the National Commission for the State Regulation of Energy and Utilities, energy losses in Ukraine reach 100 million UAH hryvnia daily and water losses are estimated at 4 million UAH hryvnia [13].

The energy system of Ukraine is a unique organizational and technical object, the structure of which is multilevel and formed on the hierarchical principle, which provides balanced unity of generation, network distribution and consumption to allow the inter-system exchange of power and energy flows in normal and emergency conditions. At the same time, Ukraine's power system, created more than 70 years ago, requires both the modernization of fixed assets and the replacement of physically and morally outdated equipment, as well as the use of new technologies and equipment of information-diagnostic systems and control systems.

Defining the conceptual foundations and practical mechanisms for ensuring the sustainability of the energy system is the key to shaping Ukraine's secure and sustainable energy future. However, in terms of ecological footprint per capita in 2019, Ukraine ranked only 91st place (Belarus – 41st place). In the structure of the fuel balance of the electric power industry of Ukraine, renewable energy sources are in the last place (4.4%) after oil (14.3%), nuclear power (25.1%), gas (27.4%).Coal ranks first (28.7%) (Table 1).

Table 1. Energy balance of European countries for 2017 (thousands of tonnes of oil equivalent)

Country	Total	Coal	Natural Gas	Nuclear Energy	Hydro Energy	Wind, sun etc	Biofuels and waste	Oil
Europe	1 998 105	321 869	504 120	244 092	49 751	67 442	174 284	635 011
Germany	311 245	71 414	75 341	19 887	1 733	13 407	31 012	102 965
France	247 086	9 891	38 492	103 796	4 297	3 579	17 912	72 568
United Kingdom	175 883	9 564	67 839	18 327	510	5 344	12 414	60 616
Turkey	146 797	40 089	44 232		5 006	10 170	3 032	44 318
Poland	103 845	49 421	15 445		220	1 373	8 145	29 028
Ukraine	89 462	25 757	24 554	22 449	769	149	2 989	12 696

Source: IEA World Energy Balances 2019

Despite the fact that in 2018 the share of renewable energy sources in the energy sector has increased up to 25% in 2018, but this result has practically not affected the amount of carbon dioxide emissions. Thus, in 2018, a record increase of CO_2 emissions of 1.7% was recorded. This is due to the fact that more than 40% of the world's CO_2 emissions are from the energy sector, while 60% is from other sectors, mainly transport and construction, industry and housing. The integration of renewable energy production and consumption sectors is an integral factor and the foundation for the further development of renewable "green" energy through the availability of renewed infrastructure for the transportation, distribution and end use of energy-intensive hydrogen and synthetic (e-Fuel) produced from renewable electricity.

Within the framework of the formation of global infrastructure networks based on the combination of energy, information and communication technologies, it is envisaged to increase significantly the availability of electricity and increase the security of energy supply without increasing the environmental burden. On this basis, since recent years, significant changes have taken place in the world of electric power. First of all, in the field of energy management, which are aimed at energy saving, security, reliability and reduction of the share of hydrocarbon energy, a competitive market for system technological services (frequency and power regulation, load shutdown in case of accidents etc).

A report on the long-term future of energy infrastructure in Germany and the Netherlands states that by 2050 the need for hydrogen imports is estimated at 10.3 million tonnes annually. For countries such as Japan, Germany, South Korea, the Netherlands, Malaysia and Singapore, the estimated supply of hydrogen for the decarbonisation of transport, industry, electricity and housing is 25 million tonnes per year [14]. According to the Julich Research Center, prices for imported hydrogen in Germany will reach 3.9 U.S. dollar per kg [15].

Such a power transition conditionality for merging sectors is currently considering the introduction of Power-to-X technology, which refers to conversion technologies that allow the separation of electricity as a commodity for use in other sectors, using energy provided through additional investment in production.

In fact, energy infrastructure is seen as a vision of a unified system of systems that takes into account the specific features of different objects, processes and phenomena combined into such a system and subject them to the degree laws of natural and social processes. Thus, the transition from centralized production and vertically integrated monopolies to decentralization, digitization, creation of energy clusters, micro-networks characterized by accelerated rates of electrification, formation of digital ecosystems, services focused on data and the emergence of a

class of energy consumers and simultaneously produce and energy consume energy [16].

A new global approach to power generation, transmission, distribution, measurement, supply, storage and storage, as well as electricity consumption, is needed to achieve these goals. This should set out the clear technological requirements laid down in the standards and other regulations for the interaction of a wide range of sectors (such as automation and operation of the network, management of distributed energy resources, automation of residential and industrial buildings, intellectual accounting), providing for a high level of consistency, reliability, data protection and privacy, as well as profitability.

One of the particular problems to be solved in Ukraine in the near future is the issue of ensuring the unity of measurements of reactive electric power (energy) in the conditions of continuous increase in the number of nonlinear loads (consumers creating extremely large current disturbances) in networks of all levels, including rural networks. and housing and utilities networks. Reactive power is one of the most important determinants of power grid losses. On the other hand, reactive power and associated overloads, voltage fluctuations, symmetry and stability of three-phase power systems are one of the common causes of power system failures. That is why at the annual meeting GO15 strategic directions of formation of decarbonized energy infrastructure for 2020 identified network instability and system inertia [17].

Connecting to a digital infrastructure consisting of various assets, systems, functions and networks, including power grids, is considered to be one of the most important organizational and technical measures that promotes communication with communities, economies and nations through transport, communication, and energy. and water networks by providing access to core services and markets - in trade, logistics, mobility and information.

Infrastructure is an engine of economic growth that can be improved with innovative technologies, which increases the value of infrastructure projects and increases the efficiency in creating, operating and maintaining quality infrastructure to achieve better social, economic and environmental outcomes. This is facilitated by the integration of digital infrastructure data with physical infrastructure data (InfraTech). This combination of physical and digital infrastructure generates assets that can be automated in a real-time in terms of efficiency, productivity and user experience. As a result, new opportunities are emerging to reformat existing infrastructure assets through scalable data collection, real-time asset monitoring and process automation.

A number of important documents have been adopted to support global infrastructure projects under the G20 and to modernize infrastructure through

technological innovation, increased sustainability, compliance with public policy requirements, and environmental issues:

- Global Infrastructure Connectivity Alliance Initiative (2016) [18],
- African Partneship G20 (2017) [19],
- Roadmap to “Developing Infrastructure as an Asset Class” (2018) [20] and
- G20 High Level Principles on Sustainable Habitat through Regional Planning (2018) [21].

Investments in energy infrastructure are an area of long-term profitability and require large-scale implementation of standardization systems for the integration of energy storage technologies, energy efficiency, asset management, etc. in order to ensure in real time the optimal functioning of a single energy system, one of which is electricity consumers.

The G20 Summit in Hangzhou adopted a declaration emphasizing the importance of investing in infrastructure for cost-effectiveness, security, disaster resilience, job creation, capacity building and knowledge and know-how transfer while mutually agreeing and environmental impacts in accordance with agreed development strategies. A key issue in this context is technological trends and the speed of decision-making based on the formation of intellectual property rights policy (*Intellectual Property Rights, IPR*).

Particular attention was focused on obtaining data on investments in digital infrastructure and analyzing them as a key factor in decision-making support for the development of important infrastructure energy projects. An existing energy infrastructure is considered to be a valuable asset portfolio that plays a crucial role in the global transition to a low carbon energy environment and can have a huge impact on the global economy. This is facilitated by satellite data on basic energy infrastructure under the European "Green New Deal", which aims to ensure climate neutrality by 2050 and identify sources of greenhouse gas emissions, as one of the key key elements in reducing greenhouse gas emissions in the energy sector [22]. Scientific studies have shown the harmfulness of greenhouse gases such as: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluorides.

Mane discussions are currently underway to establish technical thresholds (taximetry) for the economic feasibility of limiting CO_2 emissions for electricity production, which EU experts have previously set at 100 g CO_2 per kWh. This approach will allow investors, retirement funds and private companies to determine what relates to “green” financing and shift financial flows from “carbon” to more sustainable economic activity.

An independent group of scientists led by Jeffrey D. Sachs estimates that greenhouse gas emissions and sustainable development will require 22.6 trillion U.S. dollars over 2016-2030.

The World Energy Council (WEC) states that the transition to a decarbonized energy system and the formulation of integrated energy-industrial strategies is the basis for managing dynamic sustainability based on the best ways to use existing energy assets to ensure a reliable and sustainable energy transition to a sustainable energy transition [23].

Assessing the economic impact of future investment potential, based on the example of energy infrastructure, is devoted to the report of the Board of Canada Conference on "statistics that can be relied upon" [24]. Recommendations to the report for the development of energy infrastructure suggest investing in activities such as the operation of fixed networks intended to provide services to the public in connection with the production, transportation or distribution of electricity and the supply of electricity to such networks [25].Investment in Canada's energy infrastructure from 2011 to 2030 is estimated at $ 347.5 billion U.S. dollars. Investment in energy infrastructure is projected to generate an additional 10.9 billion U.S. dollars annually in real GDP and create an average of 156,000 jobs.

Attracting investment in global infrastructure projects is seen as a set of Perfomance Granding Index (PGI) databases into quality infrastructure (Quality Infrastructure Investment Database, QII) [26].

According to scientists, the cost of the world's fossil fuel resources can be reduced from 1 to 4 trillion U.S. dollars by 2035 as a result of accumulated assets [27].

In order to create an infrastructure database as an asset class, the Global Infrastructure Investment Database (EDHEC) is now being created at EDHEC (EDHECinfra), covering over 500 infrastructure assets in 10 different countries over the last 20 years [28]. The assets of companies are focused on environmental, social and management indicators (Environmental, Social, and Governance, ESG) and are determined by a weighted global Securities Capitalization Index (MSCI), listed on the stock exchange and included in the infrastructure of the Global Industry Classification System (Global Industry Classification System, GICS) [29]. *MSCI*, thus, it provides a more detailed understanding of the performance of global infrastructure and the sectors that are connected to it.

The measurement of the performance of large and medium-sized segments of the market in Ukraine is carried out using the MSCI index for 6 groups of factors that have historically demonstrated excess long-term market profitability and cover approximately 85% of equity in Ukraine [30].

The development of domestic capital markets is essential to support the growth and enhancement of financial stability in local currency bond markets. Of particular importance is the mobilization of sustainable financing and financial integration in

connection with the transition of markets by the end of 2021 from LIBOR to alternative reference rates.

Blockchain, in conjunction with Internet of Things (IoT), is considered internationally as an innovative mechanism for green financing of energy infrastructure in order to reduce transaction costs, increase transparency and availability of reliable data for so-called tokenized securities (digital asset representation) (Sanderson 2018; Merrill, Schillebeeckx & Blakstad 2019). For Ukraine with high budget deficits, quantitative easing (QE) of debt-to-GDP monetization can be used to stimulate the growth of the national economy. There are three categories of tokenized securities: (a) asset-based tokens that represent the ownership of an asset as real estate, commodities or works of art; (b) debt tokens representing debt instruments, such as green bonds or real estate collateral; and (c) equity tokens that reflect the value of the shares issued by the companies and entitle the investor to the company's profits and voting rights as shares. However, as noted by the Asian Development Bank (ADB), immature investment infrastructure and regulatory uncertainty are currently limiting the implementation of blockchain-based tokenized securities [31].

International institutions are encouraged to promote the integration of countries and regions into global infrastructure, such as the :

- European Africa African Infrastructure Trust Fund (EU-AITF) [32]**,**
- Africa-EU Energy Partnership (AEEP) [33],
- China’s Massive Belt and Road Initiative [34],
- Initiative for the Integration of Regional Infrastructure in South America [35],
- Regional Integration and Economic Development In South Asia [36] etc.

In addition, a Global Infrastructure Hub (GI Hub) has been established to promote enhanced access to global infrastructure, working with governments around the world and multilateral financial institutions to coordinate the quality of infrastructure projects throughout their lifecycle. Already 130 banks have adopted business strategies that align with the United Nations Sustainable Development Goals (SDGs) and impact on global infrastructure. This approach makes it possible to create conditions that will contribute to infrastructure investment and reduce environmental impact. According to the GRI Glossary, infrastructure is interpreted as facilities primarily designed for the provision of public services or goods, from which organizations do not seek direct economic benefits (roads, schools, hospitals, water supply).

Although infrastructure is crucial for sustainable development, in terms of investment needs of the market, both developed and developing countries are experiencing a lack of adequate financing, which is hampering development in social, economic and environmental terms. It is worth noting that in 2017, institutional

investors' private savings reached 80 trillion U.S. dollars in managed assets [37], while 90 percent of institutional investors intend to increase their assets in the infrastructure sector [38].

As of January 25, 2019, the external debt of Ukraine amounted to 78 323 million U.S. dollars and it is 63% of GDP [39]. Governments raise debt capital to stimulate economic growth.

The Eastern Partnership (EaP) Joint Political Initiative, as a platform for cooperation between the EU and Ukraine, aims to deepen and strengthen relations between European Union and post-Soviet countries (Armenia, Azerbaijan, Belarus, Georgia, Moldova).

Within the framework of the EaP GREEN program on greening the economy in the EU's Eastern Partnership countries, the Ukrainian government creates an integrated policy framework for the transition to a green economy by: reforming policy instruments, adopting new analytical instruments, improving access to finance, supporting capacity development and piloting into infrastructure [40].

The 20 Priorities for 2020 are the priorities to support development that balances and integrates economic, social and environmental dimensions of sustainability.

The Hamburg Climate and Energy Action Plan for Growth underlines the importance of the framework to encourage the necessary additional investment in technological innovation in energy efficiency as an engine of economic growth and recognizes the G20's energy efficiency [41]. Investment Toolkit - A set of voluntary options for participating countries to increase energy efficiency in the G20 economies as an integrated approach to enhancing capital flows towards energy efficiency.

The structural changes that are taking place in the Ukrainian economy necessitate the resolution of fundamental structural problems that have arisen as a result of the financial and economic crisis and the need to mobilize resources for the modernization of transport, municipal and energy infrastructure.

An important role in the economic development of Ukraine is played by the implementation of joint projects with international financial institutions (IFIs). In 2019, the Cabinet of Ministers of Ukraine adopted the Concept of Improving the Effectiveness of Implementation of Joint Projects with the IFIs [42], which provides for a change in approaches to the selection of project compliance with the existing priorities of Ukraine, including:

- development of instruments for minimizing currency risks,
- creating a platform for information exchange and a multi-level project monitoring system,
- regular reviews of the loan portfolio and
- creating an open register of IFI projects.

Although the issue of Ukraine's co-operation with IFIs is a matter of ongoing consideration, a comprehensive analysis of project implementation and the level of sampling of IFI projects in Ukraine is uneven. Thus, in 2019, the sample rate of funds for the World Bank Group (International Bank for Reconstruction and Development, International Development Association, International Finance Corporation, Multilateral Investment Guarantee Agency, International Center for Investment Disputes Settlement) is only 27.02%, European Bank for Reconstruction and Development - 48,22%, European Investment Bank - 15,6% and German State Development Bank (KfW) - 4,9%. In general, problems arise at every stage of project preparation and implementation and require a systematic solution. An example of an unfavorable situation in 2018 is the implementation of energy infrastructure projects according to the loans granted under the state guarantees from IFIs:

- project of the International Bank for Reconstruction and Development "Improving energy efficiency in the district heating sector of Ukraine" - 272 million U.S. dollars, since 2014 - sampling of 9.15%;

- European Investment Bank project "Municipal Infrastructure Development Program of Ukraine" - 400 million Euros, since 2015 - 1.8% sample;

- project of the International Bank for Reconstruction and Development “Transmission of Electricity-2” with the assistance of the Clean Technologies Fund - loan amount of 48.5 million U.S. dollars, since 2014 - sample 0.

In addition, Ukraine has selected 200 million Euros of the Eastern European Partnership for Energy Efficiency and Environment (E5R) grant (district heating, solid waste disposal, street consecration, local transport and thermal insulation of public buildings) created for incentives. which should result in a significant reduction in electricity consumption, a reduction of carbon dioxide (CO2) and other greenhouse gases over 10 years is only 12%.

A significant challenge for the implementation and financing of IFIs in Ukraine is the complexity of assessing the real impact of international donor programs and projects on socio-economic transformation. This is due to the fact that the measures envisaged by the Framework Program of Partnership of the Government of Ukraine, the International Bank for Reconstruction and Development, the International Finance Corporation, the Multilateral Investment Guarantee Agency for the period 2017-2021, including:

- developing a national infrastructure strategy;
- evaluation and selection of priority innovation projects;
- creation of a single Internet database of investment projects;
- engagement planning, effective use and investment monitoring [42].

Managing such a complex adaptive system on the path to sustainable development requires the implementation of a state policy for managing and

coordinating interaction in innovative networks, adapting to new knowledge through immanent uncertainty, which generates positive feedback effects.

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ORGANIZATIONAL AND INFORMATIONAL SUPPORT FOR THE INTELLECTUAL CAPITAL MANAGEMENT MECHANISM OF MACHINE-BUILDING ENTERPRISES

Zinaida Zhyvko[1], Iryna Hetman[2], Marina Derzhevetska[3], Liliia Kukharska[4]

[1]Doctor of Science (Economics), Professor, Professor of the Management Department, Lviv State University of Internal Affairs, Lviv, Ukraine, e-mail: professor2007@ukr.net, ORCID: http://orcid.org/0000-0002-4045-669X

[2]Ph.D. (Technical Sciences), Associate Professor Associate Professor of Computer Information Technology, Donbass State Machine-Building Academy, e-mail: getman_irina@ukr.net , ORCID: http://orcid.org/0000-0003-1835-4256

[3]Ph.D. (Economics), Lecturer of the Department of Medical Physics and Information Technologies, Donetsk National Medical University, e-mail: marina_d.a@ukr.net, ORCID: https://orcid.org/0000-0002-9952-4992

[4]Teacher of Foreign Languages and Military Translation Department, Hetman Petro Sahaidachny National Army Academy; postgraduate of the Management Department, Lviv State University of Internal Affairs, Lviv, Ukraine, e-mail: liliia_kukharska@ukr.net; ORCID: http://orcid.org/0000-0002-8957-6983

Intellectual capital has recently become a center for discussion among a large number of theorists and practitioners. However, despite the variety of definitions, there is no unambiguous interpretation of this term today.

Consideration of the evolution of the term "intellectual capital" should begin with the study of the concepts of classical economic theory, which should include the labor theory of value, based on the works of A. Smith, D. Ricardo and C. Marx; theory of factors of production by J. S. Mil and the theory of ultimate utility by A. Marshall.

K. Marx introduced the notion of the measure of value objectively inherent in each object, defining it as "the amount of abstract labor spent on its production", singled out the real (as opposed to illusory) capital of the enterprise and proposed a profitable approach to the determination of its value [1, p . 748].

J.St. Mill suggested to take into account not one factor when estimating the value of an object, but all of them [2, p. 478].

A. Marshall [3] can be called the founder of the microeconomic approach on which the applied methods of economic analysis and estimation of a single enterprise available today are based.

With the development of intellectualization and informatization of the economic sphere of society's activity, there appeared a necessity to review both theoretical bases of economic theory and applied methods. The dissemination of the role of information became an important production resource. The concept of informatization of society emerged.

Considering the questions of informatization, H. Kibiridge singled out the following tendencies [4, p. 8]:

- increasing share of information sector production in GDP volume;

- spread of interdisciplinary scientific base of research in science: at least twenty fields of knowledge and scientific disciplines are interconnected with information science (cybernetics, psychology, informatics, linguistics, etc.);

- implementation of manual methods of information processing automatic, the use of paperless technology;

- perturbations in the structure of the information market, complications of supply and demand with the emergence of new technological opportunities;

- transformation of the structure of material information carriers: step-by-step replacement of printed materials with electronic carriers - magnetic tapes, disks, memory cards, distribution of electronic mail.

- increasing the number of people employed in the information business;

- increased international exchange of information, increased competition in domestic and international information markets;

- development and improvement of access to information, improvement of computer literacy of the population, increasing the speed of computer systems.

The category "informatization" is closely connected with concept of "intellectualization" as a process of increasing the role of knowledge (intellect) in modern human activity (including commercial).

As F.Mahloop wrote, "from the point of view of lexicology, the distinction between knowledge and information is laid down mainly in the verb form: to inform means to transmit knowledge; to know can be the result of information. Information as an act of informing is carried out for the purpose of investing knowledge in the mind of another. Information in the meaning of "what is transmitted" becomes equal to knowledge in the meaning of "what is identified" [5, p. 44].

The manifestation of informatization and intellectualization in all spheres of public life led to the emergence of a new concept of post-industrial society, in which, according to D. Bell, the main role is given to theoretical knowledge [6, p. 288].

The manifestation of informatization and intellectualization in all spheres of public life led to the emergence of a new concept of post-industrial society, in which, according to D. Bell, the main role is given to theoretical knowledge [6, p. 288].

V.L. Inozemtsev singled out the following directions of opposition of postindustrial and industrial society:

- the main production resource, nowadays it is information, but as in a pre-industrial and industrial society - these were raw materials and energy;

he nature of production activity is characterized as processing as opposed to mining and manufacturing;

- technologies, knowledge-intensive products, while the first two stages are labor-intensive and capital-intensive [7, pp. 71-78].

R.P. Bulyga noted that "despite the specified specific features, information and knowledge, as well as other factors of production, have a long-term character. They can be used in production for a long period of time, taking part in more than one production cycle. The use of information and knowledge provides an increase in value, characterizes it as a factor of production, which contributes to the process of creating an additional product along with other ("classical") factors of production. Thus, information and knowledge within a particular enterprise takes a "capital" form, the form of "intellectual capital" [8, pp. 38-39].

The concept of "intellectual capital" was based on the definition of "human capital", which was first used in 1961 by T.V. Shultz and was further developed in the works of S. Becker. Later these scientists became Nobel Prize winners.

M.A. Eskindarov explained intellectual capital as a system of characteristics that determine a person's ability, i.e. the quality of the labor force of an individual, an employee of an enterprise, firm, corporation, and a country that materializes or manifests itself in the labor process. As a result, a product, service, or additional product is created to reproduce them on the basis of the personalized economic interest of each subject [9].

A.M. Kozyrev argued that these are, first of all, people and knowledge that they possess and then their skills, connections, i.e. everything that helps to use knowledge and skills effectively [10].

T.V. Chechelova revealed this concept as "a set of knowledge, skills, abilities of a person, his mobility (the ability to perceive new information, training, retraining, adaptation to new conditions) and creativity (the ability to think creatively and form ideas), which provide an opportunity to create an additional product in the process of intellectual capital movement "[11, pp. 112-113]. A.V. Kendyukhov believes that today "the contours of intellectual capital as an economic category have already been defined, but the reference to intellectual capital only narrows down the concept significantly, leaving outside of it such objects as company clients, trademarks, loyalty, management structure, corporate culture, which a number of researchers also refers to intellectual capital "[12, pp. 33-34]. The author has formulated his own definition of intellectual capital as "an objective economic category: intellectual capital - it is capable of creating new value enterprise intellectual resources, represented by human and machine intelligence, as well as intellectual products produced independently or attracted from other sources (bought, rented), as a means of creating new value "[12, p. 37].

A.V. Kendiukhov's definition of intellectual capital contains a number of principal footnotes, which condition the study of it as a "generalizing economic category: intellectual capital is a union of human, machine intelligence and intellectual product; intellectual capital as an economic category includes only those

intellectual resources of the enterprise, relating to the creation of new value or are able to carry additional profits. When individual patents or design rights are not suitable for creating new value and do not carry market value, they should not be identified with intellectual capital; intellectual capital is a means of creating new value, fundamentally distinguishes it from intellectual potential and is its basic function "[12, p. 38].

Thus, on the basis of the analysis of scientific sources concerning the interpretation of the concept of "intellectual capital", the researcher (A. Kendukhov) has identified three approaches: the interpretation of intellectual capital from the position of aggregate values, i.e. its consideration as an asset, has the ability to generate income (V. Sadovsky, E. Stetsenko, B.B. Leontiev, V.L. Inozemtsev, L. Melnik) as a process, i.e. its ability to reproduce, in the possibility of attracting intellectual capital to the process of circularity, at which its production consumption is carried out.

According to the definition of A.V. Kornukh, the intellectual capital of the enterprise is a category of creative process and "characterizes the economic relations arising from the formation, use and reproduction of intellectual resources and intellectual products in order to obtain additional income in the economic development of the enterprise" [13].

V.A. Kuzminsky considers intellectual capital as an economic category "system of relations of economic subjects on rational, sustainable its reproduction on the basis of progressive development of science for the production of competitive goods and services, improvement of living standards, solving the problems of inequality of world and regional development on the basis of personalized economic interests of subjects"[14, p. 131].

A comprehensive and profound analysis of the concept of intellectual capital was provided by Y.G. Levchenko. He proposed three approaches to defining intellectual capital: general, theoretical and practical. According to the general and theoretical definition, Yu.G. Levchenko defined intellectual capital as the totality of knowledge in the form of theory, creative results, skills and competences of enterprise employees, while by the practical approach intellectual capital is characterized by knowledge, information, experience, organizational capabilities, information channels that can be used to create wealth [15].

Ya. Fitseps notes that intellectual capital is the "intellectual property" of an enterprise and creates a chain of processes interconnected with a network of different types of relationships and human capital [16, p. 23]. On the other hand, it makes the firm's ability to profit from its own intellectual capital. This definition characterizes intellectual capital as the connection between employees, their environment and the structure in which they work.

Thus, more than a hundred definitions of the concept of intellectual capital are known and are the result of the developments of many scientists, institutions and companies. This list could be continued and continued.

Consequently, one can define intellectual capital as the totality of human intellect, human capital and structural capital (capital-resource, capital-potential and capital-assets) (Fig. 1).

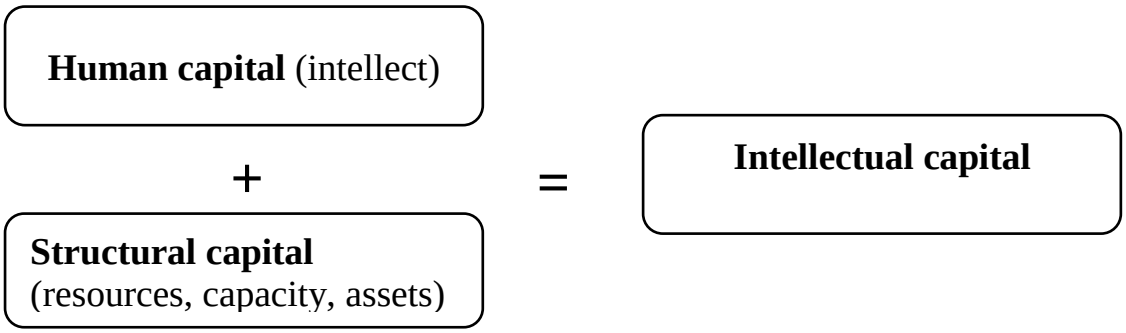

Fig. 1. Scheme of the intellectual capital project

The analysis of various scientific approaches to intellectual capital has led to the conclusion that virtually all definitions consider intellectual capital as the sum of the knowledge of the company's employees, which ensures its competitiveness. However, in our opinion, the important role and impact of information technologies are not taken into account.

In the transition to the information-network economy and knowledge society, the question arises about adding another key component in the definition of intellectual capital is not just capital as a resource, but an intellectual resource (Fig. 2). Under the intellectual resource we understand the digital industry, artificial intelligence, machine learning and more.

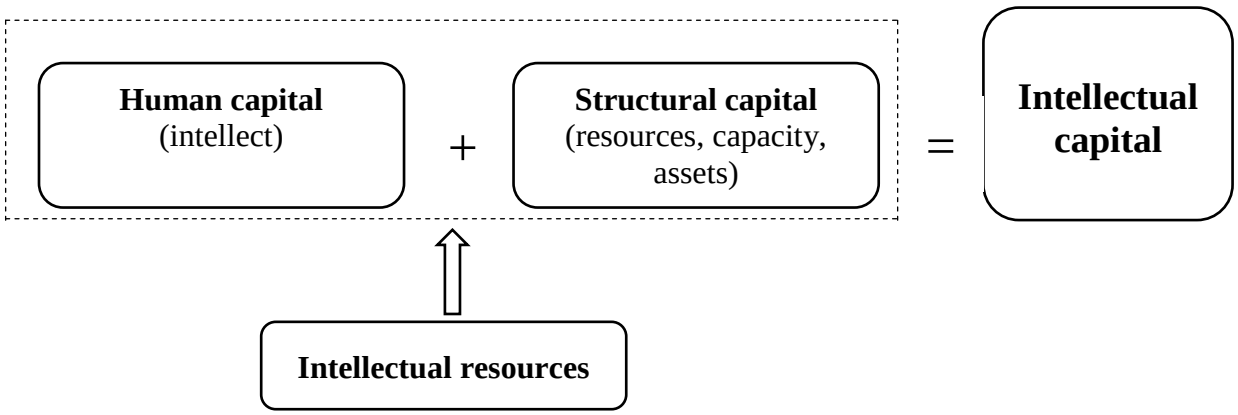

Fig. 2. Decomposition of the improved concept of intellectual capital of an industrial enterprise

Source: designed by the author

Therefore, it is possible to give a broader definition of the intellectual capital of an industrial enterprise, interpreting it as a set of intellectual potential of people and structural capital, which on the basis of methods of formation, effective management, use and reproduction of intellectual resources (intellectual property and digital industry) is aimed at achieving economic efficiency in order to enhance the competitiveness of the enterprise [17].

It should be noted that it is the quality and effective management of intellectual capital of a knowledge-intensive machine-building enterprise that determines the level of high-tech products, innovative activity, competitiveness and guarantees stability. Therefore, it is necessary to purposefully create, support and develop the mechanism of intellectual capital management at machine-building enterprises.

A.Yu. Shatrakov, M.Ya. Parfenova, and I.M. Voropanova form a logical mechanism of intellectual capital management by identifying asymmetric static and dynamic parts in intellectual capital [18].

The static part includes:

market assets (client base, brand, reputation of the firm);

human resources (knowledge, experience, qualification of personnel);

infrastructure assets (PR methods, information technologies);

organizational knowledge (technologies and methods of doing business, methods of communication with personnel and clients, corporate culture);

intellectual property (inventions, utility models, know-how, trademarks and service marks).

As for the dynamic part, it is implemented through the use of cognitive technology for decision-making, namely, on the basis of information technology, specifically focused on the development of human intellectual abilities.

It is in the proposed structure that the main mechanism of intellectual capital multifactoriality is realized [18].

Exactly such mechanism, with application of information technologies at formation and an estimation of the intellectual capital, considering a dynamic component on which stability and reliability at the enterprise of competitive manufacture in the conditions of economic risks depends, allows to deduce the enterprise on level of release of high technology and competitive production both in scales of the country, and in the world market.

V.Yu. Schkola and V.A. Scherbachenko propose a model of innovative national system, which shows the relationship between different levels of the economic system and the influence on them of intellectual capital management functions [19]. They propose the following levels:

the state level;

regional level;

enterprise level.

Depending on the tasks that put forward to ensure the functioning of intellectual capital at the state level, the tasks of the enterprise, regulation, control, motivation, planning and financing at all subsequent levels are formed. Thus, the state exercises legislative influence on regions, enterprises and institutions. Its main task in this direction is to create a business climate, condition the development of the private sector in the field of innovation and increase the competitiveness of products.

At the regional level, there is a distribution of government investment in research and development and the provision of subsidies or incentives to enterprises for investment in innovation activities.

Enterprises, in their turn, motivate their employees to creative work; management and control are carried out in accordance with the general innovation strategy of the enterprise. The productive activity of the enterprise in this area has a positive impact on the economic performance of the country and determines its place in international relations.

Such system will contribute to strengthening of the competitive position on the international markets, growth of the national wealth, increase of the attractiveness of the Ukrainian economy for foreign investors, and subsequently one can expect improvement of the quality of life and income of the population.

In order to effectively promote the processes of intellectual capital and the mechanism of its management in order to improve competitive advantages under conditions of innovative development, engineering enterprises should choose one of the main strategies of intellectual capital management.

These strategies are aimed at formation of values which are realized in products oriented to personnel and processes by means of reasonable use of knowledge at the enterprise (Tabl. 1) [20].

The first three strategies aimed at the effective formation and use of knowledge within one of the three types of intellectual capital (human, structural internal or structural external (relational), the next three determine the obtaining of positive results from the paired relationship of different types of intellectual capital, and the latter strategy is due to the simultaneous interaction of all three of its components.

As for private joint stock company (PJSC) "Novokramatorsk Machine-Building Plant", the last strategy has been successfully implemented. It is an informatized organization that is constantly learning, where a high degree of intellectual potential, personnel competence, creativity, self-improvement, professional growth has been achieved. The company has implemented its own system of professional development and certification of personnel, corporate science is developing. The program of technical and technological re-equipment is successfully implemented with the creation of exceptional opportunities and competitive advantages at the enterprise.

Table 1. Characteristics of intellectual capital management strategies

Type of intellectual capital management strategies	Kind of strategies
Human capital development strategy	Personnel development strategy
	Personnel approval strategy at the enterprise
Strategy for the development of structural internal capital	Strategy for dissemination of information systems and databases
	Strategy for forming a progressive organizational structure
	Intellectual property and intellectual assets management strategy
	Strategy of reproduction of corporate culture of innovative type
Strategy for the development of structural external (relational) capital	Strategy for developing the company's image in the market
	Trademark and brand management strategy
	Strategy for managing the interaction of individual elements of the external environment of the enterprise
Strategy of interaction of human and structural internal capitals	Strategy for the transformation of individual knowledge into collective knowledge (conversion of human capital into structural)
Strategy of interaction of human and structural external (relational) capital	Strategy of cooperation of employees with external clients
	Strategy of interaction of clients and suppliers with the enterprise
	Benchmarking implementation strategy
Strategy of interaction of structural internal and external (relational) capital	Strategy of transformation of information from the sphere of interaction with clients and suppliers of the enterprise into intracorporate systems, its fixing and use
Strategy of interaction of human, structural internal and external capitals	Strategy of development and interaction of all types of intellectual capital

At the same time, a flexible technological organizational structure has been formed at the plant, which promotes the efficient use of human capital, improves the ability of employees to be responsible for the results of work and interest in professional growth. The general strategic goal of this enterprise is consumer-oriented, aimed at the development of intellectual capital [21].

The analysis of the mechanisms proposed by scientists has shown that the main drawbacks of the existing mechanisms of intellectual capital management are that close attention was paid mainly to the essence and characteristics of intellectual capital itself, rather than modern ways of managing it, taking into account the widespread spread of informatization in enterprises.

The improved mechanism of management of intellectual capital of the machine-building enterprise (fig. 3) is based on the approach to perception of intellectual capital as integral value, which components are interconnected elements of intellectual capital, management of which requires an integrated approach.

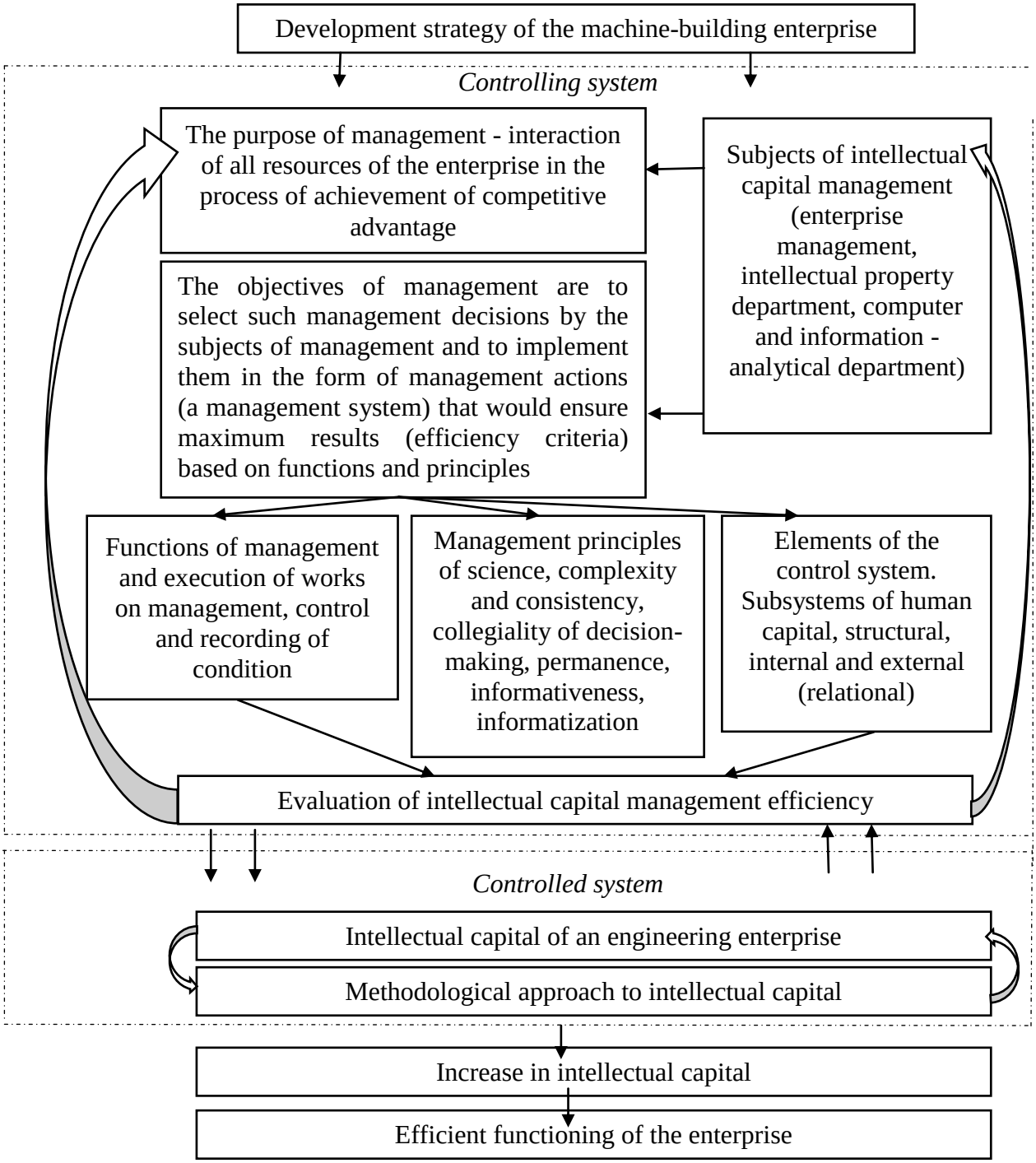

Fig. 3. Mechanism of intellectual capital management in machine-building enterprises

The management mechanism of an intellectual machine building enterprise is a system of elements of the management system (subjects of management; purposes, tasks, functions, principles and system of intellectual capital management, as well as criteria and methods of evaluation of management efficiency), which have an impact on the system under management, namely, components of intellectual capital as an object of management, allowing to obtain additional competitive advantages.

The subjects of management of intellectual capital of machine-building enterprises acts:

- enterprise management, corrects management processes aimed at adjustment and increase of intellectual capital of the enterprise;
- the intellectual property division department, which advises on the definition of industrial property rights and assists in the preparation of materials for the registration of industrial property rights (inventions, utility models, industrial designs, trademarks);
- computer and information-analytical departments, whose work is aimed at collecting and analyzing information, preparing reports, conducting monitoring in the field of production informatization.

Adjustment of the intellectual capital management mechanism is provided by the use of feedback in accordance with the results of intellectual capital management efficiency assessment and its components.

The mechanism of management of intellectual capital of machine-building enterprises should provide rational combination of corresponding principles of management which in turn should provide effective realization of management functions (planning and carrying out of works on management, the control and the account of a condition) and achievement of the set purposes.

The effectiveness evaluating criteria of intellectual capital management include tasks and stages of its management, namely, the level of enterprise resources: innovative activity, investment attractiveness, development of human and infrastructural resources (full use of information and computer technologies), customer satisfaction, business reputation, mobility.

The effectiveness of intellectual capital management in machine-building enterprises is determined by the quality of management of its creation, growth, transformation and realization in the process of innovation activities.

At the same time, the indicators of management effectiveness are:

– net profit received by the enterprise as a result of innovative activity and identifies the efficiency of intellectual capital for a certain period of time;
– the level of intellectual capital, which is received at the enterprise, determines its condition and potential possibilities in the process of innovative activity.

For the purpose of working out of organizational and information maintenance of the mechanism of management of intellectual capital of the machine-building enterprise we will consider the enterprise as information system with feedback.

Organizational and information support of the mechanism of intellectual capital management of machine-building enterprises defines a clear sequence of stages, namely: intellectual capital estimation (considered earlier), comparison of the

received values of intellectual capital with the -analysis and criterion of an ideal observer.

If the received estimation is less than the reference one, it is necessary to return to the stage of selection of qualitative and quantitative indices. Then the criteria of effective management should be selected.

After analysing the performance criteria, a strategic action plan is selected.

For better and more efficient intellectual capital management, it is proposed to identify the factors that are most important.

Depending on the category of enterprises, the indicators also change. By using correlation-regression analysis, systems of quantitative indicators are established.

In order to find the most significant independent variables and possible dependence between intellectual capital indicators, Pearson correlation coefficients were calculated for PJSC "Novokramatorsk Machine-Building Plant" (Tabl. 1.2). MS Excel was used for calculation.

From the obtained correlation matrix it is established that for PJSC "Novokramatorsk Machine-Building Plant" the most significant components of intellectual capital, which is higher than 0.5, are the number of employees with higher education, advanced training of managers, specialists and employees, investment in personnel development, investment in enterprise development.

Having found out the most significant factors, it is necessary to construct the regression equation which will help to make predictive values of intellectual capital in the future.

The multiple regression threshold in each group by means of ROC equation can be presented as follows:

$$Y = f(\beta, X) + \zeta \qquad (1)$$

where - $X = X(X_1, X_2, ..., X_m)$ *the vector of independent (explanatory) variables;* β *- parameter vector (to be determined);* ζ *- random error;* Y *- dependent (explainable) variable.*

Theoretical linear multiple regression equation has the form:

$$Y = \beta_0 + \beta_1 \cdot X_1 + \beta_2 \cdot X_2 + ... + \beta_m \cdot X_m + \zeta \qquad (2)$$

β_0 a free term that defines Y a value when all explanatory variables X_m are equal to 0.

The least squares method is used to determine the model coefficients. Thus, the equation will have the following form:

$$Y = 0{,}03766 + 1{,}1844 \cdot X_2 - 3{,}4133 \cdot X_5 + 1{,}8419 \cdot X_9 + 1{,}596 \cdot X_{18} \qquad (3)$$

where X_2 *- the number of employees with higher education;* X_5 *- advanced training for managers, specialists and employees;* X_9 *- investment in personnel development;* X_{18} *- investment in enterprise development.*

On the basis of the model built, a forecast is made and elasticity coefficients are calculated, which determine the impact of the selected factors on the intellectual capital of the enterprise.

The elasticity coefficient is calculated by the formula:

$$E_{y,x_j} = \frac{x_j}{y(x_1, x_2, \text{K } x_n)} \cdot \frac{\partial y}{\partial x_j} \qquad (4)$$

The elasticity coefficients show how intellectual capital will change if its component is increased by 1%.

The obtained values show that the intellectual capital will increase by 0.969% if the number of employees with higher education changes by 1%.

If the number of managers, specialists and employees with higher education increases by 1%, the intellectual capital level will decrease by 2.793%.

At increase of each following factors, the level of intellectual capital will increase by 1.747% and 0.998%, respectively (Fig. 4).

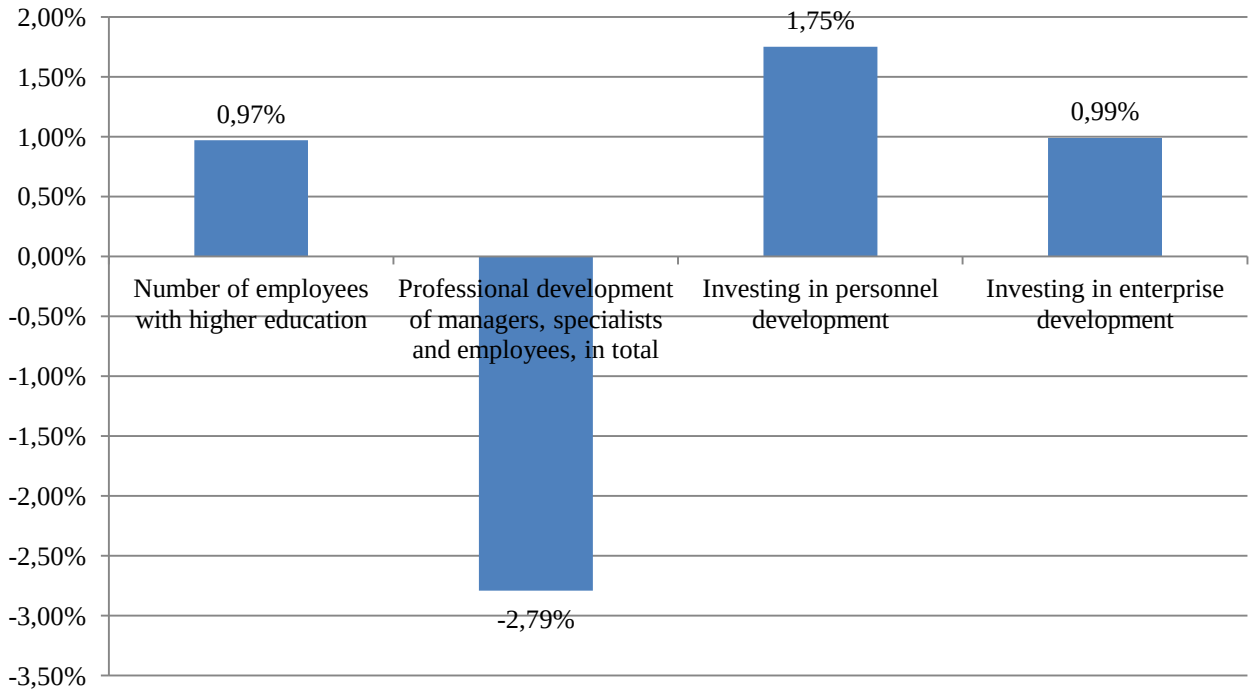

Fig. 4. Elasticity coefficients for PJSC "Novokramatorsk Machine Building Plant"

Table 2. Pearson correlation coefficient matrix for PJSC "Novokramatorsk Machine-Building Plant"

	Average number of employees	Number of employees with higher education	Professional development of workers, in total	Professional development of managers, specialists and employees, in total	Average annual salary, UAH thous	Investing in personnel development	Number of licenses	Number of patents	Number of personal computers per 100 employees	Investing UAH thous. in enterprise development	Intangible assets thousand hryvnia	Net income from sold products in UAH thous	Intellectual capital
Average number of employees	1												
Number of employees with higher education	0,0050	1											
Professional development of workers, in total	0,7561	0,1672	1										
Professional development of managers, specialists and employees, in total	0,1278	0,9343	0,2255	1									
Average annual salary, UAH thous	-0,9703	-0,0974	-0,8763	-0,2353	1								
Investing in personnel development	-0,4397	0,5999	-0,1442	0,7171	0,2789	1							
Number of licenses	0,9326	0,3034	0,7396	-0,1295	-0,9162	-0,4905	1						
Number of patents	0,1572	0,3344	-0,3979	0,2902	0,0201	-0,1433	-0,1068	1					
Number of personal computers per 100 employees	-0,9719	0,0787	-0,6062	-0,1932	0,9027	0,4307	-0,8506	-0,3833	1				
Investing UAH thous. in enterprise development	0,6947	0,6699	0,4628	0,7199	-0,6809	0,0550	0,4059	0,5763	-0,7846	1			
Intangible assets thousand hryvnia	0,9906	-0,1123	0,7187	0,0406	-0,9534	-0,4639	0,9666	0,1169	-0,9563	0,6145	1		
Net income from sold products in UAH thous	0,9290	0,2773	-0,7304	0,2184	0,8785	0,6979	-0,9412	0,0061	0,8614	-0,4267	-0,9369	1	
Intellectual capital	-0,1194	0,8773	-0,1417	0,9313	0,0627	0,7634	-0,3771	0,4731	-0,0085	0,5841	-0,1920	0,4669	1

The total elasticity is calculated by the formula:

$$B = \sum_{j=1}^{n} E_{y,x_j} \qquad (5)$$

Thus, by increasing by 1% each component on which intellectual capital depends, we will get B = 0.921.

For public company (PC) "Starokramatorsk Machine - Building Plant" the following correlation matrix was obtained (Tabl. 1.3).

The most significant indicators in this case are investment in staff development, the number of patents, investment in enterprise development and net income from sold products.

Using the method of least squares we will get the following intellectual capital equation for PC "Starokramatorsk Machine-Building Plant":

$$Y = 0{,}2102 + 0{,}4948 \cdot X_9 + 0{,}05631 \cdot X_{15} + 0{,}1092 \cdot X_{18} - 0{,}2298 \cdot X_{22} \qquad (6)$$

where X_9 *- investing in staff development;* X_{15}*- the number of patents;* X_{18} *- investment in enterprise development;* X_{22} *- net income from sold products.*

Having calculated the elasticity coefficients, we will get the following (Fig. 5).

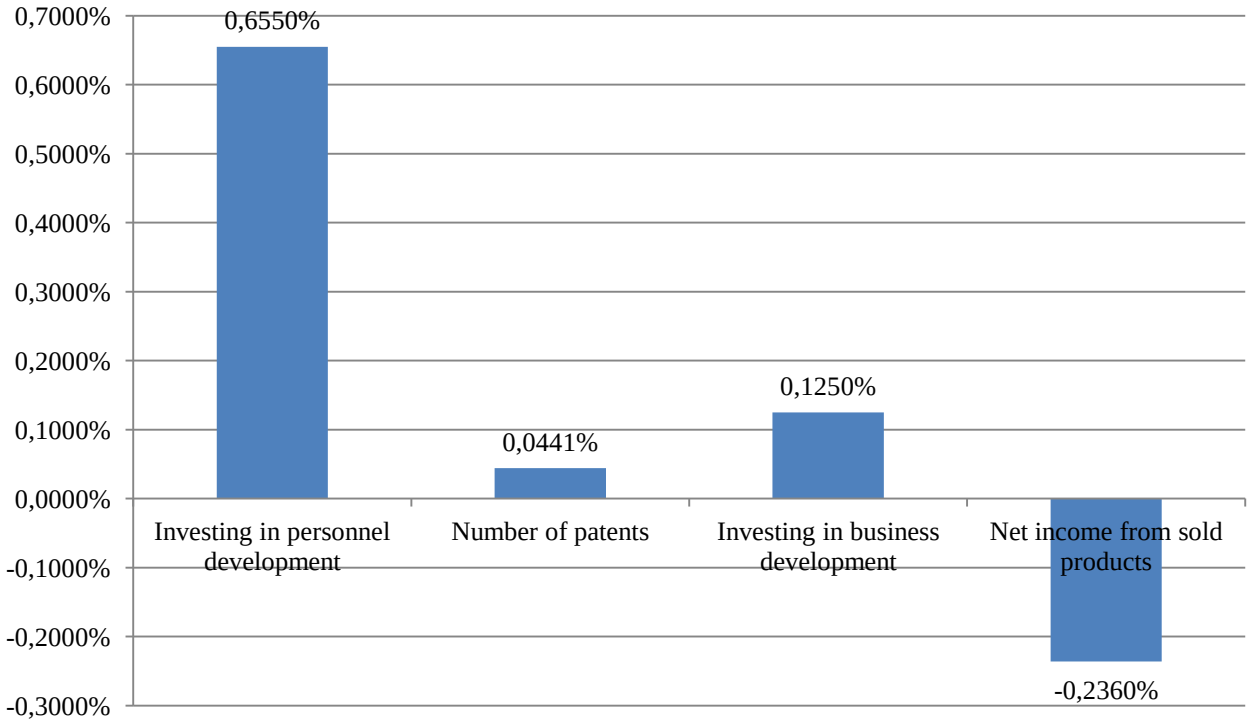

Fig. 5. Elasticity coefficients for PJSC "Institute of Ceramic Engineering" Kerammash "

Table 3. Matrix of Pearson's paired correlation coefficients for PC "Starokramatorsk Machine-Building Plant"

	Average number of employees	Number of employees with higher education	Professional development of workers, in total	Professional development of managers, specialists and employees, in total	Average annual salary, UAH thous	Investing in personnel development	Number of licenses	Number of patents	Number of personal computers per 100 employees	Investing UAH thous. in enterprise development	Intangible assets thousand hryvnia	Net income from sold products in UAH thous	Intellectual capital
Average number of employees	1												
Number of employees with higher education	0.9946	1											
Professional development of workers, in total	0.6917	0.6795	1										
Professional development of managers, specialists and employees, in total	0.4655	0.4142	0.8939	1									
Average annual salary, UAH thous	-0.5952	-0.5233	-0.6423	0.7347	1								
Investing in personnel development	0.5655	0.5892	0.4118	0.2611	0.1178	1							
Number of licenses	0.7968	0.7436	0.8553	0.8752	-0.8506	0.4074	1						
Number of patents	0.9699	0.9898	0.6679	0.3544	-0.4243	0.6082	0.6667	1					
Number of personal computers per 100 employees	-0.9983	-0.9923	-0.6681	-0.4486	0.5722	-0.5987	-0.7901	-0.9657	1				
Investing UAH thous. in enterprise development	0.4814	0.5289	0.1989	-0.0314	0.3405	0.9511	0.1591	0.5772	-0.5164	1			
Intangible assets thousand hryvnia	-0.1047	-0.1611	0.5143	0.7377	-0.6180	-0.4244	0.4303	-0.2152	0.1417	-0.6617	1		
Net income from sold products in UAH thous	0.3700	0.4063	-0.085	-0.1898	0.4077	0.8896	0.0455	0.4361	-0.4156	0.9611	-0.7748	1	
Intellectual capital	0.7036	0.7255	0.6303	0.4416	-0.0721	0.9638	0.5738	0.7445	-0.7236	0.8783	-0.2515	0.7560	1

Management of intellectual capital of a machine building enterprise is of strategic importance for today's knowledge economy. Effective and efficient intellectual capital management should stimulate creative and modern approaches to the solution of available problems, contribute to the increase of competitive advantages and development of the enterprise at the present time.

Table 4. Results of correlation-regression analysis for the machine-building industry

Name of the enterprise	Equation	Indicator	Influence on IR	Indicator	Influence on IR
PJSC «NMBP»	$Y = 0{,}03766 + 1{,}1844 \cdot X_2 - 3{,}4133 \cdot X_5 + + 1{,}8419 \cdot X_9 + 1{,}596 \cdot X_{18}$	X2	↑ 0,969%	X9	↑ 1,747 %
		X5	↓ 2,793 %	X18	↑ 0,998%
PC «SMBP»	$Y = 0{,}2102 + 0{,}4948 \cdot X_9 + 0{,}05631 \cdot X_{15} + + 0{,}1092 \cdot X_{18} - 0{,}2298 \cdot X_{22}$	X9	↑ 0,655%	X18	↑ 0,125%
		X15	↑ 0,0441%	X22	↓ 0,236%
PJSC «Kerammash Institute»	$Y = 0{,}2156 - 0{,}1561 \cdot X_5 + 1{,}2686 \cdot X_9 + + 0{,}9206 \cdot X_{18} - 1{,}4084 \cdot X_{22}$	X5	↓ 0,142%	X18	↑ 0,98%
		X9	↑ 1,141%	X22	↓ 1,449%

In the mechanisms of management of intellectual capital of machine-building enterprises offered by scientists the great emphasis is made on the essence and characteristics of the intellectual capital itself, but does not go about modern ways of management of it taking into account a wide circulation of informatization at the enterprises.

The improved mechanism of management of intellectual capital of the machine-building enterprise causes perception of intellectual capital as integral value, which components are interconnected elements of intellectual capital, management of which requires a complex approach. It includes the subjects of management, goals and objectives, functions, principles and elements of the management system, approach to the evaluation of management efficiency, which contributes to the implementation of measures to improve the level of intellectual capital and, on this basis, the effectiveness of the entire machine-building enterprise.

Improvement of organizational and information support of the mechanism of intellectual capital management of machine-building enterprises explains the connection between intellectual capital management and its evaluation, is characterized by a clear sequence of management stages. The most influential indicators on the intellectual capital of the considered machine-building enterprises were found out. Elasticity coefficients were obtained, which determine the influence of the selected factors on the intellectual capital of the enterprise.

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THE GREENING FOR MANAGEMENT SECURITY OF AGRIBUSINESS CORPORATION

Oleksandra Liashenko[1], Ruslan Markov[2]

[1]Doctor of Science (Economics), Professor, KROK University, Kyiv, Ukraine, e-mail: lom@krok.edu.ua, ORCID: https://orcid.org/0000-0001-7114-4501

[2]Ph.D. (economics), doctoral student, KROK University, Kyiv, Ukraine, e-mail.: markov_r@ukr.net, ORCID: https://orcid.org/0000-0002-8150-8249

Food systems around the world are changing. Urbanization and income growth are changing food demand, visible in increased demand for vegetables, fruits, meats, and dairy products, as well as for processed foods. As the production of all these food items is more resource-intensive, the change in dietary preferences is increasing pressures on already scarce and depleted natural resources. Urbanization also requires food to be easily stored and transported. Thus, large-scale distribution and food processing have become increasingly important as drivers of the transformation of food systems. This transformation has brought about many improvements in food safety and food availability, but it has also resulted in the standardization of agricultural output and, in many cases, the concentration of primary production and the consolidation of farmland. Many smallholder farmers have become landless agricultural workers or have migrated to towns and cities in search of employment, thus accelerating urbanization further.

In many countries, there is a new powerful threat - agro-terrorism, which causes large-scale disruptions due to loss of livelihood, income, and production. Agribusiness protection can also be problematic due to the lack of stability and basic biosecurity infrastructure for the detection and prevention of diseases or invasive species. There is currently evidence of common terrorist threats, agricultural vulnerabilities and, depending on the country, the potentially serious consequences of slang terrorism. Where specific threats arise, the international community may need to strengthen biosecurity systems in developing countries by, for example, increasing global cooperation.

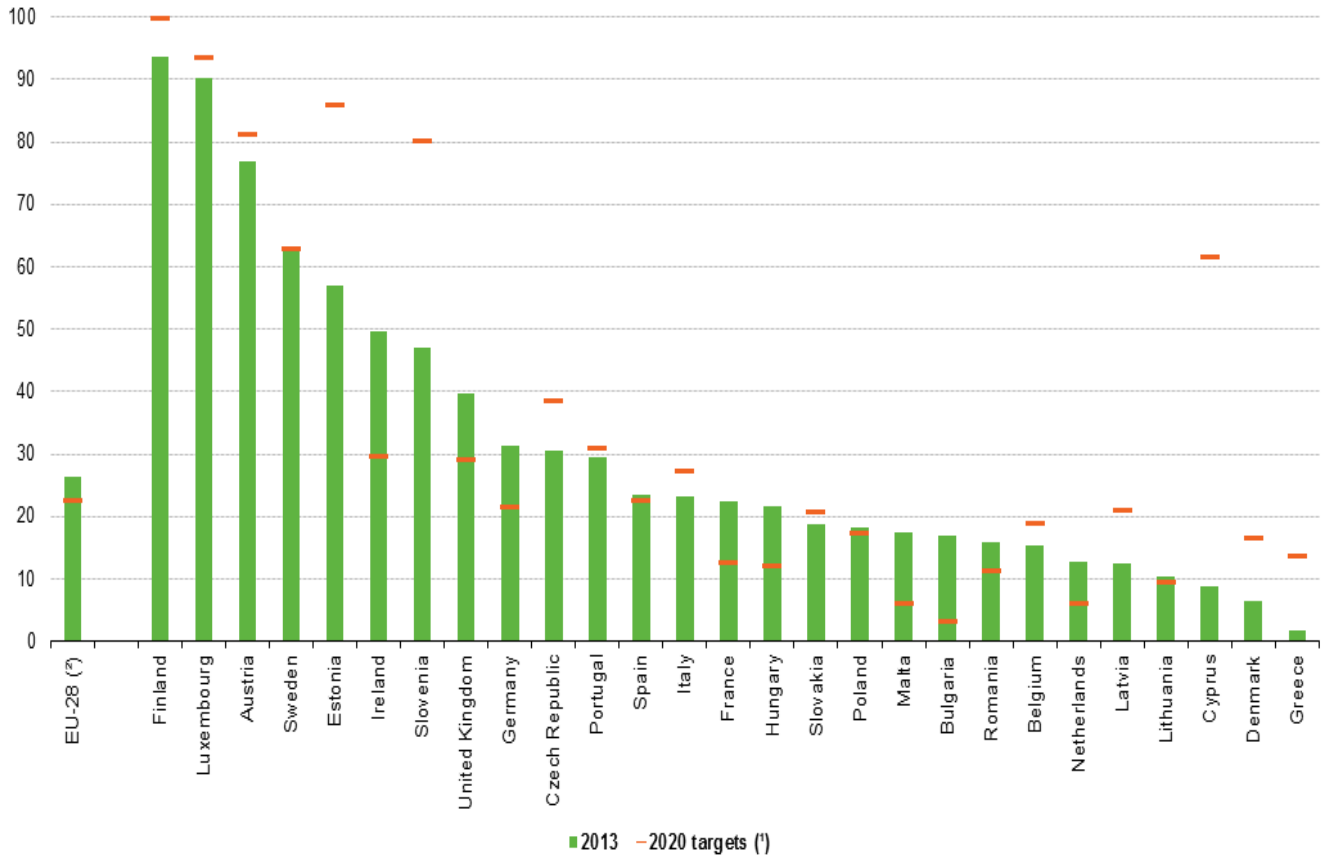
Nowadays there are many factors that determine the special attitude to agribusiness around the world and in Ukraine: global climate change, abrupt geo-economic change, disasters, and eventually pandemics like Covid-19.

Agribusiness around the world has suffered from the COVID-19 pandemic, albeit less than other businesses, but at the same time intoxicating the pandemic can bring significant economic dividends, quickly create and protect millions of jobs for vulnerable populations and provide rapid and lasting health benefits. I and the environment for citizens, while contributing to economic and security of agribusiness. However, a tool for such acceleration is needed. It can be greening.

The global content of greening as a security activity is to eliminate the contradictions between environmental and economic systems to combat environmental threats and ensure economic security.

World has changed during the past 50 years, so has agriculture. And so has agricultural research, which continues to confront new challenges, from food security

to ecological concerns to land use issues. For example, agricultural land under agri-environmental measures as a share of the country's UAA (Fig. 1).



(¹) Targets for 2020 in percentage is based on Eurostat estimates of utilised agricultural area in 2020.
(²) EU-28 excluding Croatia for 2013.
Sources: DG Agriculture and Rural Development (RDIS2 12 June 2017); Eurostat for utilised agricultural area (online data code: apro_acs_a)
Rural Development Information System - Indicator Database Information Monitoring (RDIS IDIM)
European Network for Rural Development (ENRD) website: http://enrd.ec.europa.eu/en/home-page_en.cfm

Fig. 1. Agricultural land under agri-environmental measures as a share of the country's UAA, 2013 and targets for 2020 (%).png

Source: [1]

At the same time, when we talk about Ukraine, the pressure of mineral fertilizers on arable land has only increased, although the area under this "pressure" has hardly increased (Table 1).

Food chains are also becoming longer – with a greater ecological footprint – and there are increasing concerns over the quality of ultra-processed food and its association with overweight and obesity. These changes are taking place in different ways and at different speeds across regions and countries. Common features, however, include a shrinking share of agricultural production and employment in the economy, changing food consumption patterns, and a shift from subsistence to more commercial farming.

Table 1. Adding mineral and organic fertilizers in Ukraine

1990	1996	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
The arable land in the country, mln.ha																					
42,0	41,8	41,8	41,8	41,8	41,8	41,8	41,8	41,7	41,7	41,7	41,6	41,6	41,6	41,6	41,5	41,5	41,5	41,5	41,5	41,5	41,5
Areas treated with mineral fertilizers, mln.ha																					
26,4	8,2	4,7	6,4	6,3	5,8	7,9	7,8	9,6	11,0	12,9	11,5	12,7	14,2	14,6	15,4	14,8	14,5	15,7	16,5	16,1	16,4
The proportion of the area treated with chemical fertilizers, the total area of agricultural land, %																					
62,9	19,6	11,2	15,3	15,1	13,9	18,9	18,7	23,0	26,4	30,9	27,6	30,5	34,1	35,1	37,1	35,7	34,9	37,8	39,8	38,8	39,5
Adding organic fertilizer, 1,000 tons																					
260726,8	81264,2	28964,1	27084,7	23104,2	17773,6	15288,1	13387,3	13167,2	12045,3	10579,1	10513,1	9963,6	9954,2	9685,2	9652,9	9898,4	9662,7	9162,9	9273,9	11648,9	11382,5
Adding of organic fertilizers per 1 area of agricultural land, kg / ha																					
6207,8	1944,1	692,9	648,0	552,7	425,2	365,7	320,3	315,8	288,9	253,7	252,7	239,5	239,3	232,8	232,6	238,5	232,8	220,8	223,5	280,7	274,3
Areas treated with organic fertilizers, million hectares																					
5,5	1,9	0,7	0,7	0,7	0,6	0,5	0,5	0,5	0,5	0,5	0,5	0,4	0,4	0,4	0,4	0,4	0,4	0,5	0,5	0,8	0,8
The proportion of the area treated with organic fertilizers, the total area of agricultural land%																					
13,1	4,5	1,7	1,7	1,7	1,4	1,2	1,2	1,2	1,2	1,2	1,2	1,0	1,0	1,0	1,0	1,0	1,0	1,2	1,2	1,9	1,9

Sourse: developed by authors according of the State Statistics Service of Ukraine, http://www.ukrstat.gov.ua

This is changing the way rural and urban development, poverty, and hunger challenges need to be addressed. The structural transformation of economies, and the food systems within them, can provide an effective way out of poverty and hunger for many. However, this process is not automatic. It tends to be more effective when based on the development of strong linkages between agricultural and non-agricultural sectors and between urban and rural areas. Natural resource constraints and climate change also require the changes to be resource-efficient and environmentally sustainable.

As the COVID-19 pandemic has unfolded, concerns over ensuring food security have been voiced in many countries around the world. While the crisis has immediate effects on food and agricultural supply chains, the negative impact of the COVID-19 pandemic is not limited to short-term disruptions in supply and demand. Considering that the food and agricultural sector accounts for ten percent of global GDP and employs an estimated 1.5 billion people worldwide, the outbreak of COVID-19 will likely have far- reaching and noticeable social and economic consequences for the sector. Investing as part of COVID-19 recovery packages can help national governments create much needed economic security and jobs today, whilst making rapid strides towards a resilient and inclusive future.

From the first half of the twentieth century due to the aggravation of environmental problems, there is an integration of ecology and economy. There are various approaches and grounds for such integration, including neoclassical and ecological reductionism.

"Greening" of the economy occurs within the methods and approaches of environmental and environmental economies. The summit in Rio de Janeiro in 1992 proposed a concept of sustainable development, which combined the interests of environmental protection and economic development. In the context of these events, the environmental economy emerged, which created a new methodological platform for scientists specializing in various fields, which includes representatives of schools of environmental and environmental economics, whose theoretical foundations and practical approaches need further development.

Thus, the environmental economy is:

- a branch of neoclassical economics that studies such environmental problems, such as pollution, negative externalities (externalities) and assessment of non-market values of the environment;
- a concept that seeks to find the cause of environmental problems and propose a policy of preventing them from an economic point of view.
- associated with the efficient allocation of environmental resources and determines the interdependence of the environment and the economy.

Basic methodological approaches used in the research of environmental economists: stability, the value of natural resources, interdisciplinary.

Basic approaches to "environmental economics":

1. Environmental problems, including environmental, are considered as part of the problems of the economic system.

2. Natural capital may be replaced by human capital and / or man-made capital.

3. Lack of resources can be overcome by additional costs in the economy.

4. Pollution is considered as market externalities, respectively, related problems are solved using market mechanisms.

5. Technology is seen as a way to solve problems

environment and a mechanism to increase the efficiency of the economy.

6. The degree of human impact on the environment depends on the use of innovation, resource efficiency, human capital, technological level of economic development.

The conceptual framework is inspired by an ecosystem approach. While the level of detail of properties and relevant indicators, the communication ability, and the way in which the framework is applied can be criticized and re-adjusted, we believe that this framework can support proactive assessments of food systems under an ecosystem approach perspective [2-12].

The term "greening" is used to denote activities which improves the protection, use and reproduction of resources, is:

- greening of science;
- greening of education;
- greening of public;
- relations;
- greening of nature;
- greening of production;
- industry;
- economic activity;
- economic systems, economy;
- social development;
- social development etc.

Rapid population growth and aggregate demand an appropriate level of economic and social development, which, in turn, leads to an increase in the level of destructive impact on the ecological system.

Greening is a socio-economic concept. Greening is also a relationship that arises between different entities at the international, state and local levels and are an integral part of international, economic and socio-political relations, etc.

Greening can be considered as an activity, primarily practical, aimed at transforming social development into an environmentally safe form, or cognitive activity, which is represented by a number of discoveries and developments in this area. Greening in certain aspects manifests itself as a tool or method, including policy - economic, environmental, state, and so on.

The multi-functionality of the concept of greening is structured by levels:

- global;
- national;
- regional;
- local;
- personal.

Greening manifests itself at different levels, as it is provided by different actors and on different scales.

Greening in the system of economic security is the basis for understanding its role in the security of agribusiness as in broad and narrow sense.

One of the main types of greening is "greening of science and education", which is interpreted as the process of mastering new ideas in economic, environmental, social and spiritual spheres, used in the learning process to train highly educated professionals who will have to resist environmental threats at the global, national, regional, and local levels in all spheres of public activity [14].

The greening of science makes it possible to ensure the formation of a theoretical basis for the penetration of relevant ideas into the education system. The purpose of this process is to overcome environmental threats to the economic security of the state. We believe that the greening of science is the first link in the greening of social development.

Another type of greening is the greening of nature - is the improvement of economic relations in the process of interaction of production with the environment, which are aimed at increasing the level environmental effect per unit of consumer value produced and make it possible to overcome global, national, regional, and local threats. Reducing the nature of products in the long run will overcome both global and local threats to economic security.

There is a concept of greening of production: generation of new scientific ideas and information materials, creation of technical means and technological decisions promoting development of ecologically safe systems.

Greening of production is an expanded reproduction of natural resources by improving technology, organizing material production, increasing labor efficiency in the environmental sphere.

There is also a phrase "greening of social development." Obviously, we need to talk about the greening of sustainable development.

Table 2. illustrates agro-ecosystems' functional and structural properties and lists some representative indicators that could guide the analysis of the different agriculture, forestry, and fisheries management options. Indicators included under each property are indicative of the type of information to be researched, but reporting is not exhaustive.

Table 2. Agro-ecosystems' functional and structural properties and indicators

Functional Properties		
Efficiency of resource use assessed under normal conditions in terms of:	*Resilience to environmental and macro-economic risk assessed under disturbed conditions in terms of:*	
Physical yield per unit of input (productivity)	Physical yield per unit of input (productivity)	
Commercial yield per unit of input	Commercial yield per unit of input	
Life quality of producers and consumers	Life quality of producers and consumers	
Structural Properties		
Connectedness Assessed in terms of:	*Coherence Assessed in terms of:*	*Diversity Assessed in terms of:*
Transboundary pollution and environmental connectedness	Ecological balance (water, soil, habitat, nutrient, energy)	Biodiversity
Financial and input dependency	Economic integration	Income diversification
Participation and social integration	Household labor	Knowledge

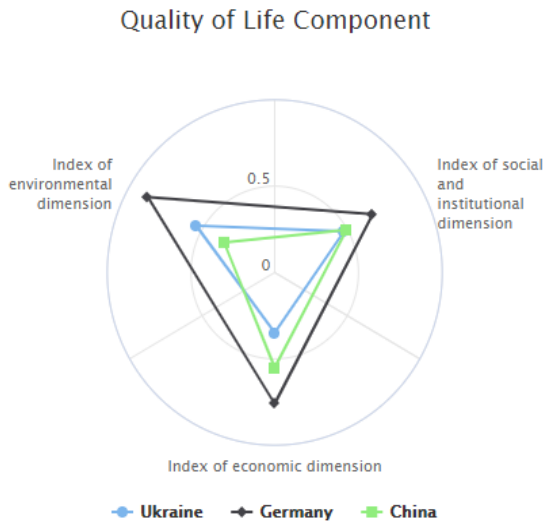
Source: [12]

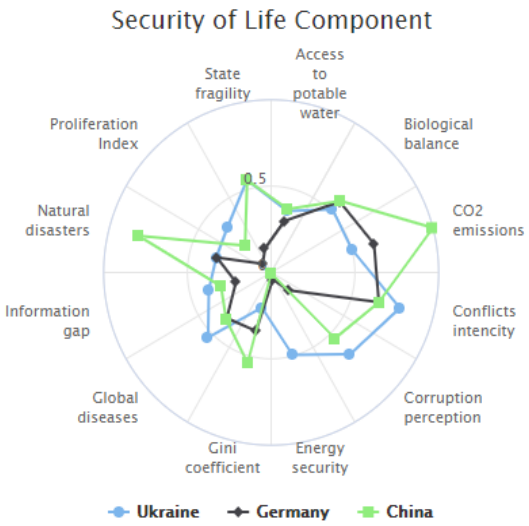
Transitioning to sustainable and resilient production methods Investing in food and agriculture systems is not enough. It will also be important to transition towards types of food production systems that will be less vulnerable to the risks outlined in the previous working paper, as well as more capable of effectively responding to the risks without loss of food security.

This means adopting farming, fishery and forestry systems that are more resilient to climate change and, in particular, extreme weather variability. It means managing land, water, biodiversity and ecosystems in ways that enhance their long-term productivity rather than depleting them – i.e. building natural capital instead of spending it. But it also means reducing the external polluting effects of agriculture, especially in the form of greenhouse gas emissions.

Fig. 2 shows comparison of sustainable development indicators and threats In Ukraine, Germany and China.

Higher values of Sustainable Development Index (Q), Components of Life Quality (Cql) and Security (Csl) and values of Dimensions of Life Quality Component (Ie, Iec, Is) comply with better country development performance. Higher values of threats' indicators (close to 1) and Vulnerability Index (Ivul) correspond to a greater threat manifestation.





WDC-Ukraine

Country	Rank Isd	Index of sustainable development	Rank Cql	Quality of Life Component	Index of economic dimension	Index of environmental dimension	Index of social and institutional dimension	Rank Csl	Security of Life Component
Germany	1	1.127	4	1.484	0.76	0.874	0.675	2	1.677
China	59	0.764	74	0.807	0.55	0.349	0.495	39	1.385
Ukraine	71	0.694	86	0.709	0.349	0.54	0.479	61	1.283

Fig. 2. Comparison of sustainable development indicators and threats in Ukraine, Germany and China

Source: developed by authors according of Recourse [13]

FAO has identified sustainable crop production intensification (SCPI) as one of its strategic objectives. Ecological intensification has been defined as producing more from the same area of land while reducing negative environmental impacts and increasing contributions to natural capital and the flow of environmental services. To achieve this, FAO has endorsed an "ecosystem approach", which means using inputs such as land, water, seed and fertilizer to complement the natural processes that support plant and animal growth. A range of farming practices and technologies, often location specific, have been developed, drawing on five broad types of practices (FAO, 2011c).

Soil fertility. Building soils with a high content of non-living soil organic matter, a rich diversity of its biota, good physical structure and adequate crop nutrients through a combination of organic nutrient inputs and judicious use of mineral fertilizers.

Farming systems. Implementing agro-ecological approaches that minimize soil disturbance by mechanical tillage, enhance and maintain organic matter cover, and diversify plant species in associations, sequences and rotations, and integrate them with livestock.

Seeds and breeds. Improving the conservation and use of genetic resources, and developing crops and varieties that are more resilient to climate extremes, pests and diseases, less dependent on external inputs and better adapted to ecologically based production practices. Utilizing publicly funded research, local seed and breed delivery systems and the private sector to disseminate new or improved varieties to farmers.

Water management. Increasing soil moisture conservation in rain fed systems by building soil health, expanding use of water harvesting and retention structures on farms, rehabilitating and constructing irrigation systems, and improving water use efficiency in irrigated systems (where the natural resource base is not already constrained).

Plant protection. Tackling pests through an ecosystem approach that relies as much as possible on natural predation, other natural control mechanisms, diversity and resistance, with judicious use of pesticides, i.e. integrated pest management.

Agro-ecological approaches can also be used to increase the resilience of livestock systems. Pastures occupy approximately 3.5 billion hectares or 69 percent of total agricultural land, and the sector accounts for 40 percent of agricultural GDP. Degraded grasslands can be restored through better management practices – such as use of rotational grazing, the reintegration of crop and livestock activities or agroforestry systems – while animal productivity can be increased through better genetics and the application of better animal health systems and procedures (FAO, 2009b; FAO, 2011c).

Other opportunities include the integration of aquaculture with irrigated agriculture. For example, the integrated fish and rice fields in Laos are responsible for about 50 percent of all fish consumed by rural households and, at the same time, provide benefits such as pest management, weed control, maintenance of biodiversity and reduction or elimination of chemical pollutants (FAO/LARReC, 2007).

Diversification will be a key feature of resilient and sustainable production systems. Biodiversity serves as insurance against environmental changes by increasing the system's adaptive capacity. Agro-ecosystems that produce a diverse range of food types in an integrated way will be more resilient to pests, diseases and climatic fluctuations (Lin 2011; Perrings, 2006).

Dietary diversity is also essential for food and nutrition security. Initiatives aimed solely at increasing production and increasing energy intake will not reduce malnutrition as effectively as those that also recognize the importance of dietary quality and diversity. Foods sourced from animals, including fish, and legumes, fruits and vegetables are all important components of a nutritious diet. Thus, the agricultural sector can contribute to nutrition security by investing in small livestock and poultry ventures, sustainable aquaculture and horticulture, alongside staple crops.

This will also help to diversify sources of income for farming households, another proven risk-reduction measure.

There are many synergies between the goals of environmental sustainability, food security and economic development – potentially "win-win-win" scenarios. For example, many options for agricultural mitigation of climate change, particularly those that involve soil carbon sequestration, also benefit adaptation, food security and development. Efforts to increase levels of soil organic matter translate into better plant nutrient content, increased water retention capacity and better structure, eventually leading to higher yields and greater resilience (FAO, 2009a).

Agriculture faces many challenges, not least coping with the rising demand for food, biofuel and other products by an increasing population combined with the demands for a more sustainable industry. Food security is key and requires the reconciliation of efficient production of food with reducing agriculture's environmental footprint.

So, the greening for management security of agribusiness corporation examines agriculture activities and their potential to impact both positively and negatively on the environment. The environmental management systems, environmental auditing, life cycle assessment and environmental impact assessment can be used for the greening for management security of agribusiness corporation.

Thorough reforms are needed to enable the effective greening of the greening for management security of agribusiness corporation:

Governance reforms that combine a national security and food security strategy are backed by sound plans to ensure the economic and social development of agribusiness in the context of global health and climate emergencies.

Fiscal reforms to make the private sector attractive for investment in green energy, low-carbon and sustainable infrastructure and services for agribusiness.

Financial reforms to provide sufficient income to invest in sustainable infrastructure, strengthen cooperation with state and local governments, and reform funding systems.

Reform of adult education to "arm" with new occupations and skills and specialty of system support of greening of economic security of agribusiness. Adult education as an important part of education system, to improve the overall quality, promotes economic development and social progress plays an extremely important role.

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CHAPTER 2
FINANCIAL ASPECTS OF CORPORATE GOVERNANCE

INSTITUTIONAL INFRASTRUCTURE OF FINANCIAL SUPPORT FORMATION FOR LIGHT INDUSTRY ENTITIES

Mykola Denysenko[1], Ludmila Seliverstova[2]

[2]Doctor of Science (Economics), Professor of Business Economics and Tourism Department, Kyiv National University of Technology and Design, Kyiv, Ukraine, e-mail: profden3@gmail.com, ORCID: https://orcid.org/0000-0001-8767-9762

[2]Doctor of Sciences (Economics), Professor, Professor of the Department of Finance, Kyiv National University of Trade and Economics, Kyiv, Ukraine, e-mail: drls25@ukr.net, ORCID: https://orcid.org/0000-0002-2231-0558

Effective activity of economic entities is one of the most important modern features of a market economy and a basic prerequisite for the development of the national economy of any country in the world, regardless of its level of development. Today there is a process of gradual integration of Ukraine into the European Union with its specific harsh market conditions, which pose a survival problem for domestic economic entities. An analysis of the dynamics of the number of economic entities shows that this sector in Ukraine is on the stage of development and formation. In the current situation, business development in Ukraine should be a decisive factor for improving economic mechanisms: this direction requires effective state support, which should be aimed at creating a positive economic and legal climate.

A special place in the Ukrainian economy belongs to the industry, which is the basis of material production sphere, it plays an important role in the formation of both productive forces and industrial relations. Industry is playing an increasingly important role in creating new jobs, developing competition and fostering the country's economic growth by generating a large portion of national income and gross domestic product. Light industry is a component of the Ukrainian manufacturing industry and the multidisciplinary sector of the economy, which plays an important role in ensuring economic and strategic security, employment and raising its standard of living. An important feature of this type of economic activity is the rapid turnover of capital, which is 2-5 times a year, because of the short production and sale of products. Due to the possibility of using local raw materials (wool, flax, leather), the development of light industry contributes to the development of the most important agricultural production areas.

Light industry is a type of activity that shapes the budget of many countries of the world and fills the domestic market with products of its own production. For Ukraine, light industry is an important kind of industrial activity, since its main task is to provide the population with fabrics, clothing, footwear, etc., and other industries - cord, technical fabrics, medical materials, etc. Light industry can be attributed to the main branches of social orientation, most of this industry products are essentials, the development of which is a prerequisite for improving the standard of the population

living [1, p. 167]. As this sector has a social orientation, it is one of the most important components of economic development [2].

According to the opinion of domestic and international experts, Ukrainian light industry has huge potential. There are more than 2.3 thousand light industry enterprises in the country with about 85 thousand employees. Light industry of Ukraine is gradually increasing its capacity, and its indicators have been steadily increasing for several years in a row. The country is actively developing textile, garment, knitwear, leather footwear, leather goods, fur and other areas.

According to the results of 2016, clothing production accounted for about 40% of all sales, textile production - 37%, leather and footwear - more than 20%. At the beginning of 2017, the regional rating of light industry production was topped by the Lviv region (14.4%), followed by Zhytomyr (8.7%), Kharkiv (8.5%), Dnipropetrovsk (7%) and Kiev (6.9%). Thanks to quality tailoring and democratic prices, the Ukrainian manufacturer's clothing is gaining popularity not only in the domestic but also in the international market [3].

The share of light industry in the country's GDP exceeds 1%, while in developed countries it exceeds 10-20%.

The dynamics of light industry goods exports for 2011–2017 are shown in fig. 1.

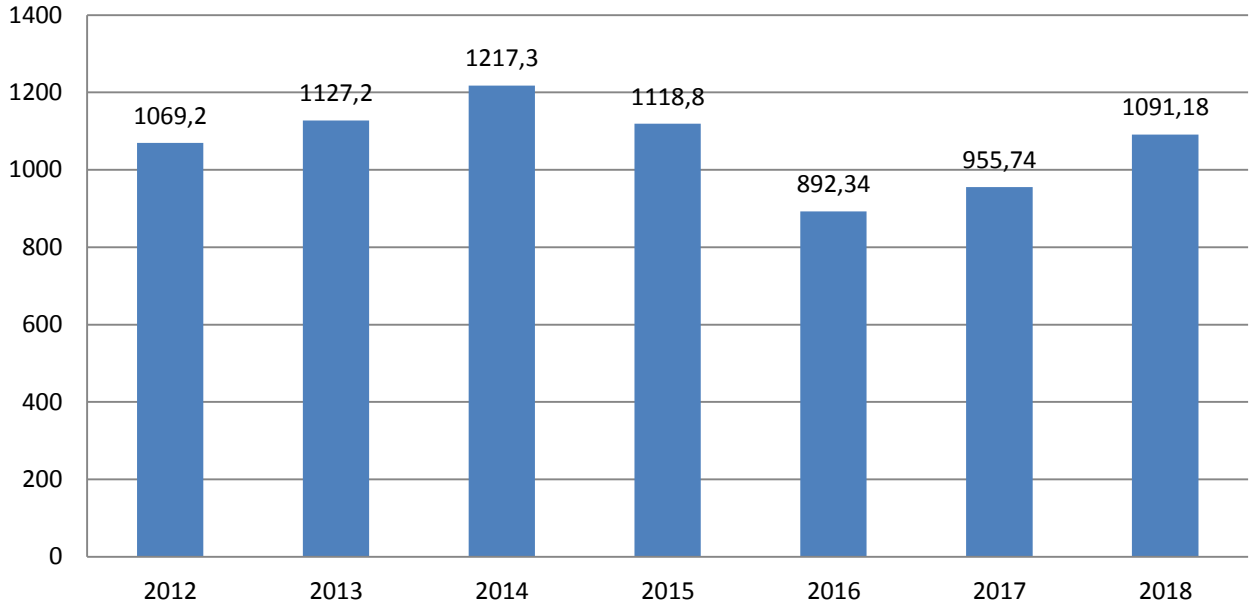


Fig. 1. Dynamics of exports of light industry goods for 2012–2018, million USD
Source: calculated and constructed on the basis of data [4; 5]

Analyzing the dynamics of light industry goods exports for 2012–2018 (Pic. 1), we can see a positive trend in 2012–2014: the increase in exports of light industry products occurred from USD 1,069.2 million to USD 1,217.3 million, which is 13,85%. In 2015–2016, light industry goods exports decreased by USD 98.5 million in 2015 and another $ 226.46 million in 2016. The year 2017 was characterized by an increase in exports compared to the previous year, amounting to USD 63.4 million

(7.1%), which is positive for the development of the domestic light industry. The trend for 2018 was also marked by an increase in exports - an increase of USD 135.4 million (11.73%).

Ukrainian light industry products are exported to 150 countries [3]. The main export items are textiles and textile products - 68.2%, hats and shoes, fur and leather products - 31.8% (fig. 2).

The commodity structure of Ukrainian clothing exports is shown in fig. 3.

More than 35.2% of Ukrainian exports went to EU countries, 5.1% to Egypt, 4.9% to Turkey, 4.4% to India, 4.2% to China.

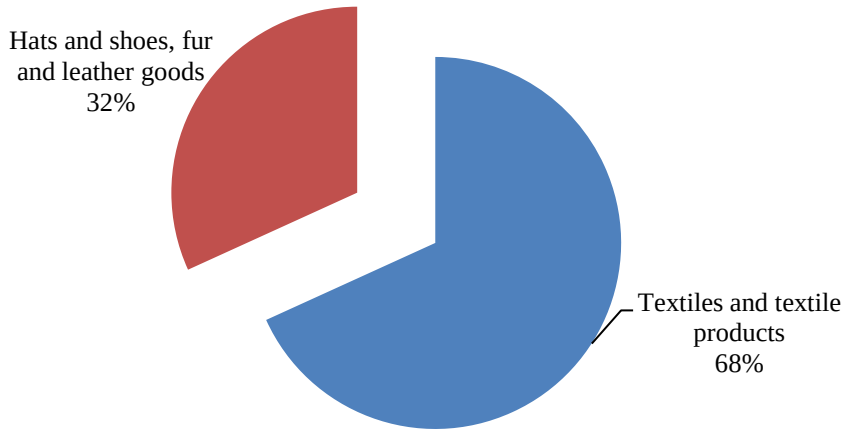


Fig. 2. Commodity structure of Ukrainian exports of light industry products in 2017,%

Source: data-based author [5]

Exports of light industry goods from Ukraine in March 2018 amounted to USD 102.5 million, which is 7.2% more than in February (in February it was at the level of USD 95.6 million). In terms of value, exports of light industry goods from Ukraine in the first quarter of 2018 amounted to USD 285.2 million. Compared to March 2017, exports increased by 19.9% [7].

In terms of product groups, comparing with February and March 2018, the largest increase was recorded in exports of threads and yarn (+ 67.2%), footwear (+ 20%), leather and fur (+ 19.1%).

The share of light industry exports in the total export structure in March 2018 was 2.525%, which is a positive trend for the development of light industry. The structure of exports of light industry products in 2017 is shown in fig. 4.

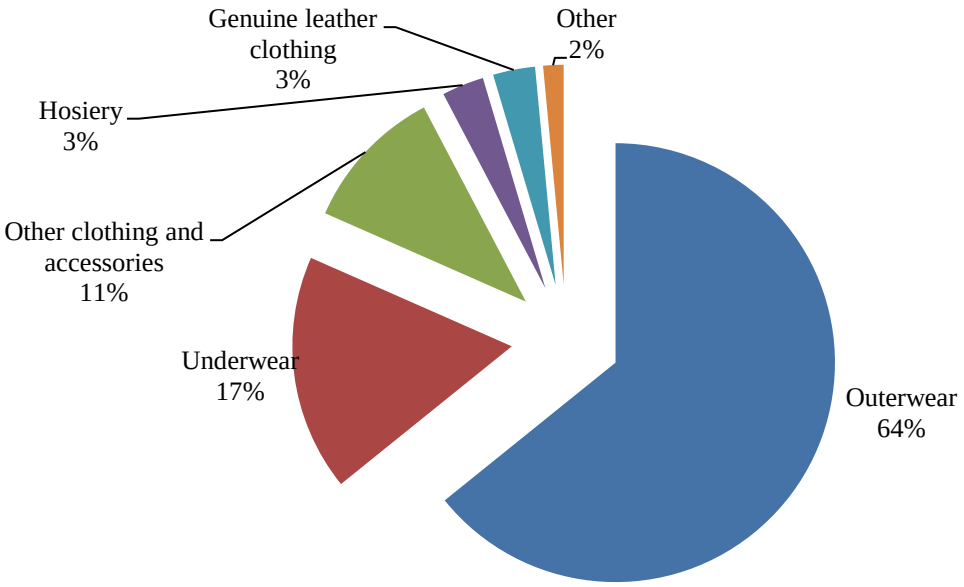


Fig. 3. Commodity structure of Ukrainian clothing exports in 2017,%

Source: compiled and constructed by the author on the basis of data [4; 5]

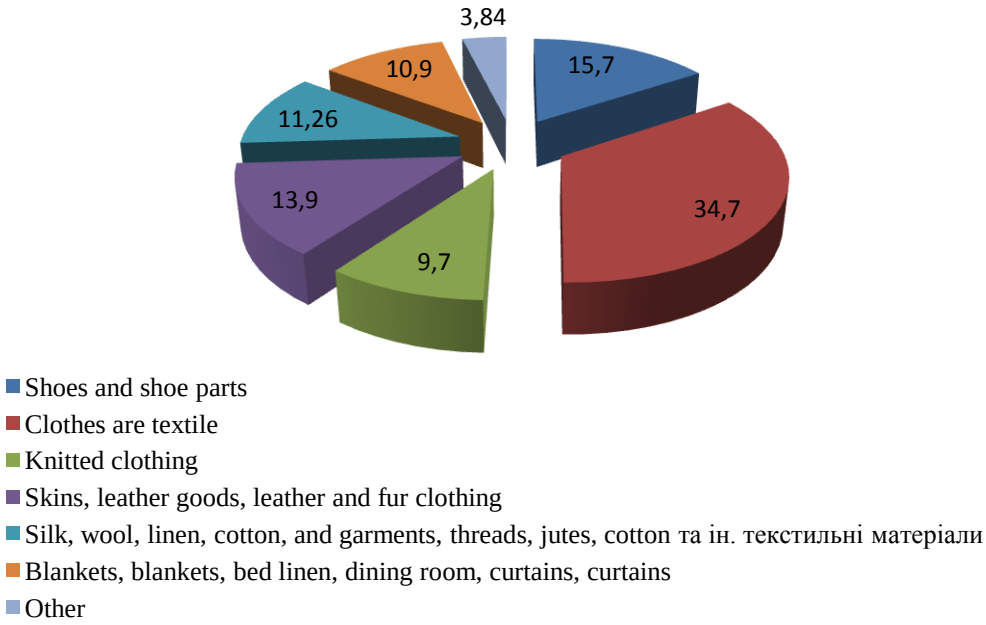


Fig. 4. Export structure of domestic light industry products in 2017,%

Source: calculated and built by the author on the basis of [4]

As we can see from fig. 4, one-third of all exported products consisted of textile clothing (34.7%), shoes and footwear parts (15.7%), hides and leather clothing (13.9%), silk, wool, linen, cotton and clothing (11 , 26%), knitwear (9.7%), and other (3.84%).

The leading exporters of low-cost garment products in the world are important components of light industry in China, South Korea, India, Colombia, Taiwan. For this category of countries, the development of garment enterprises is considered as one of the main sources of economic growth, which provides several opportunities for intensification of development. The benefits of this activity are: low barriers to entry; the manufacturing process in many stages is technologically simple and labor-intensive, which allows one to actively use a relatively low-skilled factor for the world's poor.

Ukrainian light industry products are exported to 150 countries [3]. The main export items are textiles and textile products - 68.2%, hats and shoes, fur and leather products - 31.8%.

The dynamics of imports of light industry goods for 2012–2018 are shown in fig. 5.

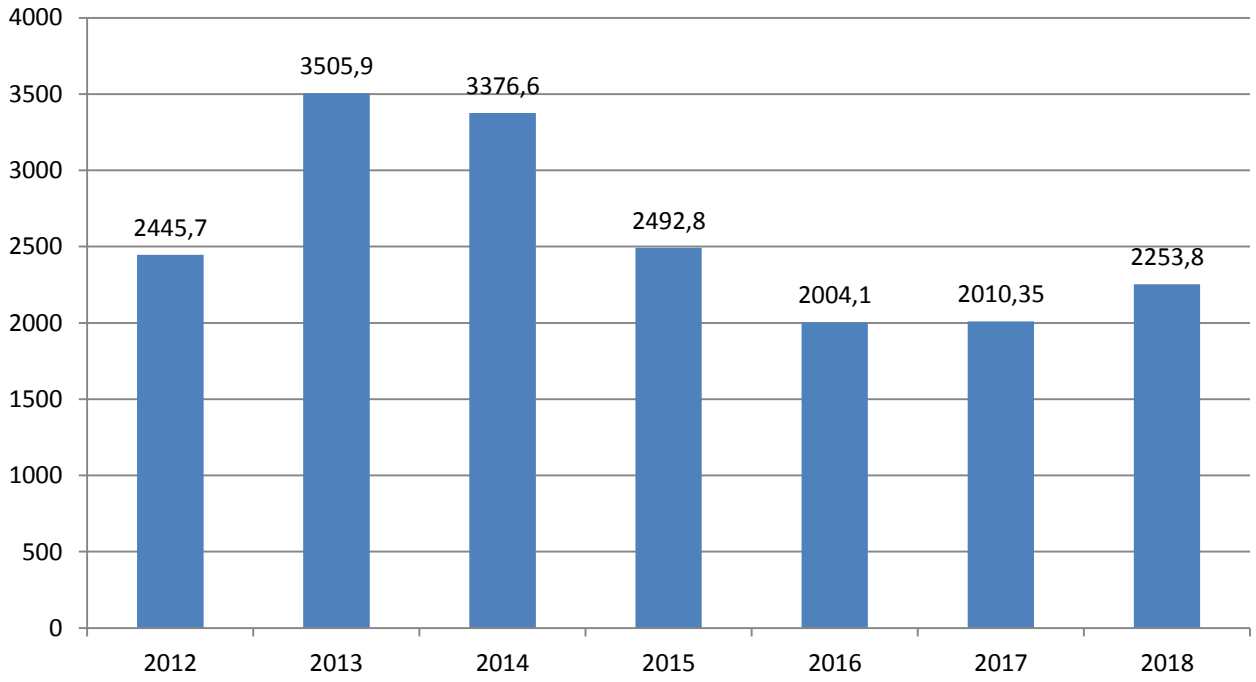
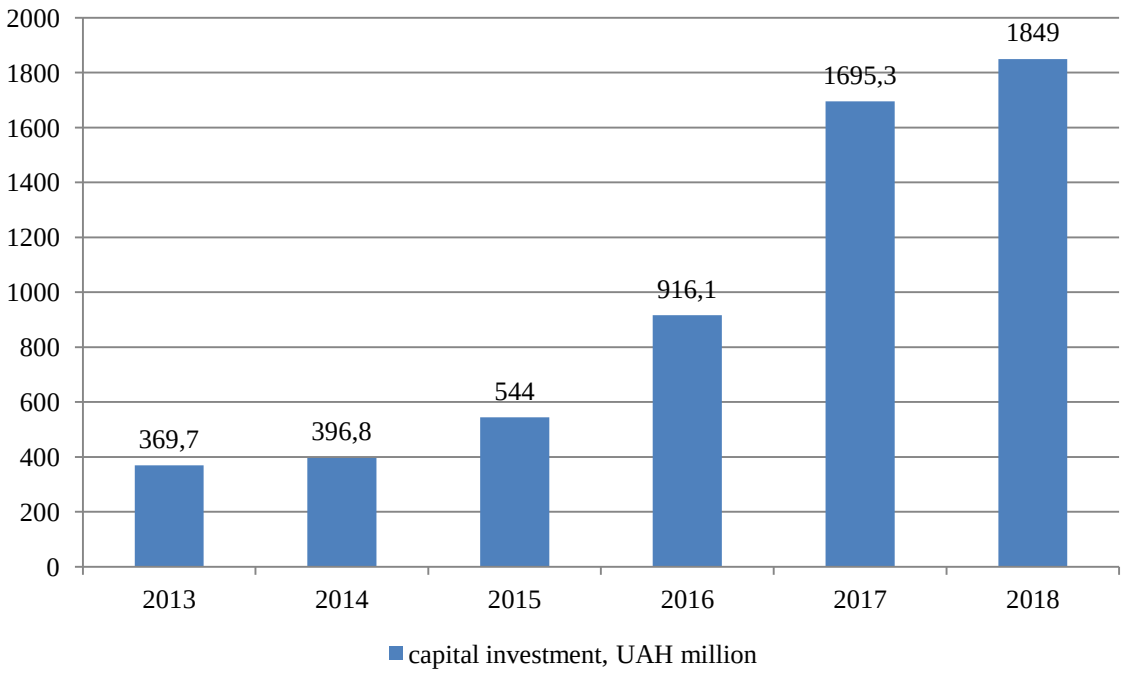


Fig. 5. Dynamics of imports of light industry goods for 2012–2018, million USD
Source: calculated and constructed on the basis of data [4; 5]

Imports of light industry goods have been showing a positive trend for the domestic economy since 2013, declining from US USD 3505.9 million in 2013 to US USD 2004.1 million in 2016. Since the beginning of 2017, the downward trend in imports of light industrial goods has stopped: in 2017, the increase in the volume of goods by 0.31 pp was typical, amounting to USD 6.25 million. At the beginning of 2018, imports of light industry goods continued to grow at USD 2,253.8 million, or 12.1%, comparing to the previous year, according to official data.

In March 2017, light industry goods from Ukraine were exported for only USD 85.4 million. Exports of light industry goods to Ukraine in February 2018 amounted to USD 169.9 million, which is 5.6% more than in January (USD 161 million). At the same time, in February 2017, USD 155.2 million worth of light industry goods were imported into Ukraine. Thus, compared to February 2017, the volume of imports increased by 9.5%.

On the whole, capital investments in textile, clothing, leather and other materials are increasing every year (fig. 6).



* *data for the beginning of the period*

Fig. 6. Volume of capital investments in domestic light industry for 2013 - 2018, million UAH

Source: by the author according to [4; 8]

Despite the increase in the volume of capital investments, the financial results of the enterprises in the industry are deteriorating every year (Table 1). Thus, in 2017 the number of unprofitable enterprises increased by 9.44% and the number of profitable enterprises decreased by 14.04%. As a whole, there is a decrease in the number of profitable enterprises and an increase in the number of unprofitable ones in the industry as a whole.

Analyzing 2013, it should be noted that the number of unprofitable enterprises in the industry increased by 3.82%, while at the same time in the light industry there was a decrease of unprofitable enterprises by 23.05% and a profit increase by 5.33%.

Table 1. Financial results before taxation of domestic enterprises for 2013-2018, million UAH

Years	Financial result before tax	Profitable enterprises		Relative deviation of the financial result to the previous year,%	Enterprises that received damage		Relative deviation of the financial result to the previous year,%
		% Of total enterprises	Financial result		% Of total enterprises	Financial result	
Total for the industry							
2013	21353,4	62,4	86504,1		37,6	65150,7	
2014	13698,3	63,3	81336,9	–5,97	36,7	67638,6	3,82
2015	–166414,0	63,3	76253,3	–6,25	36,7	242667,3	258,77
2016	–181360,9	72,9	90315,9	18,44	27,1	271626,8	11,93
2017	–7569,6	72,8	141475,3	56,64	27,2	149044,9	–45,13
2018	85429	71,6	227886,2	61,08	28,4	142456,7	–4,42
Textile production, production of clothing, leather goods and other materials							
2013	125,4	63,5	559,6		36,5	434,2	
2014	255,3	66,7	589,4	5,33	33,3	334,1	–23,05
2015	–478,7	69,5	1029,5	74,67	30,5	1508,2	351,42
2016	867,6	77,2	1832,8	78,03	22,8	965,2	–36,00
2017	1641,2	77,0	2008,7	9,60	23,0	367,5	–61,92
2018	1324,5	72,8	1726,7	–14,04	27,2	402,2	9,44

Source: calculated by the author according to data [4]

The crisis of 2013 contributed to the significant growth of unprofitable enterprises in 2014: thus, by industry as a whole, their increase was 258.77%, and by light industry - 351.42%.

In 2015, there was a 36% decrease in loss-making enterprises in the light industry, although in general, there was an increase in the industry (+ 11.93%). The following year 2016 was characterized by a continued decrease in the number of unprofitable enterprises in the light industry by 61.92%, whereas in the industry as a whole, this indicator amounted to 45.13%. At the same time, in 2016, there was an increase in profitable enterprises: as a whole, by industry this figure was 56.64% in 2016 and in light industry - 9.6%. The number of unprofitable enterprises in industry decreased in 2017 - 4.42%, while the growth of profitable enterprises was 61.08%.

Analyzing the profitability of operating activities in the industry as a whole and in the light industry (Table 2), it is possible to observe a tendency of its decrease in 2014 and increase in 2016.

For 2015, it was characterized by an increase in the profitability of operating activities for light industry enterprises and a decrease in the overall industry and processing industry in particular. The year 2017 was characterized by a 32.53% decrease in profitability from operating activities of light industry enterprises, while overall industry saw a 57.14% increase in profitability and 46.67% in manufacturing.

Table 2. Profitability of operating activities of Ukrainian industrial enterprises in 2012–2017

Type of industry	YEARS						Relative deviation from previous year,%				
	2012	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017
Industry	3,5	3	1,6	0,9	4,2	6,6	-14,3	-46,7	-43,8	366,7	57,14
Including:											
Manufacturing industry	2,1	2,1	-0,6	0,7	3,0	4,4	-	-128,6	–216,7	328,6	46,67
Including:											
Light industry	3,1	3,8	2,2	7,7	8,3	5,6	22,6	-42,11	250,0	7,79	-32,53

Source: calculated and constructed by the author on the basis of: [4]

Ukraine's light industry, by its potential, is capable of meeting the demand of the population with products of sufficiently high quality, but because of irrational domestic policy, state policy in the sphere of regulation and a considerable amount of "second-hand" in the country is characterized by negative dynamics.

To improve the industry, light industry support measures should be implemented based on the following:

- improvement of institutional support, which envisages the adoption of regulations on the light industry development;

- establishment of optimal / effective amounts of taxes and fees;

- expanding the volume of state purchases of goods (works, services) of light industry enterprises;

- providing financial support at all stages of economic activity, especially innovation;

- providing favorable conditions for entry into the market of domestic enterprises with new products;

- preventing the development of the shadow and smuggling market for light industry by restricting imports into the country and, in particular, second-hand goods;

- development of own material and raw material base, including through preferential taxation;

- the implementation of a guarantee by the state of lending to light industry enterprises.

The development of the light industry of Ukraine as a whole and the individual industry entities in particular is possible only at the expense of a constant and continuous flow of financial resources. The current economic conditions provide the independent determination of formation, mobilization forms and use of financial resources of economic entities. The rational choice of sources of financial resources and the justified determination of the optimal directions of their use is the key to the efficient use and quantitative growth of financial resources of light industry entities, which is one of the most important directions of financial policy of their development.

At the same time, the implementation of financial support for light industry entities in Ukraine occurs in the conditions of unstable economic development, which negatively affects the financial and credit sphere, lack of direct state financial support and proper management of their respective financing process through the financial infrastructure. This is what determines the urgency of addressing the institutional infrastructure improving issue for the formation of financial support for light industry entities.

Any business entity must be tailored to the environment in which it operates. In the process of developing light industry businesses, the level of adaptation is influenced by the selection of best practices that help to achieve a dynamic balance with the environment. There are two different types of adaptation of an entity to the environment: the first type is related to changes in the entity's structure and functions; the second type of adaptation relies on changes in behavior without changes in the subject's structure [9, p. 30].

Creating an entity begins with fixing and reproducing an already existing institutional matrix. This matrix contains formal and informal frameworks and institutions that must be matched by the scale and nature of the entity's business. Creating an entity in a certain aspect can be considered as a transformation "from

external to internal" [9, p. 31]. The entity and the environment in which it operates are only responsive to one another, retaining their special nature. Their interaction and interdependence is, in essence, a process of asymmetric exchange in which institutions and structures act as the leading side [10].

The financial policy of light industry entities, which is focused on ensuring their development, is formed taking into account [11, p. 13]:

1) state policy in the field of financial support for light industry entities;

2) infrastructure financial support;

3) opportunities for expanding self-financing.

Institutional infrastructure of financial support for light industry entities is designed to create and implement effective mechanisms for creating an optimal system of access to financial resources, sources of their formation, opportunities to obtain them in the required amount and at the right time for the needs of functioning and development, and also in regulating their relationship with financial infrastructure institutions on mutually beneficial and acceptable terms. The most significant feature of this category is its role in creating general prerequisites for the reproduction process and general development conditions [12, p. 172].

Forming and properly distributing the financial support of light industry entities, while implementing the main provisions of the financial strategy and policies for their development, allows a developed institutional environment to function.

Institutional infrastructure is predominantly formal institutional constraints that determine possible organizational forms and options for economic interactions in particular economy areas and sectors. It is the institutional infrastructure that determines the specific rules and mechanisms of economic interaction, taking into account industry and other features of economic activity [13, p. 67].

Institutional financial infrastructure is a collection of financial institutions operating in the financial services markets, performing the functions of mobilizing, moving and investing resources. These institutions form the domestic economy financial sector and have a direct and indirect interest in ensuring the rational and efficient use of financial resources. But there is another problem - aligning the financial institutions' own interests with those of the owners of these resources: although they are largely the same (each entity wants to maximize profits), controversy may still arise. Taking into account such specificity of financial institutions, their activity is obligatory regulated by the state in the person of regulatory bodies and the central bank [14].

The business entity's institutional environment is an orderly system of institutional system elements that have binding rules, criteria, and prescriptions for the entity, and therefore directly or indirectly limit the field of available rational choice alternatives.

We believe that the support of the institutional infrastructure for the development of light industry entities is carried out at the macro, meso and micro levels, and therefore the priority tasks of such support should be considered at these levels. At the same time, it is advisable to divide the institutional infrastructure entities into external (state and sectoral level) and internal (entity level). The components of the institutional financial infrastructure and its instruments are shown in Fig. 7.

The state is interested in the light industry entities being deeply modernized, in order to innovate and develop their human resources. Support of businesses development may be in the following areas:

1. Improvement of state financial support for the development of light industry.

2. Improvement of opportunities for financing the development of light industry entities at the expense of the financial resources of financial and credit institutions.

3. Expansion of opportunities for financing the development of light industry entities at their own expense.

Therefore, the priority tasks of state support in improving the institutional environment of the financial infrastructure of light industry entities should be:

1. At the macro level, it must be the creation of various horizontal mergers of enterprises for joint investment and production projects and industry preferential taxation.

According to the Economic Code of Ukraine, associations of enterprises are called economic ones, created to coordinate their production, scientific and other activities in order to solve common economic and social problems [15]. The benefits of combining businesses into a single structure include the following:

- variability of structural restructuring and establishment of industrial and technological links, which, through coordination and coherence of activities between all branches of management networks within the association, help to attract financial resources for the development of business entities;

- joint lobbying of common interests;

- transfer of capital from less promising types of economic activity to more promising ones; that ensures the implementation of complex economic projects (in case the company does not have sufficient financial resources, it is possible to obtain credit from partners on favorable terms or attract investments);

- interconnected development of science and technology, which promotes the integrated use of raw materials and energy resources, especially in the case of association with a design or research organization [17, p. 229].

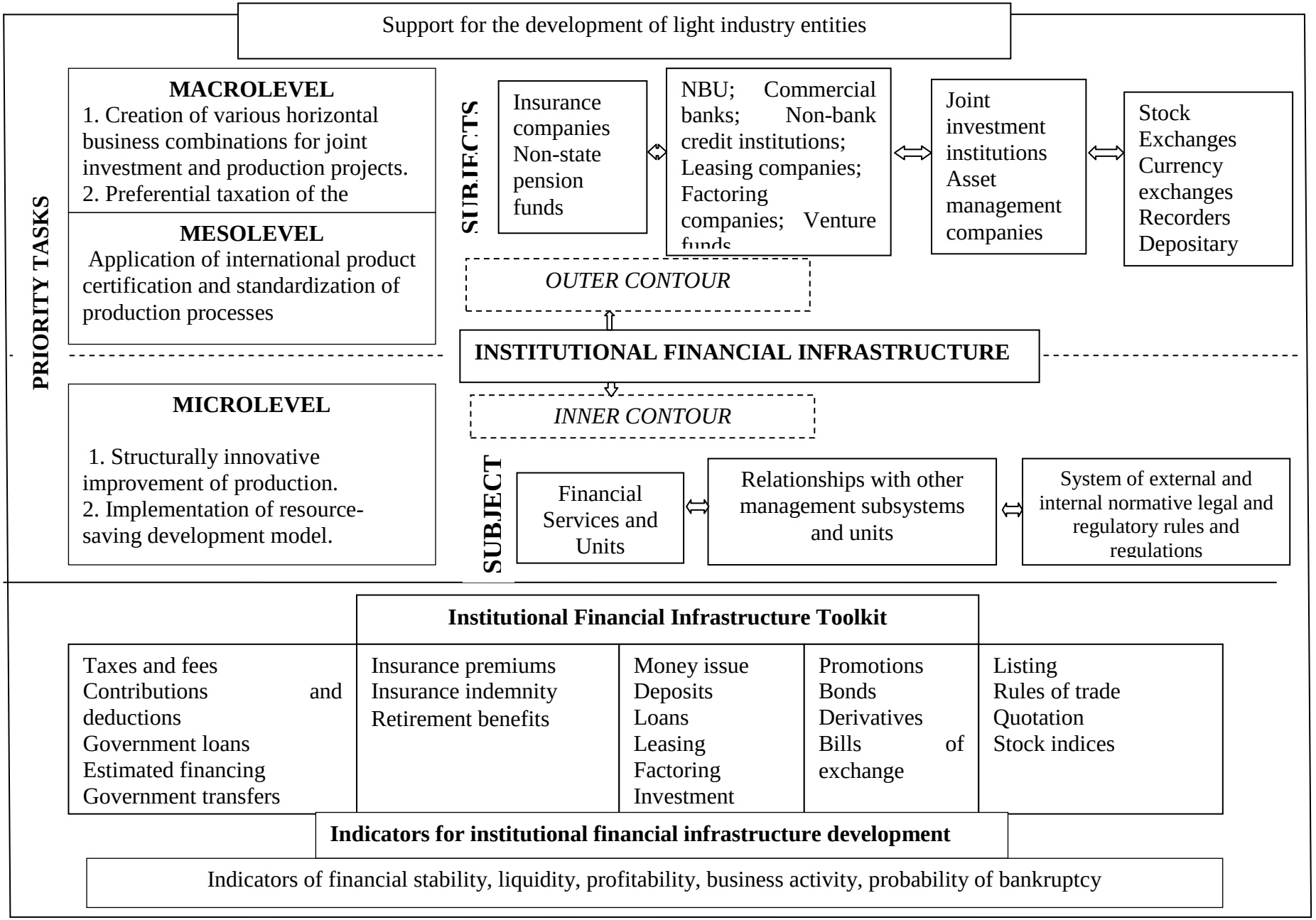


Fig. 7. Components of institutional financial infrastructure and its instruments

Source: Created by the authors

An argument for enterprise integration is the example of well-functioning associations such as Mitsubishi, Mitsui, Sutimoto, Hyundai, Samsung, Deu and others. These enterprises provide a significant volume of production and sales of products both in the territory of the country and abroad, increasing its share of export in the world market.

Nowadays, the Government of Ukraine plans to start new businesses and increase the average wage of industry workers by 30%. One step in this direction is the adoption of a package consisting of 35 bills that will help protect the light industry and access resources. In addition, the country introduced a two-year installment payment for VAT on the import of equipment [18, p.116].

It is important to note that Ukraine is obliged to adapt the system of state support (assistance) of economic entities in accordance with the system of state aid monitoring and control at the request of Ukraine to fulfill its obligations under the Association Agreement signed in 2014. Integration into the EU compels international standards on state support for business.

State support policies should be limited to ensuring that conditions are conducive to the ongoing development of business entities. Therefore, in determining its essence we should proceed from the following:

- financial support is a component of state regulation;
- support of business entities is beneficial not only to the business entities themselves, but to the entire economy and the state as a whole.

State aid is, actually, an effect on competition and trade in the form of subsidies, tax breaks and other forms of government concessions for the benefit of certain enterprises, and may therefore have an adverse effect on other entities. However, as far as support is concerned, in every country (including all EU and WTO countries), economic support is supported to a greater or lesser extent (such as support of industrial sectors, certain firms, regional development, innovation, investment, trade, small business), as well as key industries such as light industry, defense industry, transport, agricultural sector) by introducing various instruments, including subsidies, tax breaks and other measures that have less direct impact.

Thus, the prerequisites for the financial support of the activities of light industry enterprises, as the basis for their effective development, are laid down by state policy, which provides the regulation of organizational principles related to the creation, registration, choice of the taxation system by an entity, etc. Appropriate measures of the state are aimed at the development of light industry and determine the possibilities, structure, terms and forms of external and internal sources of financial resources of economic entities use. Existing problems of practical implementation of financial support require reforms that should be aimed at developing support of light

industry entities by financial infrastructure entities. The important steps in this direction are:

- budget financing of research, development and research works, development of new technologies;

- introduction of centralized planning in the industry, which will help to calculate the required quantity of manufactured products for the needs of the economic entities of industry and the partner companies, which will help to reduce the filling of the domestic market with imported goods and increase the number of goods of light industry of own production;

- development of a coherent government policy towards consolidation of the state budget funds, economic entities' own funds, as well as loans and attracted investments;

- lower prices for raw materials and energy for light industry entities, which will reduce the cost of production and reduce the imbalance between commodity prices and purchasing power of the population;

- simplification of customs procedures for economic entities subject to giving schemes and export of products;

- the allocation of targeted financing for the industry, which will reduce the volume of work under tolling schemes.

On the meso level, the priority, in our opinion, is to apply international product certification and standardization of production processes.

Standardization is the organizational and technical basis of economic, scientific and technical cooperation between countries, an effective means of expanding ties in international markets and eliminating technical barriers to international trade. Strengthening scientific, technical and economic ties draws attention to the standardization of all developed countries and developing countries, as well as technical, economic, international, regional and national organizations, firms and enterprises. This is a consequence of the objective need for standardization in the management of economic and production processes.

This will allow light industry entities to increase business activity, increase their share in aggregate and regional GDP, increase employment and productivity of the active population, and promote industry development.

At the micro level, the priorities are:

1. Structurally-innovative improvement of production.

Structurally-innovative improvement of production should be carried out by:

- realizing the competitive advantages of individual industries whose products are in high demand, applying international quality standards;

- accumulation and further use in the production of scientific, technological, resource and intellectual potential.

2. Implementation of resource-saving development model.

An important area of development of light industry in Ukraine is the introduction of innovative processes in its activity, which allow the industry to be low-tech production, that is, resource-saving, which will allow to produce competitive products of high quality at a relatively low price. Businesses in the production of fabrics, clothing and footwear must constantly expand and update their range, ensuring high quality products, focusing on the needs of consumers of different ages and fashion trends of Ukraine and the world.

The current economic situation of the Ukrainian economic system determines not only the expediency, but also the necessity of its movement to resource saving, to the type of production, which requires increasing the efficiency of use of all without exception types of resources: material, energy, technical and technological, financial, information, labor, intellectual. The resource-saving model of light industry development will allow the economic entities of the industry to reach an equal forecasted state, increase their market potential, and attract real credit investors. Such a model becomes one of the key factors for market success, which is a major competitive advantage in the system of finding new opportunities for developing the financial capabilities of light industry entities.

The financial policy implementation of light industry entities development depends directly on the support of the financial infrastructure. The subjects of financial infrastructure of the light industry include: banking system (National Bank of Ukraine and commercial banks), non-bank credit institutions, leasing and factoring companies, venture capital funds.

The securities market is extremely important for the formation of business entities' capital. The priority of the securities market is to provide the conditions for attracting investments by companies, access of economic entities to cheaper capital compared to other sources, as well as attracting and redistributing capital in those sectors of the economy, where this is necessary from the point of view of economic feasibility.

Co-investment institutions are important investors of business entities, since their sole activity is to invest in various sectors of the economy in order to generate and distribute profits among investors [18, p. 118]. In Ukraine, at the legislative level, there are two types of joint investment institutions, which, depending on the order of creation and operation, are divided into corporate investment funds and mutual funds. A significant role in the activity of joint venture institutions is played by the asset management company of the joint venture institutions, since the KUA ICI is a legislator with the function of managing the assets of investment funds.

Audit and information consulting firms, appraisers, actuaries are service organizations in the institutional infrastructure of financial support for light industry entities.

Infrastructural institutes and service organizations promote the cooperation of light industry entities with other components of the infrastructure, form a system of economic relations and have a direct impact on the activity of the support infrastructure of light industry entities (clusters, business incubators, network structures, etc.). Modeling the possibilities of financial support for the light industry entities development at the expense of the financial resources of financial and credit institutions requires:

1) improvement of organizational and coordination activities of regional authorities aimed at increasing the volume and improving the efficiency of bank lending to the development of light industry entities (a large part of which are small and medium-sized enterprises). Thus, regional guarantee funds can be created on loans (with parity financing of funds from local budgets, financial and credit sector entities, business associations, trade entities), with the aim of diversifying risks when attracting large investment projects of sponsoring firms (guarantor firms) with motivation to generate income from the project implementation or business expansion, to create a system with the formation of delivery or sales channels;

2) enhancement of the investment attractiveness of the region territories, which will enable to attract investors;

3) improving the institutional environment by accumulating investment and coordinating integration processes, including the creation of investment parks;

4) intensification of insurance institutions participation in providing access of light industry entities to financial and credit resources. One of the mechanisms in this direction in the developed countries of the world is the creation of insurance guarantee funds in the form of non-profit state or communal organizations.

Of course, state and infrastructure financial support for light industry is crucial and provides opportunities to create conditions for the development of economic entities of the industry, but the measures they have implemented must find adequate implementation and continuation directly at the level of economic entities. Moreover, business entities also have some arsenal of tools for their development.

Important in this direction is the creation (or ordering) of an internal corporate institutional infrastructure for financial management, which consists of financial services and units, relationships between them and other management subsystems and structural units, systems of external and internal normative legal, regulatory and methodological regulations and rules of behavior. Its "strengths" are: financial and human resources, ability to cooperate with financial institutions, clients, suppliers, manufacturers, intermediaries, providers of marketing, logistics, outsourcing services,

quality of financial and investment activity, quality of marketing activity and strategic decisions. The activity of such internal infrastructure within the financial support of light industry entities determines the sources of financial resources and their distribution within the enterprise.

The development-oriented activities of a lightweight business entity's in-house financial infrastructure may include actions such as an analysis of the potential adverse financial consequences of the marketing development, commercial subsystems of the entities regarding the condition and changes in profitability, financial soundness and liquidity; studying the securities market regarding the attractiveness state of economic entities securities to attract financial assets and investments for the development of economic entities, as well as the protection of shares from unauthorized seizure and control over the assets of the economic entity; evaluation of investment projects on similar parameters; study of commercial and business offers, etc.

An important feature of the financial infrastructure of light industry at the present stage should be the creation of wholesale distribution networks, which will increase the volume of exports of clothing, footwear, textiles.

Extension of financial support capabilities of light industry entities in the context of improving institutional infrastructure is carried out at mark and level, taking into account the state financial and infrastructural support and capabilities of micro-level inter-company infrastructure.

Thus, the given scientific and practical recommendations for modeling the institutional infrastructure of light industry entities are to justify the need to create various horizontal associations of enterprises for joint investment and production projects and preferential taxation of the industry - at the macro level; the application of international product certification and standardization of production processes - at the mesolevel; structural and innovative improvement of production and implementation of the resource-saving model of development - at the micro level, will help to strengthen the role of the infrastructure component in ensuring the financing of light industry entities.

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«GREEN» FINANCE AS A MARKER OF MODERN CORPORATE GOVERNANCE

Marharyta Prianyshnykova[1], Mykola Korolenko[2]

[1]postgraduate student, SESE «The Academy of Financial Management», Kyiv, Ukraine, e-mail: margarita.pryan@gmail.com, ORCID: https://orcid.org/0000-0003-3871-9486
[2]postgraduate student, SESE «The Academy of Financial Management», Kyiv, Ukraine

In today's economic space, corporations play a significant role, so it is important to create an effective corporate governance structure. There are four approaches to corporate governance: internal, which consists in choosing a set of management mechanisms and distribution of functions that allow owners to control the activities of managers; external – company policy, values; legal – the principles governing rights, responsibilities; economic - a system of relations between owners and management, aimed at satisfying the interests of owners.

Due to rapid population growth and increasing world GDP, natural capital is being depleted, which in turn leads to negative social, economic and environmental changes.

Environmental pollution, resource depletion (deterioration of fresh water and arable land), climate change (natural disasters) all these factors affect the economy and lead to significant financial losses. Therefore, the issue of corporate social responsibility and the use of «green» financial instruments becomes relevant.

The aim is to highlight the essence of the concept of «green» bonds, their main purpose, the order of issue, international standards, country analysis and implementation in Ukraine.

The stereotype of a leader as a smart, cunning and clever businessman who starts yawning when it comes to environmental protection, charity and other social initiatives has sunk into oblivion, more and more businessmen in parallel with earning money, worry about the world around them and aim to improve it and get a positive image.

A radical shift is also dictated by the political agenda promoted by world leaders, which lays down new principles for the transformation of systemic processes of corporate governance, organization of production and activities in the capital market.

The basis of these principles are the desire of politicians and companies to solve climate problems that have no borders, because natural disasters caused by climate change can destroy any project and lead to irreversible consequences.

Climate change leads not only to hurricanes, floods and droughts, which cause billions in damage, but also to mass migration of people from subtropical areas to countries with more favorable climates, to numerous ethnic conflicts and socio-

political phenomena, such as the «Arab Spring». Global warming, combined with the slowdown in the world economy and growing property inequality, can change both the economic and socio-political landscape of the world for the worse. That is why the political establishment of developed countries has raised the green theme, and the environment and carbon emissions from applied scientific problems have become the most powerful direction of international politics, able to significantly change the balance of power in the world economy and bring to power various parties, including openly populist , or promote the interests of private corporations and banks.

To control climate risks, Brussels has set quite ambitious goals. European Commission President Ursula von der Leyen dedicated her annual address to the European Parliament on this topic. The plan to overcome the crisis, announced by her on September 16, proposes measures for sustainable economic recovery that change the basic foundations of development [1].

By 2021, the European Commission plans to review EU climate and energy legislation to make it «valid for 55 years». It will specify the administrative rules that will help solve the tasks. It is planned to develop trade in CO2 emissions and renewable energy sources, increase energy efficiency, reform the taxation of operations related to the production, trade and use of energy resources [1].

The mission of the European «green» course is not limited to reducing emissions. We are talking about the systematic modernization of the economy, society and industry. "It is about creating a more sustainable world in which not only us but the next generation can live ... This requires a change in our attitude towards nature and how we build the world around us," said Ursula von der Leyen, representing the European Parliament. EU anti-crisis recovery plan called #NextGenerationEU [1].

It is expected that in late 2021 - early 2022, the European Union will introduce a border tax on imports of goods with a high carbon footprint. This will deprive foreign suppliers of a possible advantage over European ones if they want to reduce costs and save on investment in modernization of production. Such tax practices are designed to encourage other countries to finance projects that do not have a detrimental effect on the climate and the environment.

Their implementation will bring a double benefit: first, the negative impact of industry on the environment will be reduced, and secondly, technology will pay off by the fact that when supplying goods to the EU, producers will be relieved of the obligation to pay additional taxes.

The carbon borders regulation mechanism will help ensure that others follow in Europe's footsteps. Such a prospect is already forcing the Ukrainian government and business to organize a national emissions trading system. Such a system will create

conditions for their reduction through modernization of production, increase of energy efficiency and implementation of greenhouse gas absorption projects.

Without such measures, the biggest costs because of the new EU tax are suffer energy and oil and gas companies, metallurgists and mining companies, farmers, producers of mineral fertilizers, pulp and paper products and glass, who trade with Europe.

In order to avoid negative consequences, it is necessary to reform the world economy, ensure sustainable development and pave the way for a «green» economy.

We propose to divide the «green economy» into 7 sectors (Fig. 1).

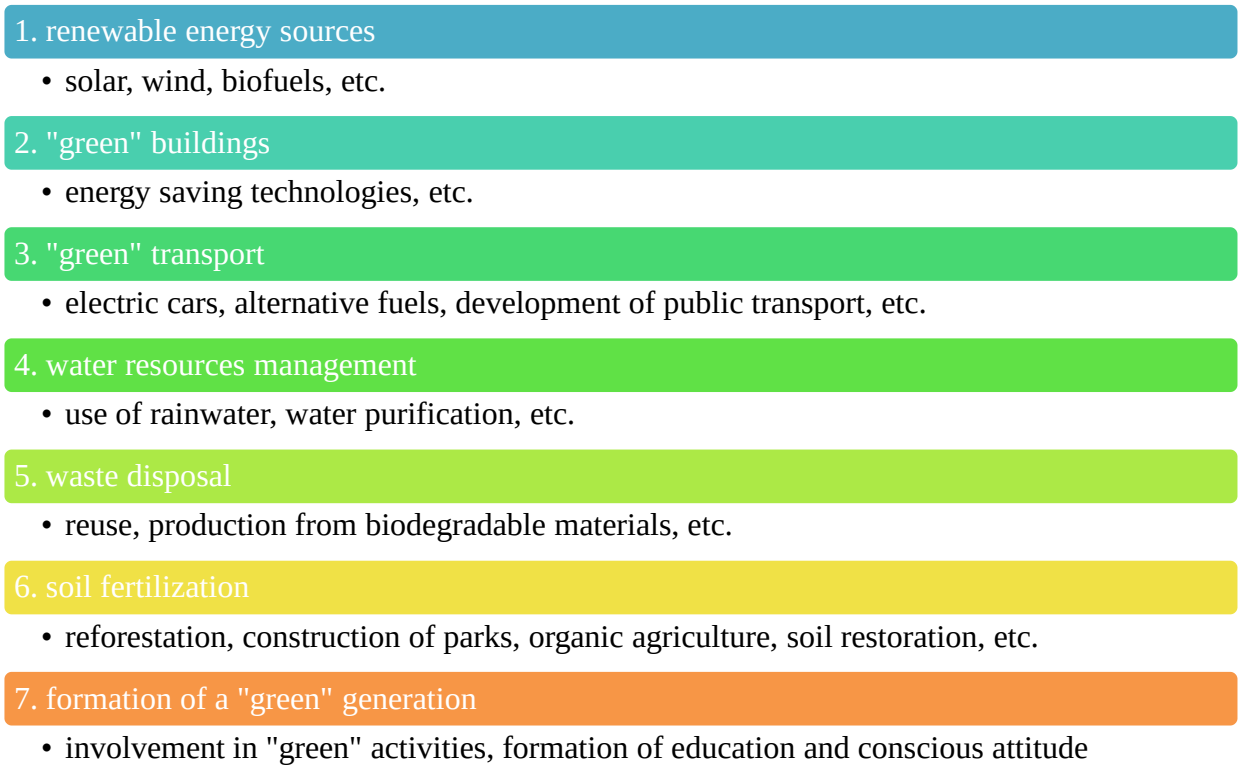

Fig. 1. Classification of sectors of the «green economy».

The source is based on: [2, c.12].

Financing environmentally sustainable growth requires significant investments. It is the financial sector that is able to qualitatively ensure these changes. Currently, investments can be divided into useful and ordinary, and thanks to environmental projects, the issuer creates a positive image of a progressive company or state, which is focused on sustainable development.

The essence and current state of «green» bonds. Consider one of the most popular financial instruments – «green» bonds. «Green» bonds are an instrument of raising capital, a type of debt securities that certifies the loan relationship between the issuer and the bondholder and confirms the issuer's obligation to return to the bondholder its face value within the prescribed period and pay income on the bond,

unless otherwise provided. Most «green» bonds are medium-term instruments (7-8 years). The main source of redemption of these bonds is cash receipts from assets. Technically, these bonds are no different from any other debt securities. Investors buy them, like other bonds, and the issuer receives money to implement their project. The main difference is only that such funds are targeted and can be spent only on projects with a positive impact on the environment [3, p.14]. Such initiatives are: projects of alternative energy sources, «clean» transport, projects of creation of «smart» houses and development of systems of effective utilization of waste. Funds can be used not only for new projects, but also for refinancing existing ones [4].

According to the mechanism of action, there are four main types of «green» bonds:

— standard bonds, the funds from which are directed to «green» projects (standard debt instrument with the right to claim against the issuer);

— «green» bonds tied to income: a debt obligation without the right of recourse to the issuer, in which the credit risk is tied to cash inflows, which is the subject of collateral through income, rewards, taxes, etc. Proceeds from the placement of such bonds are spent on "green" projects, which can be both related to the sources of such cash and not related to them;

— «green» project financing bonds: bonds with or without the right of recourse to the issuer are aimed at financing one or more «green» projects, for which the investor bears the risks associated with the projects;

— «green» securitized bonds: bonds secured by one or more “green” projects and including, but not limited to, bonds, asset-backed securities, mortgage-backed securities, etc. [5].

The main source of redemption of bonds is cash receipts from assets. This type of bond includes, for example, securitization of solar panels on roofs and / or securitization of energy efficient assets.

«Green» bonds first appeared on the financial market a little over 10 years ago, with the first such bonds being European Investment Bank bonds issued in 2007. They were intended to finance projects in the field of alternative energy sources and energy efficiency. The first bonds, marked as «green», appeared a year later, they were issued by the World Bank. Since then, this segment of the financial market has grown steadily, the average annual growth since 2007 is at 230 percent [6].

Let's highlight the main reasons for the rapid development of «green» bonds: awareness of the risks to humanity due to the unsatisfactory state of the environment, the attempt to direct financial resources to solve environmental problems; general greening of the world; the desire of business to look socially responsible.

The development of the market of «green» bonds is associated with the orientation of the largest investors to finance projects with sustainable development

(achieving the UN Sustainable Development Goals, including a significant part is related to environmental issues).

One of the goals of European policy is to strengthen the EU's leadership in financing climate-safe investment projects and issuing sustainable «green» bonds.

In her annual address to MEPs, Ursula von der Leyen reaffirmed her intention to continue developing reliable standards for the issuance of «green» bonds at the level of European institutions. This is necessary to increase the confidence of investors, who must be sure that their capital goes to finance sustainable projects [1].

The head of the European Commission announced that 30% of the budget of the #NextGenerationEU program in the amount of 750 billion euros will be raised through "green" bonds. About a third of these funds will go to hydrogen projects, environmentally friendly construction and development of a network of charging stations for electric vehicles (total - 1 million units) [1;7].

In 2014, the total issue of «green» bonds reached 36.6 billion dollars, in 2015 the figure increased to 41.8 billion dollars, and in 2016 to 87.2 billion dollars. In 2017, the issue was already 155.5 billion dollars. The growth of the segment slowed down only in 2018, following the results of the indicator at the level of 171.2 billion dollars, which is slightly higher than a year earlier [8, p.51]. In 2019, the market reached 258.9 billion dollars. The leaders in the issuance of «green» bonds were: the United States – 51.3 billion dollars, the second place went to China – 31.3 billion dollars and France – 30.1 billion dollars [9].

Fig. 2. Overview of the geographic market of «green» bonds

The source is based on: [9, c.3]

According to the Climate Bonds Initiative, in the first half of 2020, the volume of «green» bonds decreased by 26% compared to the previous year, reaching a total of 91.6 billion dollars, such a slowdown is likely due to the ongoing COVID-19 pandemic [10, p.2].

Paradoxically, China, the world's second-largest emitter of «green» bonds, which is also the world's largest source of carbon emissions, has used «green» bonds to finance coal-fired power plants, while explaining this by the fact that the power plants built on this money are cleaner than those built earlier. The prevailing view among most rating agencies is that coal cannot be included in the green category. Among other things, China also issues bonds that are «green» only by Chinese standards and do not meet international environmental standards.

The popularity of «green» investments and their rapid growth naturally aroused the interest of fraudsters [11]. There is even a term «green camouflage», or «green wash», when the project, despite the «wrapper», does not reduce the negative impact on the environment. «Green camouflage» carries serious reputational risks. Many critics claim that the wide scope of what constitutes a «green» bond allows the organizations that issue them to utilize the capital raised for projects promoting sustainability that, in reality, have minimal climate impact. For example, the operator of China's Three Gorges Dam issued 840 million dollars in «green» bonds to be used for backing wind power projects in Europe. At a surface level, these bonds seem like a sustainable way to raise money and divert it to climate conscious projects. Looking deeper however, the Three Gorges Dam has been continuously cited as a source of water pollution and as damaging for the surrounding ecosystems. Regardless, investors rushed to buy bonds at face-value and overlooked the possible deeper environmental harms they may cause. This process, known as «green washing» has become a common practice among green bond issuers and is hurting the credibility of such investments. Another instance of greenwashing took place when the Chinese government issued Green Bonds to finance coal-efficiency projects that find ways to burn fossil fuels more effectively. Similarly, a Madrid-based oil and gas company named Repsol issued a set of «green» bonds that were used for making their oil refineries more efficient. Although technically still working towards energy efficiency, these projects are not helping the environment to the extent that issuers will often claim [12]. How big is the risk for Ukraine to face this phenomenon?

Attempts to «camouflage» will not be avoided, but if the domestic system is built on the basis of international standards and comply with the Green Bond Principles of the International Capital Markets Association (ICMA), if companies have a specialized ESG-rating and the regulator's policy to combat money laundering, then these risks will be minimal.

Principles of «green» bonds. With the advent of «green» bonds in the financial market there was a need to create a single standard for their assessment of environmental friendliness and a mechanism for monitoring its implementation. The first attempt to develop such a standard was made in 2011, but its criteria were not suitable for evaluating all types of projects, and concerned only the field of wind energy generation. In 2015, the standard was expanded to a new version that has already covered several types of projects. However, work on a single standard is still underway. Today, the benchmark is the so-called Green Bonds Principles, developed by the International Capital Markets Association (ICMA) in 2014 along with other stakeholders. However, the principles of «green» bonds are voluntary.

«Green» bonds have a high level of transparency, so issuers must disclose the four key elements listed in the GBP Principles: the use of funds, the project evaluation and selection process, fund management and reporting [5].

1. The use of funds raised from the placement of bonds should be aimed exclusively at financing (refinancing) «green» projects.

The principles of «green» bonds cover four key areas of human concern: climate change, depletion of natural resources, biodiversity loss and air, water and soil pollution.

Recommended projects are:

—renewable energy (including generation, transmission, appliances and products);

—energy efficiency (eg in new and refurbished buildings, energy storage, district heating, smart grids, appliances and products);

—pollution prevention and control (including reduction of air emissions, control of greenhouse gases, soil remediation, waste reduction, waste recycling and energy / efficient energy emissions);

—environmentally sustainable management of living natural resources and land use (including organic agriculture; organic livestock; climate-oriented contributions from farms, such as crop protection or drip irrigation; ecological forestry, forest conservation or restoration of natural landscapes);

—conservation of terrestrial and aquatic biodiversity (protection of coastal, marine and watershed environments);

—clean transport (electric, hybrid, public, railway, non-motorized, multimodal transport, infrastructure for vehicles with clean energy and reduction of harmful emissions);

—sustainable water and wastewater management (including sustainable infrastructure for water treatment and / or drinking, wastewater treatment, river systems, flood mitigation) [13, p.4; 14, p. 3-4].

Any project that provides clear environmental improvements in these areas can be financed through the issuance of «green» bonds. The list, description and evaluation of such projects should be detailed in the information on the bond issue (issue prospectus).

2. In order to implement the principle of project evaluation and selection, the issuer must clearly define the objectives and define the procedure by which the issuer determines the compliance of projects with the categories of "green" projects, qualification criteria, including exclusion, avoidance or management of potential risks associated with projects. The principles declare a high level of transparency and encourage issuers to conduct an independent external evaluation of their own evaluation and selection processes [15].

3. The principle of cash management provides for a method of separate accounting of net income from the placement of bonds by crediting funds to separate accounts or portfolios. The Principles recommend that an auditor or other third party be involved to verify the method of internal accounting and the use of funds from the issuance of «green» bonds.

4. The issuer's reporting should reflect up-to-date information on the use of funds, a list and a brief description of the projects to which the funds are directed, indicating the amounts and expected impact of the projects. The principles recommend the use of qualitative and quantitative indicators of project effectiveness, as well as, if possible, to monitor the results achieved by these projects [16].

They are also encouraged to conduct an independent external evaluation of their own project evaluation and selection processes. To do this, the issuer may use any of the tools listed in the Principles:

—consultant review (separate independent opinion) – consulting support of a consultant or consulting firm with recognized expertise in financial projects related to environmental sustainability, which will review and evaluate the structure of the issuer's «green» bonds, usually in the form of a separate opinion or «independent opinion» of specialist before or after the issue [17, p.6];

— inspection or audit – a complete inspection of «green» bonds, the structure of their issue or underlying assets by a qualified third party (usually an audit firm), which is recognized, whose reputation is trusted and which is approved for such inspections for compliance with external and internal procedures of the issuer before and after the issue;

—certification – «green» bonds, their structure or the order of use of funds can be confirmed (certified) by the relevant accredited organization that carries out the relevant certification. However, so far the only globally recognized CBS (Climate Bonds Standart) certification still requires a qualified third party (such as an audit firm) to assess readiness for release;

—rating – «green» bonds or their structure can receive a rating from the relevant rating agency or a specialized consulting firm. The rating of «green» bonds is given separately from the issuer's rating according to special so-called ESG indicators. ESG is an indicator that means information about the environmental and social impact, as well as corporate governance, which is increasingly used by investors in determining the investment attractiveness of the project [18].

In the future, the European Union plans to implement common standards for the issuance and placement of «green» bonds, which will be developed on the basis of the Principles and existing market practices, and can be used by issuers in any country to confirm the liquidity of these financial instruments.

Currently, the conditions set out in this document are followed by most of the world's issuers of «green bonds». For their observance, the investor judges the reliability of the issuer. In addition, the reliability of the issuer is confirmed by an independent party, usually reputable companies such as Deloitte, Moody's, the French company – Vigeo Eiris, the Norwegian – Cicero, Amsterdam – Sustainalytics, and so on.

The legal requirement for institutional investors to provide data on environmental factors in their investments has been adopted only in France in 2015. It is likely that the EU will further encourage its resident investors to invest green. At the same time, for the issuers themselves, the conclusion of the «green» bond market threatens additional costs for obtaining status from rating organizations and regulators.

Also, most «green» bonds in many countries have tax breaks, some have full tax exemptions, which in turn makes them more attractive than regular, taxable bonds. Tax breaks, of course, have been designed to increase the monetary incentive to address climate change and the transition to renewable energy.

Buyers of «green» bonds are mostly institutional investors, including pension funds, insurance companies and asset management companies. Significant funds also come from companies that are looking for «responsible» or «sustainable» places to place their money.

The largest issuer of «green» bonds is the World Bank. This organization funds environmental projects around the world, primarily in the United States and India. In India, in particular, with the proceeds from the sale of bonds, a branch of the World Bank has established the Rampur hydropower project, which aims to provide renewable energy to the power grid of North India. Also in this market are companies such as Apple and Bank of America [19].

Ukraine has significant potential for the development of «green» bonds. The launch of the market of «green» bonds will attract capital in various areas of energy efficiency in Ukraine, according to the State Agency for Energy Efficiency and

Energy Saving of Ukraine. According to the International Finance Company (IFC), the launch of the «green» bond market will allow Ukraine to attract 73 billion dollars by 2030. In addition, attracting investment is necessary to meet the goals of the Energy Strategy of Ukraine until 2035 [20].

There are many examples in the world of the transition to «green» financing with the assistance of public authorities, which develop appropriate rules and recommendations for the market of «green» bonds. However, even in European countries, approaches to the organization of this market differ. Ukraine should use the experience of Poland, where state frameworks and procedures for issuing sovereign bonds have been introduced: the range of sectors, projects in which they could be implemented with the help of attracted financing depending on the degree of negative impact on the environment and climate; the procedure for selection of environmentally friendly projects has been established; approved step-by-step procedures for their financing, established procedures for reporting and disclosure of information on the target direction of funds and the real environmental impact of projects financed by «green» bonds; a separate treasury account was created to monitor the receipts and targeted use of funds raised from the issue of «green» bonds [21].

In the Law of Ukraine «On Amendments to Certain Legislative Acts of Ukraine on Simplification of Attracting Investments and Introduction of New Financial Instruments», adopted on June 19, 2020, Article 11 prescribes the concept of «green» bonds – bonds, prospectus (decision on the issue, and for government bonds of Ukraine – prospectus conditions) which provides (provides) the use of borrowed funds exclusively to finance the environmental project or a separate stage [22].

Article 18 prescribes the conditions for the operation of «green» bonds and persons who implement or finance an environmental project. The issue of «green» bonds can be carried out by a person who implements or finances an environmental project.

Funds from the placement of «green» bonds are used to finance and / or refinance the costs of the environmental project.

Persons implementing the project: the Council of Ministers of the Autonomous Republic of Crimea, the territorial community represented by a representative body of local self-government; the state of Ukraine in the person of authorized bodies; legal entity of private law.

Persons financing the project: specialized financial institution; a legal entity under private law, in particular a bank or other financial institution; international financial organization [22].

To effectively implement «green» bonds in Ukraine and gain the confidence of investors, it is necessary to apply the world practice of using this financial instrument,

principles, standards and rules of their issuance and placement, which are declared by international associations, and on this basis to develop and implement legislation, guaranteeing the purpose of attracting investment in environmental, «green» projects.

Analyzing the experience of other countries, we can say that it is more fundamental. «Green» bonds include: social, blue and sustainable development bonds. That is, all possible categories, their essence and conditions are described in detail. Consider all categories, so «green» bonds are tools for raising capital for environmental projects, such as renewable energy, energy efficiency, clean transport, «green» buildings and balanced water management.

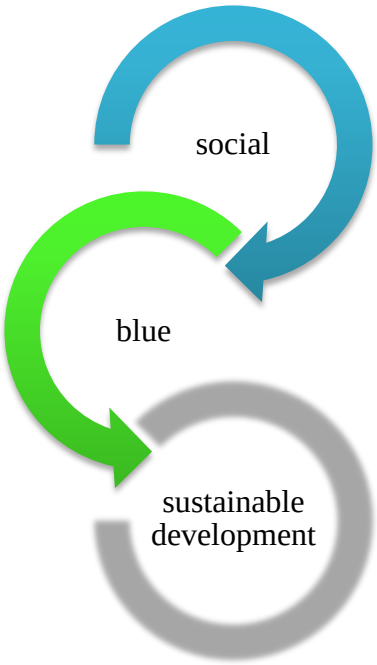

Fig. 3. Types of «green» bonds.

The source is based on: [23].

Social bonds are characterized by raising capital for projects with positive social outcomes, namely: health care, education and financial services, affordable housing and basic infrastructure, such as: sanitation, transport and clean drinking water.

Also a separate category are blue bonds, the world's first such bond issued in Seychelles in 2019, and this bond, in addition to the goals of improving the ecology of the oceans, also has goals to improve the economy of regions that depend to some extent on the use of marine resources [24].

There is a fourth type of sustainable development bond – a hybrid of «green» and social bonds.

Thus, «green» bonds are more targeted at large-scale business or country projects, while social bonds are more beneficial to communities. The experience of foreign countries shows that social projects with such investments have improved people's living conditions.

For example, projects of socially affordable housing, construction of new logistics routes between remote areas, social transport with free travel, modernization of obsolete utilities, etc. Social bonds include the emergence of new jobs through the creation of environmental and social enterprises – from production to food [25].

There are many such clarifications for each type of bonds in different countries and, of course, they give hope that all projects of this kind will be developed in Ukraine [23].

Also, domestic business needs to think seriously about the not yet well-known to many in Ukraine abbreviation ESG – environment, social and governance - environment, social responsibility and management. It is gaining popularity in the world and is gradually penetrating domestic practice. Adherence to ESG principles becomes a key condition for preserving the value of the business for shareholders and investors.

In addition, it can be a profitable investment: the value of companies that are responsible for the climate and the environment, among investors is growing rapidly. ESG principles integrated into business create long-term value. The crisis in which countries and companies have found themselves due to the coronavirus pandemic has shown that ESG can no longer be seen simply as a fashion trend or a purely image element in corporate governance. This is a matter of business survival and the same need as hand washing during a pandemic.

Despite the popularity of «green» finance and the growing demand from investors for environmental investment instruments, there are a number of problems in the development of the climate finance segment. First of all, it is the profitability and risks of green projects, for the financing of which bonds are issued. Unfortunately, most low-carbon and green investments in key sectors are not yet profitable, and the transition from carbon-intensive to green technologies can create financial and social risks [26]. Suffice it to say that the «yellow vests» protests in France, which arose because the government increased excise taxes on gasoline and diesel fuel to finance renewable energy projects, have been going on for more than a year [27].

Banks, despite accusations of financing the shadow economy, prefer to lend to oil and gas companies and traditional energy, as they understand the financial model, cash flows, efficiency and profitability of business, while renewable energy projects are often subsidized by governments and depend on government incentive programs in conditions where government debt is at very high levels and budget expenditures can be reduced. Climate its good, but credit risks and common sense have not yet been abolished. Financiers need government guarantees. The European Commission, for example, is still examining whether banks should be encouraged to finance sustainable industries by potentially easing EU rules on capital lending fees. Bankers

will decide on the financing of environmental projects with regard to the governments and central banks of their countries, because to increase risky lending requires real grounds, otherwise banks will get new problems and increase the burden on their capital.

Andrea Enria, head of the European Banking Association (EBA), the supervisory body that coordinates banking rules in EU countries, said that: «any easing of capital requirements for green assets should be based on clear evidence that they are less risky than not green assets» [27].

So, just wearing green glasses so that ordinary glasses turn into emeralds of the magical land of Oz, will not work. The success of «green» bonds will depend on the relationship and partnership of governments, banks, investment funds, regulators, as well as government co-financing of environmental projects [27].

Moreover, current incentives for green finance can be a source of potential weakness by adding risky assets to banks' balance sheets. The rules developed by the Basel Committee on Banking Supervision determine how much creditors can reduce their capital needs using their own internal models, but, firstly, there are quite strict requirements, and secondly, the rules will be fully implemented only by 2027, and the current reporting of European banks on capital adequacy indicators shows signs of instability. And this is the second problem of «green» bonds.

The third problem is that so far, despite the growing interest in investing in clean energy, the opportunities and volumes of projects that fall under the standards of «green» bonds are not large enough. Coal is still the cheapest fuel, and the introduction of new coal-fired power plants continues, especially in emerging markets with rapidly growing demand for electricity.

In a number of developed countries, there is stagnation in capacity building with renewable energy sources, including through the use of solar and wind energy. This stagnation is caused by changes in subsidy policies or the uncertainty of government programs to support investment in clean energy. Partially green technologies are less green when tested, as the production of batteries or solar panels puts even more strain on the environment than ferrous or non-ferrous metallurgy, and low solar and wind energy flux densities and generation instability make it difficult to integrate green power plants into general energy sources.

The fourth problem is the lack of a methodology that helps to integrate the various opportunities associated with climate change into investment decisions [27].

Thus, the need for action on climate change is beyond doubt, and the financial sector plays a key role in the global economy, and without its participation, environmental projects will not be fully implemented. Financial flows and ways of transition to a low-carbon economy must go in parallel.

But this transition must have a clear scientific basis without hype and political bias, without environmental mythology and unfounded PR. Otherwise, the world will receive negative climate change, and huge financial losses, and serious socio-political problems.

Crises give companies and countries a chance to rethink their strategy and policies, thus showing what was once considered indisputable is often a fallacy.

There is a growing awareness in the world that in the face of growing climate, environmental and social challenges, a stable functioning of the financial system is needed, which can only be ensured if the economy is transformed into a «green» one.

With the deterioration of the quality of natural, productive and human capital, which constitute the material base of financial capital, and the widening gap between them, the risks of new financial bubbles, large-scale and deep crises will increase significantly. Therefore, it is necessary to develop a new architecture of the future financial system, taking into account current global challenges to ensure sustainable development of the world economy.

The COVID-19 pandemic forces Ukrainian society and business to look at the world differently and to be more responsible for the environment. The consumer approach is a thing of the past, when the race for access to resources is replaced by a more conscious approach, which is to reduce the negative consequences that harm nature and the willingness to invest heavily in «green» initiatives.

This is facilitated by the strategic focus on deepening integration with the European Union, which plays an important role in Ukrainian reforms. The Association Agreement between Ukraine and the European Union provides for the harmonization of Ukrainian legislation with EU standards in the field of financial services, corporate governance and company activities. Therefore, the creation of a market for «green» bonds is an important step for Ukraine, which will direct investments to finance domestic environmental projects.

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DEVELOPMENT FACTORS FOR DIGITAL TRANSFORMATION OF BANKING AND TRANSPORT INFRASTRUCTURE OF UKRAINE

Liudmyla Shemaieva[1], Dmytro Hladkykh[2], Volodymyr Shemayev[3]

[1]Doctor of Science (Economics), Professor, Senior Consultant of the Department of Economic Strategy, National Institute for Strategic Studies, Kyiv, Ukraine, e-mail: shemayeva@ukr.net; ORCID: https://orcid.org/0000-0002-2989-0823

[2]Doctor of Sciences (Economics), Associate Professor, Senior Consultant of the Department of Economic Strategy, National Institute for Strategic Studies; Kyiv, Ukraine; e-mail: dgladkikh@ukr.net; ORCID: https://orcid.org/0000-0001-5276-5521

[3]Doctor of Science (Economics), Professor of Economic Theory Department, National Aviation University, Kyiv, Ukraine; (+38)050-953-54-88; e-mail: v.shemayev@gmail.com; ORCID: https://orcid.org/0000-0001-5599-3941

The study examines the problem of the dual impact of the digital economy on various sectors of the economy in the context of insufficient development of the digital infrastructure of Ukraine. The purpose of the study is to determine the factors of the digital economy that either positively or negatively affect the development of banking and transport infrastructure of Ukraine. New opportunities for banks to develop their digital infrastructure have been identified, in particular: increasing the efficiency of their activities by expanding customer base and increasing sales of services, conquering new market segments without the need to opening new "points of sale", increasing revenues, reducing operating costs, rentign and maintenaning premises, optimizing staff and payroll, increasing the level of process automation, accelerating information processing etc. Essenatially, new banking risks associated with the rapid development of the digital economy include: risks associated with the development of non-cash payments, spread of cryptocurrencies and electronic credit platforms, etc. The peculiarities of creation of transport SMART-infrastructure in Ukraine are determined (and the following steps a state should take with the use of public-private partnership in this direction are substantiated).

The impact of the digital economy on the prospects for the development of various sectors of the economy is dual: on the one hand it contains favorable opportunities for such development, on the other – may lead to risks and threats to functioning and development of the economy. Such an impact can be characterized as direct and indirect.

In particular, the World Bank's review entitled "Digital Dividends" [1] provides the following *benefits* for the development of the digital economy for the country: increased productivity; increasing the competitiveness of companies; creation of new jobs; reduction of production costs; overcoming poverty and social inequality.

Instead, introduction of the digital economy and e-commerce, from the World Bank point of view, carries a number of risks, including: the risk of cyber threats

associated with the problem of personal data protection; digital "slavery", or the use of personal data of millions of consumers to control and/or manipulate their behavior; rising unemployment due to disappearance of some professions and even industries due to the further spread of information technology and products, including shops with electronic cash registers, bots serving customers, unmanned vehicles, etc. In particular, a number of experts believe that the banking system may disappear in the next ten years; digital divide in education due to different conditions of access to digital services and products, and, as a consequence, gap in the level of consumption of people from the same country or from different countries.

Another classification of *risks* associated with the development of the digital economy identifies the following key groups of risks [2]: risks of sovereignty (penetration of "foreign" IT technologies into all aspects of life and activities of a country, which significantly increases its vulnerability; finance, transport and energy infrastructure, social engineering and modeling); risks to society (robotization of production and services increases the level of unemployment and the disappearance of certain professions, which exacerbates social disharmony; impoverishment of human and human resources); risks to an individual (computerization from early childhood leads to the development of children's "machine" or "clip" thinking due to the loss of systemic thinking; therefore, there is a gradual process of loss of human identity; instead, the development of innovative breakthrough ideas as a rule, at the junction of different areas of knowledge, requires a nonlinear logic from an idividual).

One of the peculiarities of Ukrainian digital development is that users and businesses are significantly ahead of the state and certain industry. Small and medium-sized businesses already work on the Internet in one way or another and mostly use digital methods to promote their services. At the same time, Ukraine has an underdeveloped infrastructure, low technological education and a general syndrome of "outdated technologies". First of all, the country needs to improve the quality of digital infrastructure, which is developed at all in Ukraine at low level.

The development of the digital infrastructure of the state is necessary for the transformation of all spheres of life, giving them a significant economic and social effect. Further, we examine the example of banking and transport infrastructure factors influencing digital transformation in Ukraine.

1. Banking infrastructure. Further, we examine the example of banking and transport infrastructure factors influencing digital transformation in Ukraine through the prism of "benefits-risks":

- *the change in the structure of the banking system of Ukraine and the nature of the regulator's activities* under the influence of digital economy, in accordance with global trends, is manifested, in particular, in:

successful completion of testing of own digital currency. As part of testing the experience of other Central Banks during 2016-2018, the National Bank of Ukraine (NBU, regulator) introduced a digital e-hryvnia in a pilot mode, which is considered as an alternative to existing payment instruments (cash, payment cards and electronic money). The advantages of e-hryvnia are: *ease of use, availability, security* (due to the guarantees of the NBU) and *speed of payments* [3]. Instead, the *key risk for Ukrainian banks from the full introduction of e-hryvnia is the likelihood of a new product to absorb existing e-money services issued by commercial banks*, which will lead to losses of previous costs for the implementation of e-products by reorienting customers to a more reliable a tool offered by NBU;

accelerated provision of financial inclusion, which is one of the strategic goals of NBU [4]. Among the achievements of the regulator in this area, reflected in the NBU Report for 2018 was an increase, by one third y-o-y, of payment card transactions and an increase in the share of non-cash transactions among all transactions using payment cards to 45% [5];

intensification of the regulator's efforts aimed at improving financial literacy of the society, which is one of the key areas of financial inclusion. According to the USAID study "Financial Literacy, Financial Inclusion and Financial Welfare in Ukraine", Ukraine's financial literacy rate is 11.2 out of a maximum of 21, the lowest among the 30 countries surveyed by the OECD in 2016 [6];

reducing the number of operating bank branches, which is associated with the automation of banking operations and the spread of online sales of banking products, which allows banks to optimize the network and reduce "traditional" banking staff (cashiers, operators, credit inspectors, collectors, security guards, etc.);

emergence of virtual "banks without branches". This includes the entry into the banking services market at the end of 2017 of the new Monobank structure. At the same time, this institution does not have a license from the NBU to carry out banking activities, the reporting of the "bank" is not published by the NBU, its assets and liabilities are accounted for on the balance sheet of JSC "Universal Bank". Thus, Monobank is an Internet banking project consisting of a mobile application and a credit card issued by JSC Universal Bank. Monobank customers receive consumer lending services, and the issuance, maintenance and re-issuance of the card in case of loss is free. Card payments provide for the possibility of "cashback" of up to 20% depending on the transaction. Users of the mobile application also have access to transfers between individuals, utility payments, mobile account replenishment, payment of fines, taxes, single social contribution, online games, other types of payments and support in messengers (Viber, Telegram, Facebook Messenger) [7];

spreading the presence in the Ukrainian banking market of new entities that are not banks in nature, but perform "traditional" functions of banks related to money

transfers, currency sales and lending (non-banking payment systems that transfer funds: GlobalMoney, City24, Ukrkart, etc.; microfinance organizations that provide online loans: moneyveo.ua, moneyboom.com.ua, online-groshi.com, etc.; P2P-lending services, in particular, Pozychaiko, finhub.ua, taplend.com, cryptocurrency sales services: Tyme and IBox terminals [8], specialized cryptocurrencies [9], online exchange offices, in particular, Bitcoin24 [10], which works with the help of Privat 24, and others [11], online exchanges kuna.io and btc.trade [12]);

active expansion of the bank's payment infrastructure (ATMs, payment and POS terminals) outside banks and bank branches, which actualizes the risks associated with physical security and cybersecurity;

- *changes in the operational component of banking* under the influence of the digital economy form, in particular, the following trends:

reduction of the share of cash payments, development of the infrastructure of non-cash payments and electronic banking. The use of non-cash payment and e-banking tools provides banks with a number of *advantages and opportunities*, including expanding the list and increasing sales of services, thus significantly increasing revenues and reducing operating costs for recalculation, examination of damaged and questionable banknotes, security, collection, lease and maintenance of premises, optimize the number of employees (respectively - the cost of wages).

The *key risks* associated with the active development of non-cash payments and e-banking include [13]: *cyber risks*, including hacker attacks, software and hardware "bookmarks" in hardware, electronic espionage, exploitation vulnerabilities in obsolete equipment; *risk of fraud*, primarily with payment cards [14], *risk of liquidity*, which is manifested in the volatility of balances on passive accounts due to cyberattacks; *operational risk*, which is manifested in the interruption of business processes due to staff errors, process errors, technological causes, internal and external fraud, external influences (eg, power outages); *strategic risk*, which is exacerbated by the imperfect plan of innovative development of the bank, which can lead to unjustified growth of costs, which provokes low profitability or unprofitability of digital banking; *reputational risk* that may be caused by negative public opinion about the bank, which is immediately spread through electronic media and/or social networks and leads to an outflow of customers and liabilities; *legal risk* resulting from violations by banks of regulatory documents governing activities in the field of electronic banking;

- distribution of cryptocurrencies. Characterization of cryptocurrencies as a fundamentally new type of money causes a radical change in the rules of the game in business and change the principles of interaction between banks, businesses and individuals. This is the case, in particular, in both Ukrainian (A. Dyka [15], T. Zhelyuk [16], R. Baranov [17]) and foreign (J. Tarud [18], E. Estebed [19], D. Kevry

[20]) works. The *advantages* of using cryptocurrencies are: no dependence of service provision on working (banking) days; complete anonymity; the potential for simplification and acceleration of international settlements, including the use of banking infrastructure; potential possibility for banks to receive additional income through active-passive operations using cryptocurrencies and commissions for intermediary services.

The *risks associated with the use of cryptocurrencies* are as follows [21]: undermining the monetary monopoly of the state; reduction of central bank seigniorage; reduction of demand for the national currency, which causes its depreciation and change in the speed of circulation, which complicates the implementation of monetary regulation; the impossibility of conducting an effective monetary policy, as a significant part of the money supply will be beyond the control of the regulator; reduction of the level of influence or elimination of financial intermediaries (first of all – banks); destabilization of the financial market in general due to the fall of the cryptocurrency market; penetration into the domestic market of foreign financial institutions as a result of intensified competition and loss of market position by national institutions, which provokes the loss of monetary sovereignty of the country; use for money laundering, "capital flight" abroad, concealment of corrupt sources of wealth, illegal transactions; anonymity of the transaction process; uncertainty of the objective value of cryptocurrencies, which should be expressed in real goods and services; the contradiction between the issue and the real demand for virtual currency; lack of state guarantee, which makes it impossible to safely accumulate cryptocurrency; zero intrinsic value, which means the possibility of becoming a "financial bubble"; threats to the environment due to unproductive electricity consumption; high exchange rate volatility; lack of guarantees for the safety of electronic cryptocurrencies (risk of loss of funds due to loss of password to the electronic cryptocurrency or its inoperability); the possibility of repressive actions by regulators; falling profitability of mining; the possibility of "electronic robbery";

- development of electronic credit platforms. These are companies that determine the solvency of a person or company instead of banks, after which there is an investor who wants to allocate funds for lending. This form of credit relations in the long run is able to oust banks from the credit market, leaving them without interest income, which currently accounts for the lion's share (about 70-80%) of gross income of the banking system, and taking away the share of cash flows forming bank assets and liabilities.

Among the *advantages and opportunities* provided by banks involved in the promotion of P2P platforms: no liquidity risk, because the bank does not use for lending or its own funds or borrowings; no risk of loan default; the possibility of obtaining additional income in the form of commissions; gaining access to an

additional customer base and the ability to sell them additional services [22]. The *main risks* to the development of P2P lending in Ukraine are: P2P lending platforms, which operate with the participation of banks, are based on the internal rules of the banks themselves, but are not regulated by the NBU and the Law of Ukraine "On Banks and Banking"; there is no legislative regulation of the liability of intermediaries, therefore, the rights of the person who is a creditor in this scheme are not protected; deposits are also not guaranteed by the state Fund for guaranteeing deposits of physical assets, which increases the risk of losing funds; P2P lending transactions are not subject to reporting to the NBU, so the regulator does not have the ability to monitor, analyze and regulate these transactions [23]. Instead, the NBU identifies the following among the risks of lending: lending to borrowers, whose credit risk is determined by the policy of banks and is not regulated by the NBU; low level of awareness of the population about possible losses; the possibility of lending to related parties; failure to reflect these transactions in the reporting of banks [24];

- Vulnerability of digital infrastructure used by banks. Today in Ukraine there is no standardized software product under the conditional name "Bank Operations Day". Therefore, each institution uses those software modules that are suitable for a particular bank in terms of price and functionality. The large number of platforms and different types of software leads to problems that complicate mergers and acquisitions of banks, as well as to the increased vulnerability of banks to the actions of criminals, hacker attacks, identity theft, computer viruses and more.

In summary, it should be noted that the impact of the digital economy on the prospects of the country's banking system and infrastructure is manifested, in particular, in the emergence of a wide range of new opportunities for such development, on the other hand, carries a large number of fundamentally new risks.

2. Peculiarities of creation of transport SMART-infrastructure in Ukraine. An important area in which the international infrastructure is adapting to the challenges of the digital economy is the active implementation of the concept of "smart cities", which began in 2008 after the financial crisis. Today, there are entire cities running on the Smart system. According to McKinsey's forecast, they will generate at least two-thirds of the world’s GDP. The concept of a "smart city" does not have a typical generally accepted definition or set of terms to explain it.

In 2014, the report of the International Telecommunication Union considered more than 100 definitions related to smart cities, and the result of this analysis was the following definition: “A sustainable smart city is an innovative city that uses ICT and other means to improve the quality of life , efficiency of activities and services in cities, as well as competitiveness in meeting the needs of present and future generations in economic, social and environmental aspects".

The application of the smart city concept opens up significant opportunities for different countries: in developing countries, cities feel an urgent need to create an adequate urban infrastructure that would meet the growing pace of urbanization. In the process of satisfying infrastructural demands, various types of smart infrastructure applications open up the possibility for such cities to make a technological breakthrough.

Developed countries often face the problem of maintaining the functionality of outdated infrastructure, which cannot be abandoned due to cost, territorial and other considerations.

In such countries, ways of applying smart city technologies can be aimed primarily at promoting the optimal operation of existing infrastructure and monitoring the functioning of old resources of this kind. However, in both developing and developed countries, the main argument in favor of using smart infrastructure should be that they meet society's needs for sustainable development.

The smart infrastructure of the city is the basis for all major aspects of living in it, including the rational behavior of the population, rational mobility, rational economy, rational way of life, rational management and rational use of the environment. The main feature that underlies most of these components is their interconnectedness and data generation, which can be rationally used to ensure optimal resource consumption and increase efficiency.

In Ukraine, the proliferation of SMART-infrastructure in the cities is confidently taking the first steps: certain Smart City projects are being implemented at the initiative of the state or business: fare payment in the metro, trams and funiculars of Kyiv, GPS in public transport, electronic queue at medical clinics, etc. Authorities in other Ukrainian cities also open up space for the implementation of certain Smart City projects such as Lviv, Odesa and the region, Dnipro, Sumy, and others. In Western Ukraine, UNDP funds projects for the digitalization of smaller towns, sich as Kalush, Ivano-Frankivsk, Ternopil and others.

Below we summarize currently available components of SMART-infrastructure in Ukraine:

1) *E-service*s (use of information and communication technologies in various fields): provision of administrative services; discussion of regulations and more. The advantages of providing electronic services are:

- convenience of receiving electronic services; accessibility and transparency of the rules for their provision;
- no queues - saving the applicant time;
- convenient forms of electronic applications;
- wide and dynamic scope of electronic services;
- ability to control the progress of electronic services;

– ensuring a high degree of information security of the applicant's personal data on service portals;
– transparency of state activity; increasing the availability of services and openness of state data (activity of involving citizens in the activities of the state with a reduction of their time and financial costs);

2) *E-ticket* - creating a single window system for selling tickets for any mode of transport with the ability to combine modes of transport. Advantages of the electronic ticket:

– saving time when buying a ticket via the Internet;
– possibility to choose combined routes from different types of transport;
– storage of the ticket in electronic form in a database that protects against loss, theft or absence of a paper ticket;
– the opportunity to buy a ticket for other people who are in another city or for other reasons do not have the opportunity to buy a ticket, they only have to come to the registration;

3) implementation of the *ERP* system in the Ministry of Infrastructure of Ukraine and integration and implementation at relevant state enterprises and organizations, which provides for:

– electronic document management; contractual accounting;
– supply logistics management; accounting calculations;
– management of fixed assets; road repair and maintenance management;
– financial planning and budgeting; accounting and tax accounting; assessment, calculation of material needs;
– accounting of spare parts in warehouses, tracking of balances; personnel management and salary calculation;

4) *open budget* – creation of conditions for satisfaction of needs of citizens in the information on use of means of the state and local budgets by the Ministry of Infrastructure of Ukraine and the state enterprises which are in the sphere of management of the Ministry. Principles of open budget functioning:

– relevance and reliability of information;
– integration with geographic information systems for ease of search and perception of information provided;
– interactive access to the portal regardless of territorial remoteness;
– convenience of work provided by constant improvements of ergonomic characteristics of a portal.

The advantages of an open budget are:

- formation of a single open information space in the field of financial management of enterprises and the economy in terms of (financial condition, volume and sources of budget revenues;
- determination of the main priorities and directions of budget expenditures; debt obligations of enterprises);
- creating a positive image and reputation of public authorities and local governments;
- anti-corruption;
- increasing the investment attractiveness of enterprises;

5) *open data* – automatic coverage of open data registers that are filled in and maintained by state transport enterprises;

- creation of a cyber situational center of the Ministry of Infrastructure of Ukraine, which will provide control over the implementation of the functions assigned to the Ministry in real time, in particular:
- appeal to emergency operational services such as "single window"; reducing the response time of emergency services to public appeals; transfer of geoinformation data for the direction of the nearest brigade of emergency operational services;
- informing and notifying citizens about emergencies in transport, transport infrastructure facilities and crowded places.

Comprehensive collection of information will allow to make effective management decisions and ensure the safety of transportation of citizens and goods.

- *E-Post* - creation of an online marketplace similar to eVau and a mobile application mWallet, which combines all possible financial services, from digitizing discount cards to P2P transfers, providing each customer with an ID post and the following services:

- contact center services; ordering tickets (railway, bus, air); money transfers; payment for housing and communal services;
- provision of state administrative services; payment of fines, taxes; provision of insurance policies;
- tracking e-mails; online ordering of periodicals; mobile application service for iOS and Android systems;
- main functions of the personal account of the web portal; push notifications about delivery or changes in service processing statuses;
- service calculator; search for the nearest branch (by location);

- *E-transport* (air, rail, car, water) - the creation of a single transport model, logistics schemes at different levels, real-time optimization of freight and passenger traffic, traffic flows. The first steps in this direction are related to:

- conducting an inventory, creating an accounting system and maintaining an up-to-date "register" of rolling stock;
- use of relevant information on the movement / transportation of passengers and goods;
- acceptance of operational information on the location of rolling stock;
- creation of a system of analytical processing of aggregate information to assess the cost and commercial efficiency of the work performed.

The measures listed above will prevent improper and inefficient use of rolling stock; create a system of emergency response and notification of emergency situations; create a system for evaluating the effectiveness of the quality of services provided.

The following steps in this direction include:

- introduction of a system for registration of imported containers (electronic order for issuing a container from the port, permission of customs to load the container, permission to leave the checkpoint, transition from paper to electronic document management using EDS, availability of approved technological schemes at the port, integration with the system modern model of system implementation - the presence of elements of open architecture for process configuration (construction of network and computer infrastructure in the port);
- introduction of separate software packages on accounting platforms for cargo accounting in the port, accounting and personnel and salary accounting; introduction of communication with the weight of vehicles for electronic control; introduction of elements of the "Single Window";
- improvement of automated control systems for the process of passenger traffic management with the use of information technology, which requires:
- to introduce a management system for the process of transportation management and commercial work; to equip rolling stock with GPS-systems;
- install information boards at stops;
- to place ticket sales terminals at stops;
- geoinformation systems of real-time geospatial information coverage;
- mobile applications - easy and fast access to systems, the possibility of feedback in electronic form, including e-ticket, e-application, e-petition and others;
- cloud computing and technology-providing universal and convenient access through the network to a common pool of computing resources;
- cybersecurity of implemented systems-protection of vital resources of citizens, society and the state in cyberspace.

The country's needs for smart urban infrastructure initiatives should be reflected in current national policies on national transport infrastructure and ICT. Taking these needs into account involves strengthening a supportive ecosystem that enables the development of smart infrastructure, including human resources, the legal framework, technology policies, institutional arrangements and data use policies at both government and human resources levels.

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SECURITY SYSTEM FOR BANKING INDUSTRY BASED ON BIOMETRICS

Maksym Slatvinskyi[1], Nataliia Gvozdej[2]

[1]Ph.D. (Economics), Associate Professor, Head of Department of Finance, Accounting and Economic Security, Pavlo Tychyna Uman State Pedagogical University, Uman, Ukraine, e-mail: ms@udpu.edu.ua, ORCID: https://orcid.org/0000-0003-4096-2901

[2]Ph.D. (Economics), Associate Professor of Department of Finance, Accounting and Economic Security, Pavlo Tychyna Uman State Pedagogical University, Uman, Ukraine, e-mail: gvozdej@ukr.net

With the development of banking technologies, new banking products, and services the development of systems for protecting banking operations from possible risks is becoming increasingly important. The spread of hacker attacks on banking institutions and bank customer accounts, fraud with payment cards, credit fraud, etc. is the main reason for the introduction of various protection systems and finding the best ways to prevent and eliminate risks in the banking industry. Therefore, the issue of security systems for banking operations is not only relevant but also a vital condition for the proper functioning of Ukraine's economy.

Banking operations are a fundamental factor in the functioning of the banking system. Despite the importance of ensuring their security for the improvement and development of banks, there is no uniform approach to determining the security of banking operations. The security of banking operations is not singled out in the holistic direction of development of economic science but is only a supplement to the doctrines of banking security in general.

Many Ukrainian and foreign scientists have been engaged in theoretical and practical research on the problem of the formation and management of the bank's financial and economic security system. Leading economists such as Yaremenko S., Bukin S., Kirichenko O., Gamza V., Tkachuk I., Mezhokh Z., Yermoshenko M., Sorokivska Z., Zubok M., Alaverdov A., Kril Ya., Baranovskyi O., Kamlyk M. have made a significant contribution into issues of bank's financial and economic security systems.

The scientific researches mostly reveal the general principles of the formation and management of financial and economic security, but there are not enough scientific works that would consider the protection of banking operations. The use of methods and means of protection of banking operations can give impetus to improving the financial and economic security of banks in general.

Management of financial and economic security of banks depends on the economic policy, the efficiency of state institutions, the legal support of these institutions, their existing financial potential, and compliance with NBU standards, etc. [1–5].

The financial and economic security of the banks is one of the most important components of its successful operation and competitiveness in the financial services market. To effectively counter existing and potential threats and create conditions for the safe operation of the banks, a system of its comprehensive protection must be created.

The protection of the banking industry should be understood as processes aimed at protecting banks from the influence of individuals and legal entities, which is associated with violations of the law, as well as compensation for possible or affected by this activity economic or other damages [6].

The security system is a target subsystem of the bank management systems and strategic management, a set of methods, processes, and resources required for the implementation of security management based on security policy [7].

Thus, the system of financial and economic security of the bank is a combination of elements (security of material resources, financial security, information security, and personnel security) and their interconnections. The purpose of this system is to protect the bank against threats and counter them.

Klekov O. emphasized that constructing the security system occurs through the setting of appropriate tasks.

They include:

– protection of the legitimate interests of the bank and its employees;

– prevention of offenses and criminal encroachments on the property and staff of the bank;

– timely detection of real and potential threats to the bank, measures to neutralize them;

– identification of internal and external causes and conditions that may contribute to causing the bank, its employees, customers, and shareholders material, intellectual and other damages, interfere with their normal activities [8].

At the same time, the form of security organization is the external expression of its content.

Banks' security structures should be based on the bank resource capabilities, modelling the risks of possible threats and uncertainties in banking and related activities, and optimizing chosen solutions.

In this regard, O. Stayer proposed to divide all the principles of economic security of the bank into three levels:

– interaction level – legality, independence and responsibility, competence, coordination, confidentiality, complexity, separation, equivalence, preventive and reactive measures;

– operation level – economic expediency, continuity, purposefulness, differentiation, objectivity, interdisciplinary approach, control;

– self-development level – adaptation, integration, constant development, scenario modelling, variability, reflexes [9].

According to O. Stayer, this will provide a better understanding of the need to manage these principles in ensuring the bank`s economic security, which depends on the effectiveness of the bank`s management and professionals to avoid possible threats and eliminate harmful effects of certain negative components of the external and internal environment.

Thus, the financial and economic security of the bank is ensured through the setting of appropriate tasks and in compliance with important principles. In the interaction of these tasks and principles, it is possible to form a system of financial and economic security, which is aimed at measures to protect and prevent threats to banking.

At the same time, the state of financial and economic security of Ukrainian banks shows that the existing security systems operate only in the mode of protection against threats, not countering them, and mostly provide standard measures that are not always effective. Bank security measures are limited to the activities of security departments directly without extending security functions to other departments of the bank. The main disadvantage of the organization of banking security systems is that the main focus is on identifying violations in banks, rather than preventing them.

Aiming to develop a comprehensive system of economic security, which would solve these problems in banks, S. Yaremenko [10] established its organizational and methodological principles. She considered the organization of a comprehensive system of economic security of the bank as a certain process that has a certain structure of interrelated measures. Each of the measures is basic for the next and forms a certain basis for the creation, formation, and development of a security system. The process of organizing a comprehensive system of economic security is based on a certain information base, which consists of: results of an analysis of bank threats, decisions of the bank manager on security, legal norms of current legislation on banking protection, main tasks of the bank and its possibilities to create a comprehensive system of economic security.

S. Yaremenko also considers the formation of financial and economic security of the bank as a complex process aimed at the development, satisfaction, and protection of the interests of the bank, which has a corporate character. That is, the management process, according to S. Yaremenko, should be organized through the impact on the conditions and factors that ensure the development and security of the bank as a corporate interest.

And the protection of security interests in terms of process management involves maintaining the necessary level of protective capabilities of entities through the formation of their economic, intellectual, physical, and other potentials in

accordance with the needs of security and the conditions in which it performs its functions [11].

However, banks will not cope with the qualitative formation of the system of financial and economic security on their own. According to Z. Sorokivska, first of all, it is necessary to strengthen the state regulation of the banking industry for forming a high-quality and comprehensive bank's financial and economic security system. In particular, it is necessary to develop an effective mechanism for refinancing commercial banks, to impose severe sanctions on those banks that do not comply with basic prudential rules, provide inaccurate information, to make banking information more transparent, to strengthen the level of banking supervision by the National Bank of Ukraine. With these measures, it is necessary to improve the methodological basis for assessing the level of compliance with the bank`s financial security. To do this, it is required to intensify the development and implementation of new methods and technologies for processing and analyzing information to assess and ensure the bank`s financial security [12].

Thus, the formation of a bank`s financial and economic security should be based on the principles of financial and economic security, according to which its objectives will be set. Based on these objectives, organizational and methodological principles will be developed, which will be used by banks as a basis for ensuring their effective and high-quality security system. Compliance with the prudential rules by banks is important for the qualitative formation of their financial security system.

Security of banking operations is not less interesting, as concerns the essence of the banking business and is directly related to the bank and personnel security. The technology of staff violations and the use of the current order and rules, shortcomings and violations in the bank in the personal interests of bank staff or its owners, as well as in the interests of competing banks and organizations, crime and bureaucracy is of particular interest.

Regarding the systems of protection of banking operations, the direction of protection against credit risks has most scientific publications. Scientific articles cover only long-known and generally accepted truths and do not introduce anything new. The works of economists, general legislative provisions are cited, and those methods of protection that are well-known and currently ineffective are described. The system of protection of banking operations does not have a holistic and comprehensive study.

Thus, the security of banking operations is less explored by economists. Most information about the banking operations protection systems can be found in popular scientific and journalistic articles, on the websites of banks, but not in authoritative scientific works. General conclusions and duplication of well-known information, the secrecy of most information and statistics for studying the banking security systems

is a problem for the development of an independent and thorough direction in economic thought.

The level of banking fraud is growing rapidly in the process of developing electronic technologies, expanding the functionality of payment cards and remote banking channels (RBC). Nowadays, Internet banking is becoming very popular, which is a convenient way to use banking services, but also has many dangers. There are the following main risk groups for e-banking users: key/screen logging – capturing entered logins and passwords from the screen or keyboard; SMS interception; theft of an electronic digital signature (EDS) key; phishing (infecting a computer with spam on behalf of well-known brands); malware on the computer; malware on the phone; remote hostile computer control; transaction substitution (MIM / MIB – technologies "man in the middle", "meeting in the middle", "loss in the middle", "man in the browser") [13].

These risks are to varying degrees relevant to the RBC of individuals and businesses. 95% of banks use a one-time password via SMS to authenticate individual users. This message with a one-time password is easy to use, but it has serious drawbacks:

- one-time password eliminates only a small part of modern attacks;
- sending each SMS is costly for the bank.

Ideally, for more secure remote payments, individuals should focus on different authentication tools for different transaction limits: SMS with a password for small payments, more secured OTP generators – for large amounts [14].

For customers who use more than 10 SMS with OTP per month, it is much more convenient (and cheaper for the bank) to get a hardware OTP generator or a similar mobile application for smartphones.

95% of banks use EDS (Electronic Digital Signature), and the key is stored on unprotected storage media (hard drive, flash drive, optical disk). This technology sometimes allows attackers to steal the EDS key and password to it. This information will be enough for the hacker to transfer money from the bank customer's account. The following mechanisms allow to avoid it [15]:

1. Secure USB-compatible authorization token (can be as a smart card) for generating and storing an EDS key.

The main advantage of the certificate is that the EDS key is generated directly inside the token, so the key cannot be copied or extracted from there. But the problem is that users very often leave the token connected to the PC, allowing an attacker (or virus that infects the user's PC) to create and sign unauthorized payments on the user's PC.

2. One-time password generators (OTP) to the available EDS.

Additional protection can be provided by various types of OTP generators (SMS with OTP, OTP keychains, or mobile applications). Their main advantages are no need to connect to the PC, no software to install; can be used in parallel the generator for RBC of individuals, and also for the protection of transactions on corporate cards; more secure authorization schemes can be implemented (simple OTP, then OTP with binding to receipt banking information) [13].

It is a completely different situation when the security of the RBC is threatened by bank insiders. Among the typical mistakes of the financial institutions – failure to comply with the procedure for dismissal of a staff member who has the keys to access the domains. In this case, according to the legislation of Ukraine, it is necessary to change all passwords of the login system, having previously deprived the dismissed employee of access to its administration. Experience shows that the reverse order of such a process can lead to the leakage of insider information and as a consequence – to the theft of funds from customer accounts [16].

According to the statistics of the authoritative Bureau of Statistical Research GfK, in 2014, cybercriminals attacked 57 banks, during which they tried to illegally transfer 116 million UAH from the accounts of businesses and 11 million UAH – from the accounts of individuals [17]. However, over 70% of such attempts were in vain – account holders had blocked the funds on the card after notification of suspicious transactions.

You can freeze your funds and chargeback within one to two business days from the date of the online transaction to the value date. Thus, the bank customer has not enough time to notice the illegal discarding of money from his account and block it. Since not every customer checks the account balance every day, the chances of seeing an unauthorized money transfer in time are higher in customers who are connected to SMS banking.

It is difficult to prove the illegality of the transaction. The mechanism of such a procedure is not legally registered, so legal entities – victims of hackers apply to specialized law firms, which involve law enforcement agencies in the investigation and collect evidence. According to the experience of the Ukrainian Bureau of Interpol, the investigation process may take several years, especially in the case of international transactions.

Thus, the modern development of banking technologies for transaction protection focuses on the development and improvement of RBC (remote banking). Internet banking, SMS banking, and others are new technologies that significantly reduce the risk of fraud of bank employees and save time and money for bank customers. Banks implement new technologies of information security (for example EDS – electronic digital signature, etc.). But each new technology has its advantages and disadvantages.

The human factor is one of the most important factors in the security of banking operations. Entrepreneurs have bank accounts, as it has become a vital necessity in our time. According to a study conducted by marketing and sociological research company GfK Ukraine commissioned by Ukrainian Interbank associations of members of EMA payment systems [17], Ukrainian payment card holders need more information on modern efficient ways to prevent themselves from being robbed by cybercriminals.

According to the survey, 11 % of payment card users could not name any method of protection, and other respondents said that they know only 1-2 ways to protect against fraud. The main methods of protection were traditional: 52 % of respondents know about the need not to tell anyone the PIN code of the card; 22 % – do not pass the card to other people; 14 % – do not store the PIN code with the card, including not writing it on the card [17].

At the same time, modern and effective means of protection for most payment card users remain largely unknown: only five percent or less of respondents were able to name a significant part of them without prompting.

Respondents explain the non-use of modern means of protection by the lack of information on their purpose and conditions: for example, a minority of respondents know the fact that setting limits on transactions is a way to minimize financial losses in the result of fraud.

A small part of bank customers is informed that the limits can be increased quickly by calling the bank's contact center or through the Internet Banking system. Ignorance of the possibility of rapid change of limits is the main barrier to the use of this mean of protection.

The SMS banking is perceived by most holders as a source of information about the receipt of funds on the card (91 %), and not as a tool to stop fraudulent transactions: less than half of users chose the option “to contact the bank in case of theft or other fraud and block the card” (44 %). At the same time, 94 % of respondents say that the card should be blocked in case of theft or loss, and only 58 % believe that this should be done when receiving an SMS about a transaction that the cardholder did not do [17].

Among the rules for the safe use of payment cards, which require additional explanations from banks, respondents named: setting limits on transactions; connection of SMS notifications; informing bank employees when leaving abroad; re-issuance of the payment card after returning from abroad; regular change of PIN code; counting of money near an ATM immediately after receipt; storage of documents confirming banking operations [17].

Based on research data and bank information on protecting the accounts from criminals, we can highlight the most important security measures when banking:

keeping in a secret from third parties PIN code, prevention of personal data disclosure when paying for online purchases, using an ATM pay attention to the absence external devices on it, email and messenger users need to check financial offers from their acquaintances by contacting them by voice.

Thus, the human factor is one of the main factors that provokes threats in the banking market. A person can provide the greatest protection for his/her bank account, following the rules of security and being careful and cautious, while banking security systems are more focused on information and computer systems.

The creation and implementation of the latest technologies for the protection of banking operations is a continuous process characterized by truly progressive qualitative and quantitative characteristics. The implementation of new methods of authentication for access to a bank account is one of the most dynamic and promising areas of development of the bank`s security systems.

Having researched the market of the new technologies and innovative ideas, we have singled out those innovations, the implementation of which could be started in Ukraine and get incredibly positive results.

The banks of City have been testing a new customer authentication system – comparing the customer's appearance with his/her photos on social networks.

A software called Perceive, which uses biometric parameters for authorization, was developed by experts from Socure, based in New York. The system evaluates the image from bank customer`s smartphone and determines his identity. And for additional verification it uses his profiles on social networks such as Facebook, Twitter, and LinkedIn. After verification, the system either approves the payment or activates an alarm.

Socure noted that this technology is already used by several American banks in the fight against card fraud – although still at the testing level.

Earlier, MasterCard announced the launch of testing the system of using fingerprints and selfies to confirm online payments. Testing has been conducted in some European countries and the United States.

Some US banks use a new way to verify customers: now instead of passwords and signatures to confirm the transaction is enough to take a selfie on a smartphone.

The USAA was the first American financial institution to offer its customers to install a special application on their smartphone that allows them to use selfies for authentication when conducting banking transactions. This bank launched this service in test mode in December 2014. And since January 2015, more than 100 thousand customers of the credit institution in Florida have been able to use the new service.

Another American bank – WellsFargo began to offer its customers to take eye selfies. Instead of passwords and signatures, the credit institution's customers can install a special application EyeVerify on their smartphones, which studies the

structures of the sclera and pupil of the client's eye, compares the data entered into the database and verifies the person when performing banking operations.

The British bank Halifax has tested a new system for authenticating its customers through heart rate monitoring, which allows depositors to access their account without entering additional codes and passwords. The bank's experiment is based on the fact that the pattern of each person's heart rate is as individual as fingerprints or an iris. To authenticate it, the bank customers will be provided with a special bracelet that will connect to the carrier's home computer and confirm its identity, opening access to online banking.

Vietnam's joint export-import commercial bank Eximbank has started installing biometric ATMs in the country. Customers of such ATMs are authenticated by fingerprints. Users of Eximbank ATMs do not need to remember and enter a PIN code for their cards. Any transactions with funds on the current account are carried out with the touch of a finger. However, given customers concerns that the innovation could lead to a surge in crime, the Eximbank administration notes that fingerprint scanners can detect if a hand is alive, and will not give access to financial transactions if the finger is cut off.

However, the security of fingerprint recognition authentication has been compromised. Research company SRLabs easily bypassed the fingerprint scanner of the Samsung Galaxy S5 smartphone, using a copy of the fingerprint and toner. SRLabs experts note that the ease of hacking is a very serious threat to the user of data because Samsung has decided to use fingerprints to protect the information in the payment system PayPal. Thus, by stealing the phone and breaking its scanner, criminals have the opportunity to seize all the information from the cards, thereby making purchases without problems, as well as send money anywhere without the knowledge and consent of the real owner. The situation is complicated by the fact that the smartphone does not require a password after rebooting – all the security of the mobile device and the data stored on it depends solely on the scanner, which was broken in a few minutes.

Thus, the latest technologies of biometric authentication by recognition of facial features, fingerprints, hand data, and heart rate have a real basis for implementation in the banking systems of different countries. During testing, the novelties impress with the level of speed of information processing, reliability, and data protection and client`s funds from illegal encroachments.

Biometric systems are currently forming a new generation of information security. By biometrics we mean the technology of identification of a person that uses the physiological parameters of the subject (DNA code, fingerprints, iris, facial image, voice tone, etc.) for authentication [18].

For the banking system, the introduction of biometric data as a means of authentication will be an outpost for the formation of an integrated banking protection system. If the traditional systems of the first generation have such features as unambiguity and consistency of the identification parameter, the parameters of the new generation systems, which are biometric systems, depend on many factors and are always variable. In traditional systems (PIN, magnetic card) anyone has access because the system expects the correct code, not a specific person. Therefore, the loss or theft of the key – allows unauthorized access to data. The absence of this disadvantage in biometric systems provides some significant advantages, as it uses unique identifiers specific to a particular person. The algorithm for authentication in the first-generation systems typically much simpler than biometric authentication systems.

Due to the development and spread of biometric technologies, they have been actively used in many areas related to the protection of access to confidential information, material values, when crossing the state border, etc. Biometric technologies are widely used in banking security, investment, as well as retail, public order, health care, recently it has been actively used in social services. Shortly, biometric technologies will take leading positions in many areas of personal authentication, used separately or used in conjunction with smart cards, keys, and signatures [19].

Currently, the most common biometric systems by type of biometric parameters are fingerprints, hand geometry, facial images, iris.

Fingerprint recognition authentication [20]. According to this method, you need to get an image of the papillary pattern of one or more fingers. Then this image is processed, during which are detecting its characteristic features, such as lines branching, ending, or crossing (Fig. 1). For each feature, except its type, the relative positions and other parameters are also stored, for example, for the endpoint of the line – its direction. The set of such data features and their characteristics forms a template of human biometric characteristics (HBC).

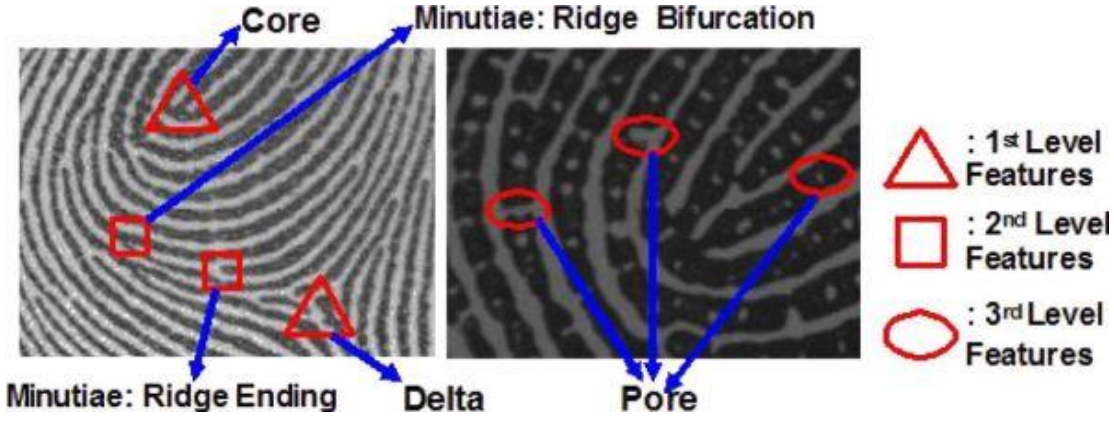

Fig. 1. Fingerprint recognition [21]

When authenticating a person, a comparison of the obtained fingerprint template with previously obtained ones is used. At a certain level of compliance, a conclusion is made about the identity of the templates and there is verification or identification of the submitted fingerprint. This method is the most common in the world. It is used both in business life, for example, access to a computer system, and in everyday life, for example, for door locks. The advantages of this method are relative cheapness and high efficiency, ease of use, ease of installation, compactness of form. It should be noted that dactyloscopy authentication in terms of applicability and affordability from a financial point of view surpasses all other technologies (Table 1).

Table 1. Comparison of biometric methods of personal authentication

Measured parameters	FRR	FAR	Cost (average), USD
Drawing of covers of fingers, hands	0.05	10-6	200
Drawing of blood vessels of the fundus	0.01	10-9	5000
Drawing of blood vessels of the hand	0.05	10-4	2000
Drawing of iris	0.05	10-5	2000
Hand geometry	0.02	10-3	500

Disadvantages of this method include insufficient resistance to forgery of the fingerprint and external factors – scanner contamination or finger cleanliness.

Handshape recognition authentication [20]. This method is based on the geometry of the human hand. Receive several silhouettes of user`s hand using illuminated diodes, and construct the three-dimensional image of hand (Fig. 2).

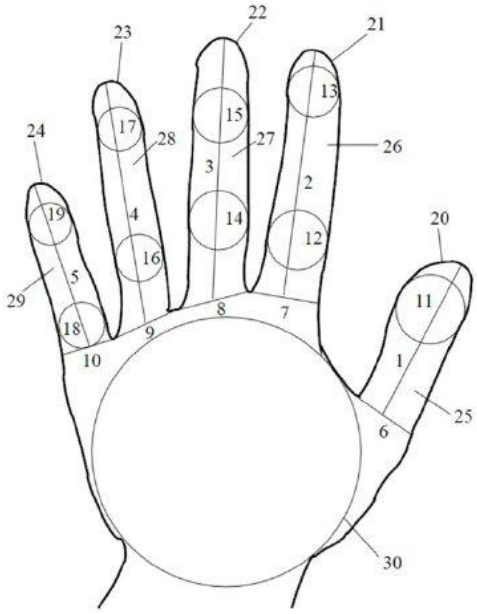

Fig. 2. Hand geometry and 3D hand gestures [22]

For each of them compute the vector of values. All vectors of traits of one person are combined into a separate class. The traits of the reference image are the average values of the traits of the whole class, i.e. determine its center. The initial

traits are modified by computing new ones or reduced by bringing to a lower number. And, thus, a hand pattern is formed based on the sample. The resulting image is transferred to a class of original or modified features compared with the standard. Advantages of the method: there are no requirements for the cleanliness of the hand, its temperature, and humidity. Disadvantages: bulkiness of devices, low resistance to counterfeiting [23].

Iris recognition authentication [20]. The iris is also a unique HBC. To scan it, a portable camera with specialized software is enough that allows you to capture the image of the part of the face from which the image of the eye is extracted. From the image of the eye, in turn, stands out the drawing of the iris, which builds a digital code for person recognition (Fig. 3). The advantages of this method are a high degree of recognition, non-contact scanning method, small database volume that is typical for most biometric systems, and a small number of errors of the first and second type (Table 1). Disadvantages include the high price of the devices and some inconveniences for users due to the need to focus.

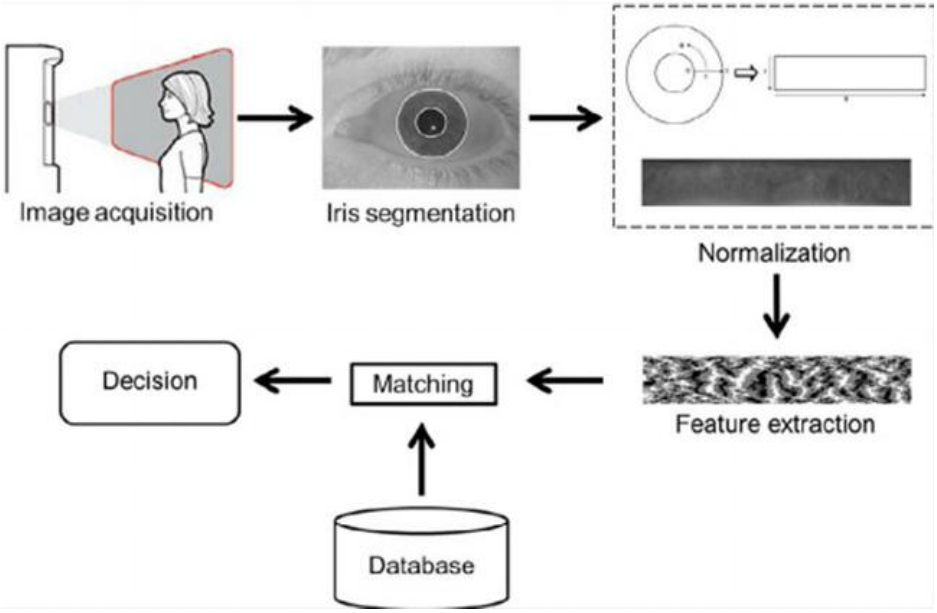

Fig. 3. Iris recognition process [24]

Voice recognition authentication [20]. Voice is one of the traditional ways to identify a person. Since this method is non-contact and does not require much effort, work is underway to create voice locks and systems to restrict access to information. Interest in this area is also associated with forecasts of the widespread introduction of voice interfaces. The principle of operation is based on the following: each burst of the voice signal corresponds to some fragment of speech. It can be a single letter, a combination of them, or a short word. Fragmentation is followed by the digitization of fragments according to frequency indicators (Fig. 4).

Advantages of the method: the usual method of recognition, low cost, non-contact. Disadvantages: high level of errors of the 1st and 2nd type, high sensitivity to interference, which causes the need for a specialized soundproof room for recognition, the possibility of unauthorized interception of the phrase. The quality of recognition depends on many factors, such as intonation, speech rate, disease, and psychological state of the source, etc. [23].

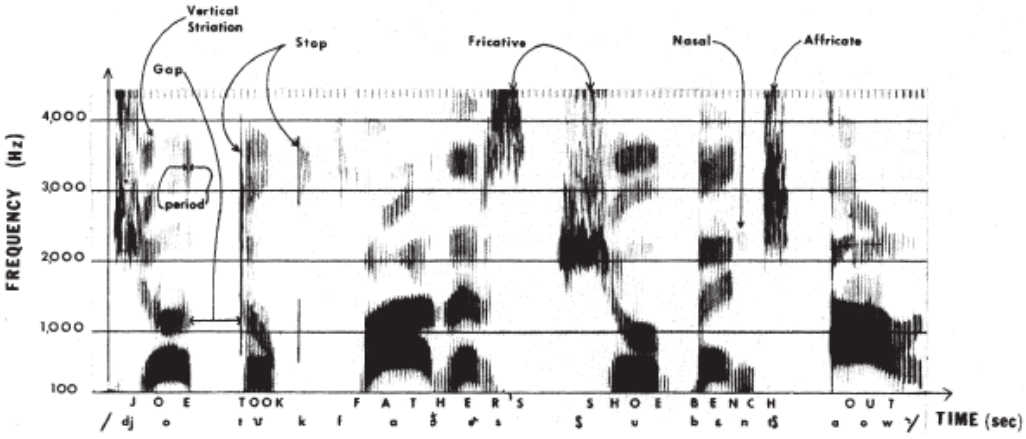

Fig. 4. Voiceprint [25]

Each of the types of biometric authentication is characterized by certain features that depend on the requirements for ease of use, cost, and accuracy of the method. Accuracy contains three components:

− FRR (False Rejection Rate) – the rate of erroneous denial of access – access is denied to the user registered in the system; called “error of the 1st type”;

− FAR (False Acceptance Rate) – the rate of erroneous tolerance that takes into account the cases of providing the access to an unauthorized user by the system – the percentage threshold that determines the probability that one user can be mistaken for another; called “error of the 2nd type”;

− the probability that the system will not be able to make any decisions is called “error of the 3rd kind” [26].

Usually, there is a balance between errors of the first and second type in a biometric system, while the number of false-positive operations is reducing the probability of false-negative operations is increasing and vice versa. It is possible to increase both indicators of reliability only by the fundamental improvement of biometric techniques.

Errors of the third type are similar to errors of the second type – the user is denied access because the system could not recognize it. However, the nature of these errors is different. It is not related to defects in recognition algorithms, but it is related to external causes. For example, non-recognition of a person who has lost or for some reason could not present the necessary HBC for the verifying: cut or burn a finger, runny nose, etc.

Biometric authentication methods provide the idea directed on complex consideration of internal characteristics of biometric systems and their external displays, most visibly revealing advantages of biometrics in comparison with other technologies. The list of these advantages is obvious: person identification instead of the password or the material carrier, impossibility to refuse actions confirmed by biometric identifiers, the identifiers are inseparable from a particular person and cannot be lost, stolen or exchanged. So that this list does not remain a declaration, we consider a specific example of the consequences of the use of other technologies.

An analysis of Jerome Kerviel's € 5 billion loss to Societe Generale found that the trader had borrowed the passwords of his colleagues and traded under their names, manipulated the banking information system, deleted transaction details and then recovered them. These actions do not exhaust the list of Kerviel offenses, but the above is enough to conclude the serious shortcomings of the system of user authentication and management of their access to information resources [23].

In addition to the fundamental aspects, business customers are also interested in the economic benefits of implementing biometric systems, and it should be expressed in specific indicators. Techniques based on ROI (Return on Investment) analysis are often used to determine them, and calculations are already being made for biometrics.

According to the consulting company Nucleus Research, which specializes in analyzing the payback of information technologies, the adoption of a biometric system in banks leads to savings of 800 USD per year per employee. The method of calculating ROI is to estimate the effect, which is expressed in a decrease in operating costs, an increase in the number of customers, and (or) an increase in attendance, etc. Analyzing the activities of biometric payment systems, experts found (according to CNN Money) that the use of biometrics halves the transaction costs and increases attendance stores with biometric banking terminals by 15 % [27].

ROI indicators can be interpreted in terms of the effect of saving time and increasing productivity, accuracy, and transparency of payments. The direct relationship between saving time and increasing economic efficiency can be traced to examples of the use of biometrics for customer service. Thus, already in the first stages of testing biometric payment terminals, the time of entering information about the payer was reduced to 1-2 seconds (when using a fingerprint scanner), and the turnover provided by these biometric terminals increased by 30 %.

Thus, the rapid development of information technologies, the need to use local and global communication networks increase attention to information security issues. The vast majority of information security systems focus on the use of biometric features. The use of biometric features to protect banking operations will give a powerful development of the bank's security systems. In turn, this will minimize all types of risks for individuals and corporate customers and the banks as a whole.

Thus, as a result of studying the prospects of using the new technologies to improve the bank's security systems we formed the following conclusions.

1. According to the analyzes of the theoretical essence of the bank`s security systems, we can argue that banking security is not enough studied by economists. Most information about the bank`s security systems can be found in popular science and journalistic articles, on the websites of banks, but not in authoritative scientific works. General conclusions and duplication of well-known information, the secrecy of most information and statistics to study the bank`s security systems are a problem for the development of an independent and thorough direction in economic thought.

2. As a result of the research of modern banking security methods, it is revealed that the modern development of banking technologies of protection of operations is focused on RBS (remote banking service) development and improvement. Internet banking, SMS banking, and others are new technologies that significantly reduce the risk of fraud of bank employees and save time and money for the bank's client. Banks are introducing new technologies to protect information from attackers (EDS – electronic digital signature, etc.). But each new method has its advantages and disadvantages. The human factor is one of the main factors that provokes threats in the banking market. Bank`s security systems are more focused on information and computer systems. But the greatest protection of their funds in bank accounts can be done by the person himself, following the rules of security, and being careful and cautious in using his/her bank account.

3. Searching for ways to increase efficiency and improve the system of protection of banking card transactions, it was found that the rapid development of information technologies, the need to use local and global communication networks increased attention to information security. The vast majority of information security systems focus on the use of biometric features. Therefore, we propose a new approach to the organization of protection of banking operations – the use of biometric technologies to identify unique human traits that are not susceptible to counterfeiting. The adoption of biometric ATMs, readers of biometric information in banking operations, minimizes the risks associated with cyberattacks, fraud with payment cards. and will increase the level of a bank`s security as a whole. The use of biometric features in Ukraine to protect banking operations will strongly develop a bank`s security system, increase public confidence in banks. The adoption of the latest technologies of biometric authentication by face, fingerprints, hand data, and heart rate have a real basis for implementation in the banking systems of different countries, including the banking system of Ukraine. During testing, the novelties impress with the level of speed of information processing, reliability, and protection of client data and funds from illegal encroachments. The ratio of the cost of adopting biometric authentication systems to their benefits allows us to say that the biometric

systems of banking operations protection are liquid and profitable. Therefore, due to the unique and effective development, in a short period, we will have a complete reformatting of the banking security in Ukrainian and world markets.

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CHAPTER 3
PSYCHOLOGICAL ASPECTS OF CORPORATE GOVERNANCE

FEATURES OF CORPORATE WELL-BEING

Iryna Burlakova[1], Oleksiy Sheviakov[2], Tetiana Kondes[3]

[1]Doctor of Sciences (Psychology), Associate professor, East-Ukrainian National University named after Volodymyr Dahl, professor of the Department of Practical Psychology and Social Work, Severodonetsk, Ukraine, email: burlakova22irina@gmail.com, ORCID: https://orcid.org/0000-0002-6043-4359

[2]Doctor of Sciences (Psychology), Professor, Private Higher Educational Establishment «Dnipro Humanitarian University», Head of the Department of General Psychology, Dnipro, Ukraine, email: shevyakovy0@gmail.com, ORCID: https://orcid.org/0000-0001-8348-1935

[3]Ph.D. (Psychology), "KROK" University, Associate Professor of the Foreign Languages and General Educational Disciplines Department, Kyiv, Ukraine, email: tetianakv@krok.edu.ua, ORCID: https://orcid.org/0000-0001-8514-9389

One of the important areas of future wellbeing programs in corporations will be the creation of a positive and healthy workplace culture. This will help maintain healthy staff habits both in and out of the office. Only 10% of health is determined by medical care. 90% - by lifestyle choices, genetics and social determinants. Well-being brings together mental health (mind) and physical health (body), resulting in more holistic approaches to disease prevention and health promotion. Many companies are already approaching such spending as an investment in human capital. After all, investing in people's mental health affects employee turnover, productivity, company culture. Our sociological survey made it possible to determine what is well-being for the company's employees and what values are their priority. Our complete wellbeing solutions focus on the mental and emotional aspects of workplace wellness programs. The training programs are designed to equip staff with essential skills to enhance well-being, interaction, morale and productivity.

In the process of transformation of the economy, serious changes (transformations) take place. They can influence not only one area of public life, but all at once: economic, political, social, spiritual. It is important to understand that people are simultaneously in different relationships with each other, they are connected with someone, they are isolated from someone when solving their life issues. Consequently, the spheres of public life are not geometric spaces in which different people live, they are relations between people, interconnected with various aspects of their life. Well-being is, perhaps, the very element that affects all spheres of public life at once.

For example, the nature of economic relations can influence the building of the social structure. A place in the social hierarchy forms certain political views, opens up appropriate access to education and other spiritual values. The economic relations themselves are determined by the country's legal system, which is very often formed on the basis of the spiritual culture of the people, its traditions in the field of religion and morality. The well-being of people is the main social value of any modern

society [1]. After all, each of us wants to live a life that will be as full of positive events as possible, which will allow us to gain a sense of well-being. Its absence will negatively affect the state of human health, which means that it is necessary to look for funds that have contributed to improving the well-being of people. In this regard, scientists have developed an interest in the study of the concept of well-being and the study of the factors influencing this phenomenon.

To date, many studies have been carried out in various countries around the world, which have determined people's perception of "well-being." The results were varied. In some surveys, people characterized their own well-being as: good health, a sense of happiness and contentment, satisfaction with life, love of life, peace of mind, comfort, self-confidence, safety [2]. In other studies, well-being was defined as: a feeling of well-being, the ability to communicate with people, a sufficient amount of material benefits [3].

It turns out that at various stages of historical development, the influence of any sphere on a person is increasing. Of course, a person's values are formed on the basis of his environment. Therefore, different cultures have their own, different from others perception of well-being. Still, some components of well-being are of equal value to all countries.

1. **Corporate well-being of organizations.** The factors of well-being in society change over time. In the second half of the last century, the most important thing for a person was to feel security. Education and religion also played a special role in the life of society. Today the landmarks are completely opposite. For the British, for example, good mood and relaxation are in the first place, for Americans - career growth. The fact is that Americans and Europeans have different priorities: Europeans prefer to live a fulfilling life and enjoy it, while Americans are trying to realize the so-called "American Dream" and devote a lot of effort and attention to career growth. In other studies, scientists have found that happiness depends on material well-being: the higher a person's income and status, the more satisfied they are with their lives. Americans believe they can work hard in their careers, so they are happier when they work longer. Each hour worked brings them closer to achieving their goal. For Ukrainians, health and life satisfaction play an important role in shaping well-being (here we are as Europeans).

Despite the different descriptions of the feeling of a state of well-being by all respondents, it is clear that three main groups of indicators of people's well-being can be distinguished. In each group, there are various aspects of a person's life that affect his well-being, it combines many features of a person's attitude to himself and the world around him, they are also called a type of well-being [4].

Based on the survey, the researchers identify the following types: physical, social, material well-being.

Physical well-being is a person's feeling that is characterized by good health. The World Health Organization characterizes health as a state of complete physical, mental and social well-being, and not just the absence of disease and physical defects.

There is another definition of the term "health". Health is a dynamic state or process of preserving and developing biological, physiological and mental functions, optimal working capacity and social activity with a maximum life expectancy (V.P. Kaznacheev). From the above definitions, we can conclude that the key to a good state of our body is the optimal functional and psychological state of a person.

The next type is social well-being. Social well-being is a type of well-being in which a person is satisfied with his social environment and contact with him, social status, and feels his security. The main thing in life for many people is family. Good relationships between loved ones are a factor that significantly affects a person's well-being. We often underestimate the impact of those close to us on our well-being. In addition to the support provided by loved ones, they allow you to gain a certain social status. If we start from the ideal idea, then each person should grow up in a full-fledged family (with dad and mom), and also create one of his own.

Another significant factor in social well-being is satisfaction with their professional activities. Most of us work in a traditional office environment, while others work in a factory, at home, or outdoors. Doing what you love is a person's ideal representation of what he should be doing throughout his life. Such work contributes to an additional interest in the quality of the task on the part of the individual.

The result in their field of activity will determine the well-being of a person. Safety is another important criterion for a person's social well-being. Each of us wants to live where there is no war, mass epidemics, murders and robberies. The confidence that nothing threatens you or your loved ones, allows you to find peace and get rid of unnecessary worries. Taken together, all of the above aspects affect the social well-being of a person.

The last type is material well-being. Material well-being is characterized by a person's satisfaction with the quantity and quality of material goods available to him. To meet his needs, a person needs to have certain financial capabilities. It can be noted that a person's worldview, values and environment play a role in the perception of the importance of wealth. Some people will be satisfied with the fact that they have a place to live and what to eat, while others will suffer from the fact that they cannot afford some expensive car.

A survey conducted in the UK showed that people associate their own well-being, primarily with their health and well-being. The importance of contact with family and friends was put in second place. Material well-being is not always included in the definition of well-being for older people in developed countries.

The above assessment of the type of well-being is subjective, i.e. lists the criteria that people use to assess their own well-being. The well-being of the population should also be assessed according to objective indicators, since for example, it is extremely difficult to influence the interpersonal relations between people for the protection and restoration of monuments of national history.

It should be noted that interest in the problem of well-being increases in connection with the identification and study of objective and subjective criteria and factors of well-being, between which contradictions are very often found:

- firstly, social status and material well-being do not always coincide with the subjective well-being of the individual. This can be evidenced by the analysis of the results of studies of social well-being conducted in European countries (for example, analysis of the suicide rate in countries with a high level of economic development);

- secondly, under the influence of social changes taking place in society, subjective well-being changes, and this is not always associated only with economically beneficial transformations for the population. In this case, it is necessary to analyze how people's ideas about well-being in modern Ukraine are changing in comparison, for example, with the Soviet period;

- thirdly, social well-being in itself in different countries can be understood and perceived in different ways, regardless of the geographical, climatic and some other features of the territory.

Thus, the problem is expressed in the lack and inconsistency of knowledge about the criteria and factors of well-being, about the impact of social changes and social policy of the state on the subjective well-being of the individual and, ultimately, in the ratio of social and individual well-being. A high level of well-being contributes to the fact that people are willing to serve society, they can occupy positions in which they can benefit society, to establish contacts between groups and organizations. Initially, the role of such people may be small, but over time it can increase and more affect their environment.

In many ways, the success of any modern company depends on the efficiency of its employees. To achieve its main goal - maximum profit, the company needs to gather the most competent personnel in order to solve the most complex problems with them. Putting together a strong team is just a small step towards achieving the desired result. The interest on the part of the company is that the personnel do their job as efficiently as possible and use all their knowledge, skills and abilities for the good of the company.

In turn, the employee can bring the maximum benefit to the enterprise when he is interested in achieving the best result at his workplace. Employee motivation is an important part of employee success and includes many aspects. A high level of employee well-being is one of the important conditions for an employee to be

motivated to achieve the success of his company, so managers need to look for tools that can improve the well-being of their employees.

A high level of personnel health, as mentioned above, is one of the main factors of well-being. As a rule, the majority of the working population fulfills their professional duties in conditions where their physical activity is limited, and outside work time, not everyone satisfies the need of their body for movement due to various reasons. This fact has a negative impact on human health. Poor health is mostly the result of a person's lifestyle.

The only effective means of replenishing the lack of physical activity of a person is physical culture and sports. Physical activity, in addition to satisfying the basic need, eliminates excess weight, normalizes the work of all systems and organs in the body, increases the efficiency and immunity of a person. Increasing the functional capacity of the body is the first step towards the formation of good health.

Physical culture and sports, as a rule, are considered as a means of physical improvement, but they also affect the psychological state of a person. Physical activity can reduce psycho-emotional stress and anxiety level, increase mental performance, improve mood, similar studies were carried out by such scientists as Wenberg R., Gould D., American researcher M. Sachs and many others.

The company, in order to increase the level of well-being of its own employees, can organize for them health-improving classes with various orientations, in which they will increase the functional and psychological readiness of their body. Carrying out various mass sports and sports and recreational activities, the purpose of which, first of all, will be to promote a healthy lifestyle among staff and their families. Such measures will create an idea of a healthy lifestyle and generate interest in physical education and sports. Also, such events will increase not only the physical well-being of the company's employees, but also social. Also, proper nutrition is the key to good health.

Most of us rarely monitor our diet, some simply have no idea about proper nutrition, while others, due to the lack of opportunity, get by with snacks in the form of fast food. In such cases, managers often organize a canteen on the territory of the enterprise or within walking distance from it, where employees could consume quality food.

In economically developed countries, personnel health management is seen as one of the methods to minimize labor costs and motivate employees. World practice shows that properly organized health management of employees allows to reduce the incidence of sickness in the team by 40-50%, to reduce the number of days of disability by 20%, to reduce the occurrence of chronic diseases by 10-15%, to reduce the average period of temporary disability by 30% , by 20% - to increase labor productivity [5].

You can create social well-being among your own employees by creating a friendly team, where employees get along well with each other both in formal and informal settings, as well as by providing career opportunities. Team building is one of the most challenging management tasks to accomplish. The unity of the team helps to combine efforts to solve the problems of the organization, and also not to create an environment in which some employees will purposefully interfere with the performance of their duties by others. To form a friendly team, it is necessary to clearly distribute responsibilities between employees and outline the rules to which all employees, without exception, must obey. They will help prevent some conflicts, and some to solve. Another means for uniting the team is the organization by the company of various holidays (New Year, Christmas, etc.), cultural, sports and recreational and sports events. Such measures allow to unite the team, create friendly relations between employees.

Career growth is one of the important components of human well-being. Each of us sets certain goals in life that he is trying to achieve, including those associated with achieving success in his professional field. For an employee, in addition to a good salary, the social status that he possesses is important, as well as the possibility of raising it. An enterprise in which there is an opportunity for career growth receives in return highly motivated personnel who have it as a specialist, and they, in turn, get the opportunity to realize themselves in the professional sphere. Thus, employees have achieved their goals in their professional activities, which is an important factor in achieving a sense of human well-being.

The company directly affects the material well-being of its employee. Salary is the main means of achieving material well-being for an employee. A person's financial capabilities depend on his ability to acquire the material wealth he needs. If his salary is higher than the average one received by employees of other firms working in the same position, then this will significantly increase his material well-being.

Another means of increasing the material well-being of an employee is the help from the company to its employees in the acquisition of expensive material goods. After all, the assessment of one's own well-being depends on the quality and quantity of material wealth, the ability to spend your vacation abroad, living conditions, the availability of vehicles and its class. Meeting such needs will certainly enhance the employee's well-being.

Few companies today try to improve the well-being of their own employees. By increasing the well-being of their staff, the manager receives in return highly motivated employees who are able to work for the good of their organization. Creating employee well-being can help retain high-value employees beyond retirement age. This will help transfer experience to younger staff and help the

company stay in leadership positions. Also, the desire to work at this enterprise appears among other persons who have nothing to do with this company, which means that the director has the opportunity to select the most competent personnel.

Leaders of large companies are actively studying modern methods of company management, and are also trying to create new ones that will help to use their own resources even more efficiently. The potential for increasing the competitiveness of a company lies in its employees, whose effective management will allow it to gain a competitive advantage over other market participants. Corporate culture is an effective method of managing its employees, which is responsible for the motivation, development of personnel, the correctness of work performance, the relationship between employees, etc.

2. **Key aspects of assessing the success of corporate well-being programs.** The role of the enterprise culture is difficult to overestimate, its main goal is to increase the efficiency of all employees, and therefore the overall activity of the company. Hence, we can conclude that the corporate culture of any enterprise is primarily aimed at employees, it creates the necessary working conditions in which the company's personnel can perform their work with maximum efficiency.

The first important step a company culture takes is team building or recruiting. An important guarantee of the company's successful activity is competent personnel; in order to attract such employees, it is necessary to interest them in working conditions. In such cases, a person will give preference to the enterprise that is more capable of satisfying his needs. When a certain number of needs are satisfied, human well-being will necessarily increase.

Employee motivation is an important part of working with the company's personnel. A motivated and competent employee is able to bring maximum value to his organization, but his motivation depends on many factors. One of the ways to influence the employee's motivation is to promise to reward for completing the assigned task. Maximum motivation for success will be that reward that will bring him maximum satisfaction, thereby increasing his sense of well-being.

An important task of corporate culture is to create a favorable working atmosphere within the work collective. First of all, the culture of the corporation is created in order to improve the interaction and relationships between the personnel of the enterprise. The atmosphere in the work collective is an important component, both for the successful operation of the enterprise.

A large number of conflicts, poor relationships with colleagues - this is what affects the overall state of the company. It is the culture of the corporation that can prevent or resolve such situations. Many decisions are made on the basis of the rules that have been adopted by the team, and each member of the organization must

adhere to them, they help to reduce the number of conflict situations, and any such precedent will be resolved fairly based on generally accepted norms.

The attitude towards newcomers, their adaptation to the conditions and the team of the company is also part of the development of the corporate culture of the company. Mastering a new team is stressful for any person. One of the tasks of the corporate culture is to ensure the painless infusion of new employees into the team, so that this is not a problem, both for old-timers of the company and for newcomers. Such measures will help maintain a favorable climate in the team.

Good relationships with colleagues is an important factor in a person's well-being. We spend most of our working life at the workplace, which means that we are in contact with the staff of our company for a significant amount of time. Good relationships with colleagues at work contribute to an increase in social well-being, since it directly depends on the degree of satisfaction with contact with people around.

The corporate culture is also responsible for organizing various sports, cultural, recreational events and holidays that help create a friendly atmosphere in the team. Communication in an informal setting will allow you to find common interests with your colleagues, make friends and communicate with families. This will help a person expand his social circle, find new friends among the work collective, which will also increase social well-being. As part of various sports and recreational activities, a healthy lifestyle is promoted among the work collective. Such measures will contribute to improving the level of health, which is an important component of human well-being. Another of the tasks of an organization's culture is to unleash the potential of its employees. First, comfortable working conditions in which he directly performs his professional duties. Secondly, the ability to propose changes in the company's work in the market.

The proposed ideas will combine the accumulated knowledge and experience, and in the case of the implementation of the conceived ideas in life, it will allow the employee to evaluate their correctness and realize himself as a specialist in his field. It is professional implementation that is a factor in increasing human social well-being.

The corporate culture is aimed at creating a favorable working environment for its employees. It is created and developed by management in order to demonstrate to their staff how valuable they are in the company's activities. The personnel policy of an organization directly affects the welfare of its employees. It is an important tool for the development and competitiveness of the company. Corporate culture is a part of the personnel policy that creates a favorable environment within the enterprise.

The culture of the organization reflects the value orientations of the enterprise, which include the attitude of management towards its employees, it is aimed at

improving the working conditions of the company's employees. The developed culture of the organization has a positive effect on the well-being of its employees, who, in a comfortable working environment for themselves, can at the maximum benefit to their company, while enjoying their activities.

In the period from 10.07.2019 to 16.07.2020, a sociological survey was conducted using the method of questioning the employees of the Prykarpattyaoblenergo joint-stock company (an energy company that distributes electricity to consumers). The company has a salary that is indexed annually in accordance with inflation. In addition, the employee is entitled to a bonus for meeting the indicators of the production and economic activity of the enterprise for the month. Newly hired employees undergo a primary medical examination at the expense of the enterprise, as well as a periodic one after a year of work. It is important that in addition to the standard set of services under the compulsory health insurance policy, each employee has the opportunity to use the services of supplementary health insurance in any medical institution with which an appropriate contract has been concluded. Of great importance in the company's activities are charity and sponsorship activities, various actions in support of culture, science and education, physical education and sports, promotion of a healthy lifestyle.

Based on the stated goal of the survey, the following tasks can be distinguished:

1. Determine what well-being means for employees today.

2. To reveal the dependence of job and life satisfaction on the labor values of the company's employees.

3. Establish what is of value to the respondents.

The survey was conducted anonymously and included 12 questions, 9 of which were in a closed form and 3 in an open form. The total number of respondents was 350 people, of which 46.4% were males and 53.6% were females. The survey involved respondents with an average age of 41 years.

The largest proportion of respondents were women aged 44 to 47 years. All interviewed employees have higher education. 38.5% have been working for the company for over 10 years. The questionnaire included questions directly related to labor values. The concept of labor values does not include the characteristics of the employee's workplace. They reflect general judgments about the work, ideas about the desired.

Thus, 53.6% of respondents believe that the level of workload at work is within the normal range (satisfactory), 37.3% of respondents experience high workload at the workplace, 6% of employees could take on additional workload, and 3.1% of respondents rate the level of workload at work "in different ways".

The next 2 questions relate to the psychological atmosphere in the team and the impact of various corporate events held in the company. The majority of respondents,

namely 65.3%, “quite normally” assess the psychological atmosphere in the company, 19.9% of employees believe that the atmosphere is comfortable, even contributes to productivity at work. Slightly less, 14.8% of respondents, criticize the climate in the company, considering it unfavorable.

The social policy of Prykarpattyaoblenergo JSC provides for the implementation of a set of measures aimed at increasing the level of life support and efficiency of personnel. In this regard, a question was drawn up about the attitude of employees to the events held in the company. 68.4% of employees support the social policy of the organization and believe that corporate events unite the team. 25.3% try to take an active part in all kinds of cultural festivals and events. 6.3% of the respondents only occasionally attend events. It should be noted that none of the respondents indicated a negative attitude towards the company's social policy. Some indicated at once 2 answer options associated with a positive attitude towards events and taking an active part in them.

The position held, the status of the employee in the organization, priority areas in work are factors that directly affect employee satisfaction. They influence the overall assessment of life satisfaction in some way, although the degree of such influence may differ for different workers and professional groups. The survey has shown that 60.9% of employees are absolutely satisfied with their position, 31.1% would like to achieve a promotion, and only 8% are not satisfied with their position, and would not like to be promoted up the ladder.

To the question “what is more priority for you in your work” 5 variants of answer were offered. Many employees chose several options at once. Thus, it turned out that 79.7% of respondents give first place to wages, slightly fewer (64.5%) employees value direct interest in work in work, 35.6% of respondents chose the opportunity for career growth. Surprising is the fact that employees value the social aspect of work more than the prestige of the organization (26.2% and 22.1%, respectively).

One of the main objectives of the study is to find out what meaning society gives to the concept of “well-being”, from which components a person forms his subjective well-being. It was found that for the majority of respondents, well-being is family (79.1%), satisfaction with life (74.6%), health (70.3%). The income level is also high for the respondents - 55.4%. Safety plays an important role in the life of 40.1% of respondents. Feeling meaning and purpose in life is important for 35.3% of people. 31.2% of respondents include social status in the concept of well-being. Religion and spirituality affect subjective well-being in 6.2% and 18.1% of respondents, respectively.

The last 2 questions of the questionnaire were presented in an open form. Company employees answered what, in their subjective opinion, had lost value in life

over the past 5 (10) years, and what they began to value more. Of all 350 respondents, 91 did not answer the proposed questions. In this regard, further results of the study were based on the opinions of 259 respondents. Since the questions were asked in an open manner, the respondents gave a variety of answers. But many of the answers quite often converged. For example, for 26% of respondents over the past 5 (10) years, the opinions of other people have ceased to be of value. Many of them indicated that the opinions of loved ones (family, friends) still remain meaningful to them. Social status, material wealth, income and career are of no value for 26% of the respondents.

19.1% of employees indicated that various kinds of holidays (parties) and the use of alcoholic beverages are not so important in their lives. There were also those for whom “nothing” has ceased to be of value - 11.5% of the respondents. These are the most common answers from company employees. Among others, there were obligations, plans for the future, negative attitude.

If we talk about human values, which people began to attach more importance to, then it can be noted that many respondents began to value several components in life at once. A large preponderance here goes towards health: 53% of respondents began to value their health and the health of their loved ones over the past 5 (10) years. Time is the second most important value for the surveyed company employees (37%). They indicated both free time and time spent with family, loved ones and friends. And 18% of respondents began to value their family more. The following components were also listed: freedom of choice, spiritual development, work, decency.

Summing up, we can say that today scientists are actively studying the issues of human well-being. This topic is very relevant, and also concerns absolutely everyone on our planet. All types of well-being are closely interrelated, and an increase in one of them will affect the well-being of the person as a whole. The search for universal means of improving well-being is the end result of successful research into this phenomenon. Improving employee well-being is an important part of a successful firm.

Analyzing the data obtained and summarizing the entire sociological study, it should be borne in mind that middle-aged workers took part in this survey. These are people who have already developed priorities in life, they "stand firmly on their feet", have life experience and value guidelines.

The employees assessed their “real” position in the company. By answering the questionnaire, they thereby expressed general judgments about the work and ideas about what they wanted. It's about labor values. Labor values can act as a special personal resource that contributes to the effective functioning of the individual and, ultimately, leading to an increase in satisfaction with various aspects of work and life.

The results of the study showed that the level of workload at work corresponds to the position held. Employees are ready to cope with a large volume of work with decent wages. At the same time, employees assess the psychological atmosphere, which is an important (and sometimes decisive) factor in the company, as favorable.

Despite the fact that 79.7% of employees put wages first in their work, they do not represent value in life for them. None of the company's employees indicated income as the main component when answering the question "what did you value more". On the contrary, material wealth and income have lost value for them in recent years.

However, half of the workers still classified the level of income as one of the components of well-being. It was found that socioeconomic status for employees has little effect on subjective well-being. Most employees prioritize their values and the health of their loved ones. Well-being for them is family, life satisfaction, health. Social status and income level are paramount for only a few people. The results show that although the pursuit of social status is one of the leading human motivations, achieving high status does not guarantee happiness. The so-called sociometric status, respect and admiration of the immediate environment (for example, among friends or colleagues), has a much stronger effect on the level of subjective well-being, life satisfaction than socioeconomic. Unlike money and material goods, respect, relationships and mutual understanding in the family are sustainable and long-term well-being.

The mentality of a Ukrainian person is formed in such a way that career growth and material wealth do not make him happy. Religion and spiritual development over the past decades for a person no longer occupy a leading position.

Unchanged, both for Ukraine and for foreign countries, according to the results of sociological surveys, it turned out that people highly value life surrounded by their family and friends. The support and love of close people creates for a person a sense of need in life. The family is the first social school of relations with people and a personal microenvironment for personality development. For children, a family is practically the whole world. Family values and traditions in the first years of their life are the main source of knowledge not only about the physical world, but also about the world of feelings. Everything that a child learns in his family becomes the basis of his worldview already in adulthood. Therefore, the family for most people is in the first place among the components of well-being.

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ACTIVE METHODS OF TRAINING STAFF FOR THE FORMATION OF CORPORATE CULTURE OF PRIVATELY OWNED HIGHER EDUCATION INSTITUTIONS

Nataliia Nakonechna[1]

[1]*Ph.D. (Psychology), Associate Professor of the Psychology department, KROK University, Kyiv, Ukraine, e-mail: natalyn@krok.edu.ua, ORCID: https://orcid.org/0000-0001-6236-9549*

In the modern system of education of Ukraine, along with the state owned institutions, there are higher privately owned education establishments. This fact may be explained with the priority development of the institution of private property, which determines the change of relations in the educational sphere.

Corporate culture of higher education institutions is characterized by distinctness, operating in a competitive environment and requirements of the modern labour market, which forms a fundamentally new type of relationship between education entities, both within a corporation and outside it; it is characterized by a unique combination of private interests and traditional pedagogical values.

New conditions for functioning of higher education institutions, in particular, the intensification of the process of entering the European educational area, necessitate changes in the organization and content of the educational and upbringing process, which with no proper adjustment of corporate culture can lead to the so-called "cultural gap", and the latter may result in a loss of values and achievements reached by the education institution.

Currently in the study of organizational (corporate) culture and its development, some thematic areas of analysis of this phenomenon have already been formed and clearly defined, and some scientific schools have been established. This is, first of all, the typology of organizational culture of Ch. Handy [30], E. Shane [31], K. Cameron, R. Quinn [10] A. Radugin, K. Radugin, [23] classification of organizational and psychological research methods of L. Teplova [24], establishing the levels of development of organizational culture of I. Ladanov [15], and, especially in relation to the formation and development of organizational culture of education institutions, i.e. fundamental and scientific and methodical works of domestic scientists S. Maksymenko [16], G. Ball [1], L. Karamushka [11], N. Zavatska [9].

A training form of education was chosen as the main method of psychological training of managers for the development of corporate culture, because, as it is shown by the analysis of the work of specialists in the field of organizational and economic psychology [2; 6; thirteen; 17; 19; 29; 33] it stimulates the group activity, combines and synthesizes information into new knowledge, forms an emotional attitude to it, increases the level of motivation to acquire knowledge and skills, forms the group's

ability to think collectively and make decisions, and most importantly, it promotes practical check and consolidation of knowledge [19].

The main purpose of the training is to teach specific skills. The training allows its participants not only to hear a teacher's opinion or look at tables and diagrams, but also to practically apply the acquired knowledge, turning it into skills. Therefore, the training form of work is used more and more increasingly in modern education systems, especially in adult education and retraining [19].

The works of famous Ukrainian and foreign scientists in the field of organizational and economic psychology, as well as specialists in training activities made up the theoretical and methodological basis of our training program.

The works that reveal the content, methods and forms of active psychological training of organizations' staff considerable contributed to the development of the training program (O. Bondarchuk [3], O. Vynoslavska [5], O. Yevtykhov [7], L. Karamushka [13], S. Maksymenko [17], K. Milutina [19], E. Mykhailova [18], Fopel [30], T. Yatsenko [33] and others.

An important role for the development of the training was played by the works that reveal psychological features of education organizations, in particular of universities in modern conditions (O. Bondarchuk [3], N. Zavatska [8; 9], L. Karamushka [12], N. Kolominsky [14] and others).

The purpose of the training program is psychological training of managers of privately owned education establishments for further participation of the former in the development of corporate culture of universities.

Tasks of the training program for managers are as follows:

1. assimilation of knowledge about the content, structure of the function of corporate culture in privately owned universities;

2. mastering methods of diagnostics and analysis of psychological features of corporate culture of privately owned education institutions and the factors influencing its formation;

3. formation of skills for developing corporate culture of privately owned education institutions.

According to its structure, the training program consisted of *three training sessions* (training session I "Organizational culture as an important factor in ensuring the efficiency and development of the organization"; training session II "Corporate culture of privately owned education institutions"; training session III "Development of corporate culture of privately owned education institutions"). Each of the above, in its turn, contained *the introductory and concluding parts and two modules* (Table 1). In addition, the program provided for *self-study* in a form of homework assignments.

The essential meaningful elements of the organizational (corporate) culture and the functions which these elements carry out are considered under each structural

component of the training program-session modules, i.e. value-based and worldview functions as well as regulative and behavioural ones. The main attention is paid to the development of the educational and upbringing process as the core of corporate culture of a university.

Table 1. General Structure of the Training Program "Corporate Culture of Privately Owned Universities"

Structural parts	Modules	Hours
Training session I "Organizational culture as an important factor in ensuring efficiency and development of an organization"	Introduction to the training session	8
	Module 1: "Organizational culture: terms, components, main functions"	
	Module 2: "Types and kinds of the organizational culture. The organizational culture of an education organization. Corporate culture as one of the types of the organizational culture of an education institution"	
	Summing up the training session	
Training session II "Corporate culture of privately owned education institutions"	Introduction to the training session	8
	Module 3: "Features of the corporate culture of privately owned universities"	
	Module 4: "Factors in the formation of corporate culture of privately owned universities"	
	Summing up the training session	
Training session III "Development of corporate culture of privately owned education institutions"	Introduction to the training session	8
	Module 5: "Directions and ways of development of the corporate culture of privately owned universities"	
	Module 6: "Innovation management as an important factor in the development of an effective corporate culture of privately owned universities"	
	Summing up the training session and the training as a whole	
Self-study		8
In total		**32**

Source: the author's development

Each training session is tailored for one working day once a week with duration of 8 hours. 8 hours (4 hours each) are allotted for homework assignments in the break between classes (self-study). In total, the training program is designed for 32 hours.

The developed training program is based on the basic principles of training work, selected by us on the basis of analysis of references [6; 7; 13; 11-13; 17; 18; 19; 21; 22; 30]. Among the main ones we can mention the following, namely voluntariness, equality, activity, confidentiality, restriction of discussion of events, statements, emphasis, personification of statements, and avoidance of direct assessments of a person, trustful and open communication.

Voluntariness. The training group members and its facilitator participate in the work of the group consciously and they are governed by their own free will. Sometimes it is overstepped when it concerns the trainer: "You are a psychologist of our organization. Do something immediately to motivate work." But more often, other problems related to compliance with this principle arise among the participants, namely: the company administration forces them to attend the training (often in their spare time) and acquire some skills that seem useful to the manager. It is clear that in such cases not only the principle of voluntariness is violated, but also effectiveness of the training becomes unacceptably low. Therefore, when concluding agreements with customers, it is necessary to take into account practical ways of implementing this principle.

Equality. All participants have the same rights and responsibilities. Problems with compliance with this principle arise in corporate trainings, when the participants have different professional status and transfer this system of relationships into the training environment. In personal growth groups, there is also an informal structure that breaks up the initial equality. The selection of a homogeneous group and reflection on how the distribution of roles affects equality can prevent such problems.

Activity distinguishes the training work from other forms of learning, including lectures. The trainer should create relevant conditions for manifestation of the group's activity, and the participants should direct their efforts to gain practical, emotional and sensuous experience. The activity of the group depends on some factors, including the level of interest in the problem, the level of knowledge, background experience in conducting trainings, relationships in the group and between the group and the facilitator. The activity of the group has natural fluctuations during a day.

At the same time, an activity is a relatively independent organizational and psychological phenomenon. There are three levels of activity depending on the degree of independence:

- reproductive (direct reproduction of a textbook material or a story of the teacher-trainer);

- search as a transformative reproduction that stimulates one's own cognitive activity;

- creative activity, which involves identifying new aspects in the material under study.

Confidentiality of everything that happens in the group is an important principle of a social and psychological training, which is a necessary condition for creating an atmosphere of psychological security and self-disclosure. Everything that happens during classes is not disclosed outside the group. The participants are not afraid that what they were talking about may become widely known.

First of all, the trainer does not have a real opportunity to ensure compliance with this rule in the communication of the participants outside the group. In addition, it is difficult to determine what information perceived during the training is confidential: the trainer should write a report, the participants should support the acquired skills; the communication often does not end when the training is over, but continues at work. It has become the norm for practicing trainers to use a different name during team trainings, as well as to agree on the confidentiality of any other person's experience that becomes known during the training [19].

Confidentiality in this case is a phenomenon that should be considered in terms of the ratio of the individual against the collective. Everything positive that is achieved in the corporate culture by an individual should be in manifested in an impersonalized way, in a generalized form in the collective, by synthesizing into the new, constructive, which is one of the conditions for development of corporate culture.

The principle of limiting the discussion of events only to the training ("here and now") and the personification of statements. The participants of training groups often tend to wander from the main topic, tend to have general conversations, considerations, which are not connected with the subject of the training. This principle directs the participants of the training that the subject of their analysis be constantly the processes that take place in the group at a particular time.

The principle of emphasis promotes deep reflection of the participants, teaches the participants to focus their attention on themselves, their thoughts, feelings, develops their self-analysis skills.

The principle of personification of statements. Its key point boils down to the fact that the participants of the training should focus on the processes of self-knowledge, self-analysis and reflection. Even the assessment of behaviour should be done through the expression of their own feelings and experiences. Refusal from impersonal speech forms helps people hide their position and avoid responsibility in everyday communication. If in other fields of psychology it can be regarded as a waiver of self-responsibility, in the study of corporate culture such categorical conclusions can hardly be made, because, on the contrary, this situation may indicate that a person really reflects a point of view of a certain group, which focuses on its already existing and established subculture.

In an education institution, due to the specifics of cross-sectional departments that reflect different areas of knowledge and different styles of professional corporate conduct (e.g., legal deontology, legal ethics, professional code of ethics of an economist), such an assessment may be completely reasonable.

The principle of accentuation of speaking up about feelings. According to this principle, the emotional side of communication should be well and fully expressed by

the participants of the training; they are encouraged to focus on states and manifestations (of their own and those of their partners) and, when giving feedback, if possible, they should use the language that reflects that state. An example of this is the following statement: "Your manner of speaking in high tones irritates me." A more indirect form of expressing feelings is formed by the language of images, associations and metaphors, which are used in the training on both verbal and nonverbal levels. Indirect speech is usually less traumatic and less harsh, which is important if you need to deliver not very pleasant information.

Avoidance of direct assessments of a person. They need to be replaced by descriptions of one's own emotional states, as the likelihood of not accepting negative feedback increases when the latter is purely evaluative. It is not desirable to use the statement like: "I do not like you". Instead, you need to say: "I do not like your behaviour" and so on. It is known that negative information activates the protective mechanisms of an individual and is often rejected.

The principle of trustful and open communication is one of the fundamental elements of the training. Developing a climate full of trust is a complex process. The simplest first step to the practical creation of the climate of trust may be as follows: the facilitator proposes to adopt a single form of addressing "you", which psychologically equates all members of the group and adds some element of intimacy and trust into the relationship between the group members and the manager. Everyone realizes the level of openness to which s/he is ready, depending on their own peculiarities and the general level of trust in the group.

An important role in training is given to interactive techniques.

Interactive techniques (derived from the English word "interaction"), as defined by L.M. Karamushki are techniques that provide active interaction between managers and staff of organizations (or separately between representatives of each of these categories) in conditions of trainings and seminars aimed at preparing managers and staff to address current management and professional tasks [13].

According to the classification of L.M. Karamushka [13], interactive techniques can be divided into two groups (depending on the functions they perform in the organization of training):

- organizational and guiding (organizational and preparatory techniques, study of expectations of the participants regarding trainings and seminars, joint development of group work rules, "icebreakers" (forms that "split" the ice of tension that arises from time to time during classes), creation of small groups (or pairs, etc.);
- conceptual and sense-bearing (mini-lectures; filling in worksheets; "brainstorming"; group discussions and discussions with "open end"; situation analysis; role-playing games; drawing; defence of projects, etc.).

In accordance with the developed training program "Corporate culture of privately owned universities" the content of the training is developed by combining the main structural elements (i.e., training sessions, which, in their turn, consist of an introduction, two modules and a conclusion), and interactive techniques used to present each of the structural elements.

The results of experimental implementation and features of the training program were reflected in the molding stage of the study, during which the effectiveness of the training program was determined.

To this end, based on the approaches of Ukrainian scientists [26; 27], we have developed two groups of criteria for evaluating the effectiveness of the training program, i.e. basic and additional.

The main criteria include the following:

1. The maturity level of the organizational culture of a university. The criterion was measured using the method of "Assessment of the level of organizational culture" of I. Ladanov [104]", which diagnoses the maturity level of organizational culture in general and based on the main components including work, communication, management, motivation and morale.

2. The maturity level of types of the organizational culture of a university (of real and aimed at one). We investigated this criterion using the method of "Assessment of organizational culture" of K. Cameron and R. Quinn" [10], according to which organizational cultures is broken into four types: the clan culture, the adhocratic culture, the hierarchical culture, the market culture.

3. The assessment level of the types of organizational culture of a university. We researched this criterion using the method of "Determining a type of organizational culture" by Charles Handy, according to which organizational cultures is broken into four types: the power culture, the task culture, the role culture, the person culture [31].

These methods were used to perform assessments, which were made at the beginning of the molding experiment and after its completion in the control and experimental groups.

Then the obtained data were subjected to mathematical processing using the statistical software package SPSS (version 13).

In order to identify statistically significant dynamics between the results of the first and second assessments in the control and experimental groups, we used the G-criterion of signs, which is based on counting the number of positive and negative differences in one sample between recurred measurements [4; 20; 21].

According to our approach, additional criteria include indicators of evaluation of the effectiveness of the training participants, which were measured using a questionnaire:

1) assessment of the need and general motivation in terms of their participation in the training for the experimental group participants;

2) analysis of expectations of the experimental group participants;

3) meeting expectations of the experimental group's participants;

4) evaluation of the effectiveness of the training (in the breakdown of the content, forms and methods of activities and general evaluation) made by the experimental group participants.

Let us analyse the obtained results of generalized data of experimental implementation of the training program "Corporate culture of a privately owned university" according to the main criteria in more detailed way.

First of all, we will analyse the results obtained regarding the maturity level of organizational culture of a university.

The data indicate that statistically significant differences between ($p < 0.05$; $p < 0.01$) the results of the first and second assessments were recorded in the experimental group as a result of the molding experiment. Namely, such changes took place under such components of organizational culture as "communication" and "motivation and morality". It should be noted that the general indicator of the maturity level of organizational culture and the component "work" also showed some positive changes, but only at the level of trends (Table 2).

When it comes to the control group, here, as we see in Fig. 1, no statistically significant differences have been found.

Thus, in our opinion, we can say that the training helped to increase the level of evaluation of organizational culture, in particular under such "more psychological" components as "communication" and "motivation and morality".

Let us move on to the analysis of the obtained results according to the second criterion, i.e. *the maturity level of the types of real and aimed at organizational culture of a university (the clan culture, the adhocratic culture, the hierarchical culture, the market culture).*

As it can be seen on Figures 1 and 2, the results of the survey in the experimental group showed a statistically significant relationship ($p < 0.01$) between the first and second assessments under the clan type of organizational culture. Moreover, this trend is observed both in the assessment of the real organizational culture and the aimed at one. We will remind that the clan organizational culture is characterized by high cohesion of the team, a positive moral climate, presence of common goals, a large number of traditions and so on. Managers in such companies are perceived as educators. Such organizations emphasize self-improvement of the individual; success here is accompanied by a good attitude to consumers and care for people.

Table 2. Comparative analysis of the maturity level of organizational culture components of a university before and after the molding experiment in the control and experimental groups (shown in % of the total number of respondents)

The maturity level of the organizational culture components	Control group		Experimental group	
	Before the molding experiment	After the molding experiment	Before the molding experiment	After the molding experiment
General indicator				
Low	0,0	0,0	0,0	0,0
Medium	16,0	16,0	12,0	4,0
High	76,0	72,0	84,0	92,0
Very high	8,0	12,0	4,0	4,0
Work				
Low	8,0	8,0	12,0	12,0
Medium	28,0	36,0	36,0	56,0
High	64,0	56,0	52,0	32,0
Communications				
Low	12,0	8,0	16,0*	0,0*
Medium	32,0	36,0	44,0*	28,0*
High	56,0	56,0	40,0*	72,0*
Management				
Low	12,0	12,0	8,0	4,0
Medium	60,0	56,0	56,0	64,0
High	28,0	32,0	36,0	32,0
Motivation and morality				
Low	8,0	4,0	12,0**	0,0**
Medium	68,0	64,0	64,0**	32,0**
High	24,0	32,0	24,0**	68,0**

* p<0,05; ** p<0,01

Source: the author's development

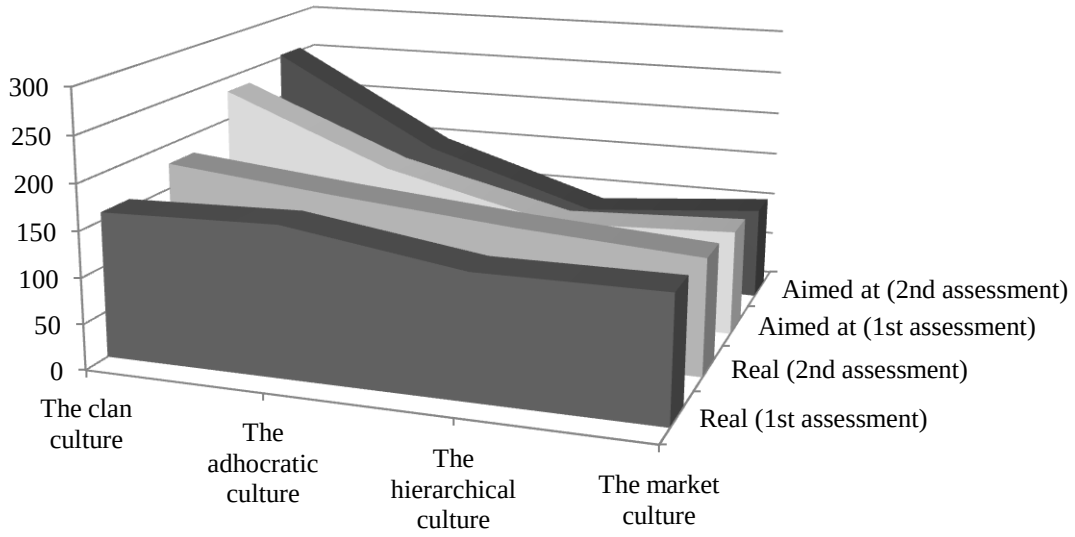

Fig. 1. The maturity level of the types of real and aimed at organizational culture of a university before the molding experiment (1st assessment) and after the molding experiment (2nd assessment): the results of the survey in the control group

Source: the author's development

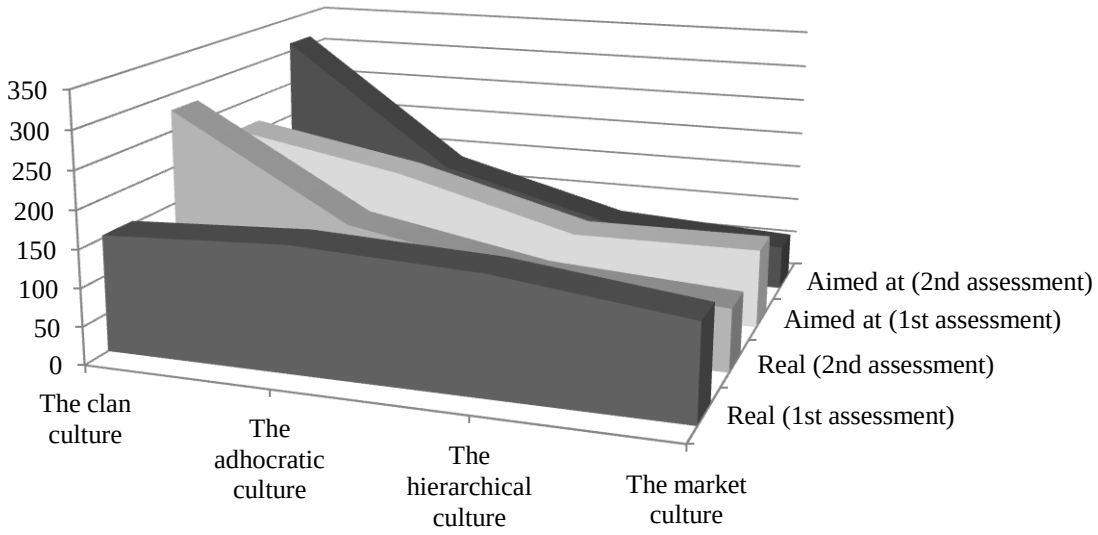

Fig. 2. The maturity level of the types of real and aimed at organizational culture of a university before the molding experiment (1st assessment) and after the molding experiment (2nd assessment): the results of the survey in the experimental group

Source: the author's development

As we see in Table 3, the average values for the assessment of the clan organizational culture increased from 153.8 to 278.6. Thus, in our opinion, we can conclude that the university managers have more appreciated the importance of such indicators in the organizational culture as cohesion, dedication/loyalty, care for people, self-realization and so on.

When it comes to the control group, no statistically significant differences have been found between the first and second assessments.

Table 3. Comparative analysis of the maturity level of organizational culture of a university before and after the molding experiment in the control and experimental groups (average values)

Types of organizational culture	Control group		Experimental group	
	Before the molding experiment	After the molding experiment	Before the molding experiment	After the molding experiment
The clan culture	159,2	178,4	153,8**	278,6**
The adhocratic culture	164,1	158,5	165,6	142,9
The hierarchical culture	135,0	141,1	155	98,04
The market culture	135,4	127,9	125,4	82,68

*** p<0,01*

Source: the author's development

Next, we will analyse the results of empirical research under the third criterion: *the level of evaluation of the types of organizational culture of a university (the power culture, the task culture, the role culture, the person culture).*

The obtained data from the empirical research showed that there is a statistically significant relationship between the results of the first and second assessments according to such type of organizational culture as "the person culture" ($p < 0.001$) (see Fig. 3-4).

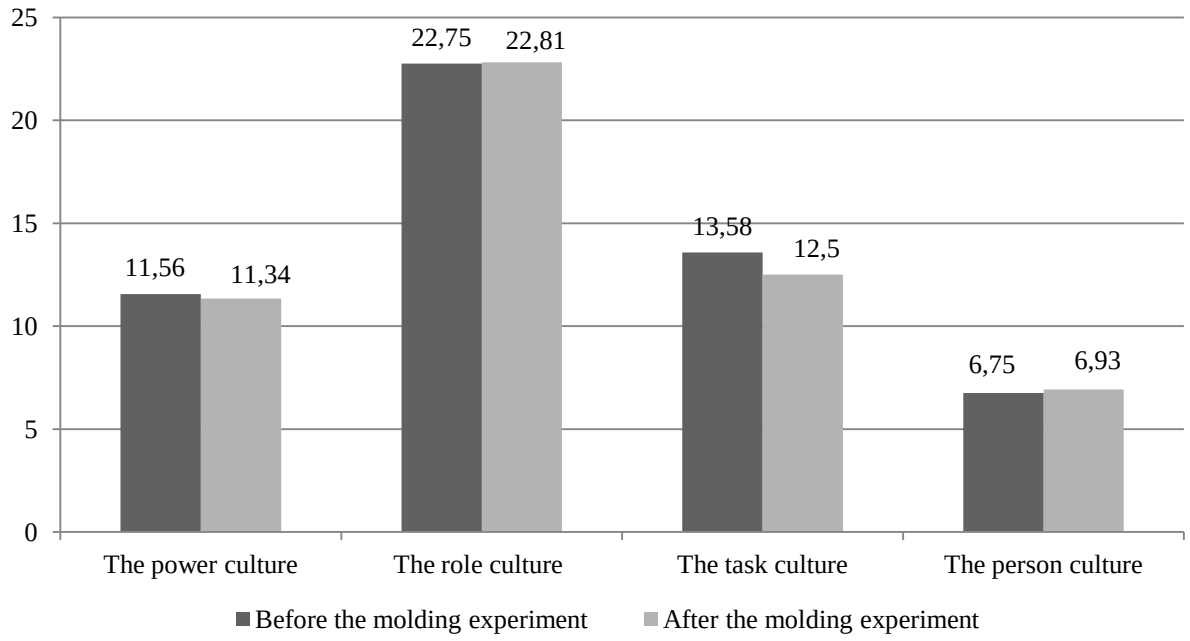

Fig. 3. The maturity level of organizational culture of a university before and after the molding experiment in the control group

Source: the author's development

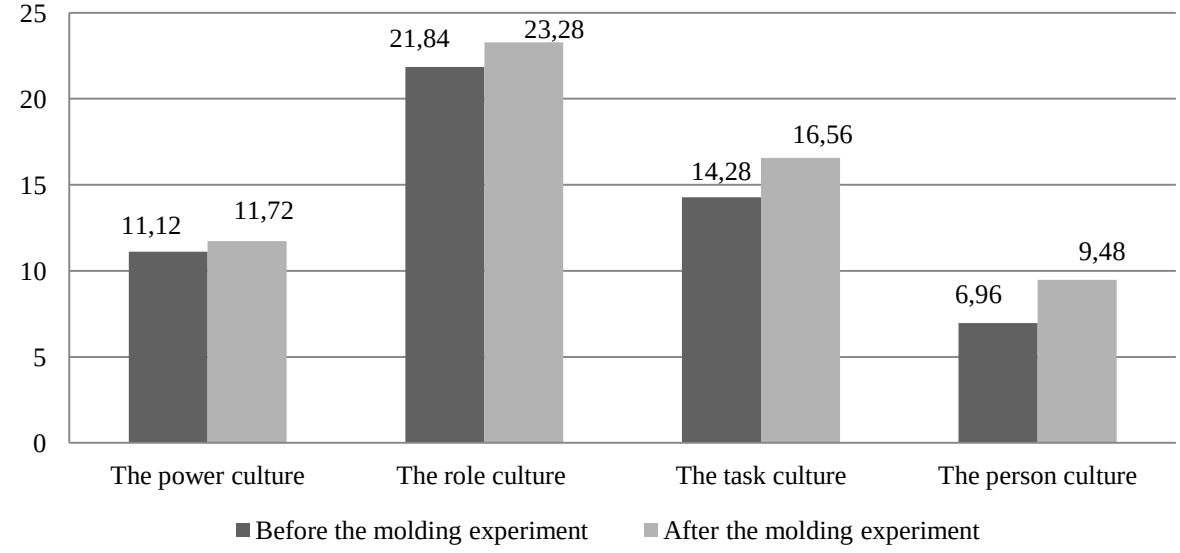

Fig. 4. The maturity level of organizational culture of a university before and after the molding experiment in the experimental group

Source: the author's development

In other words, the average values of assessment by the type "the person culture" increased from 6.96 to 9.48. There have been no statistically significant differences in other types of organizational culture (the power culture, the role culture and the task culture) (Table 4).

Table 4. Comparative analysis of the maturity level of types of organizational culture of a university before and after the molding experiment in the control and experimental groups (M)

Types of organizational culture	Control group		Experimental group	
	Before the molding experiment	After the molding experiment	Before the molding experiment	After the molding experiment
The power culture	11,56	11,34	11,12	11,72
The role culture	22,75	22,81	21,84	23,28
The task culture	13,58	12,5	14,28	16,56
The person culture	6,75	6,93	6,96***	9,48***

**** p<0,001*

Source: the author's development

No statistically significant differences between the first and second assessments have been found in the control group.

Summarizing the results of the molding experiment under the main criteria, it can be stated that there are clear significant changes in the managers' assessment of organizational culture of a university and its psychological components, namely, the maturity level of components of "communication" and "motivation and morality" has increased, the maturity level of the clan type and the person type of organizational culture has increased. That is, it can be said that *the conducted molding experiment contributed to understanding of the importance of psychological factors in organizational culture and management of a university as a whole.* And this was the main goal of our training.

Let us move on to the analysis of empirical data of the molding experiment *according to additional criteria.*

The first criterion "assessment of the need and general motivation of the experimental group participants to take part in the training" was assessed using the following questions: "Do you need trainings on the development of corporate culture of a privately owned university?", "Why do I participate in the training?".

The results of the survey of the experimental group participants about the need for training on the development of corporate culture of a privately owned university showed that 40% of university managers are clearly aware of this need, and another 28% have such a need but they are a little less aware of it. In other words, we can say that almost two thirds of the respondents (17 people) need trainings on the development of corporate culture of a privately owned university. At the same time, a

quarter of employees have a little need for training or none at all. As a result we can conclude that the facilitator has a task not only to meet needs of the participants, but also to intensify this need for those participants who do not have it.

As for the specific motives for participation in the training, the results of the survey indicate that 60% of university managers participate in the training driven by a high level of interest in the problem of organizational culture (Fig. 5).

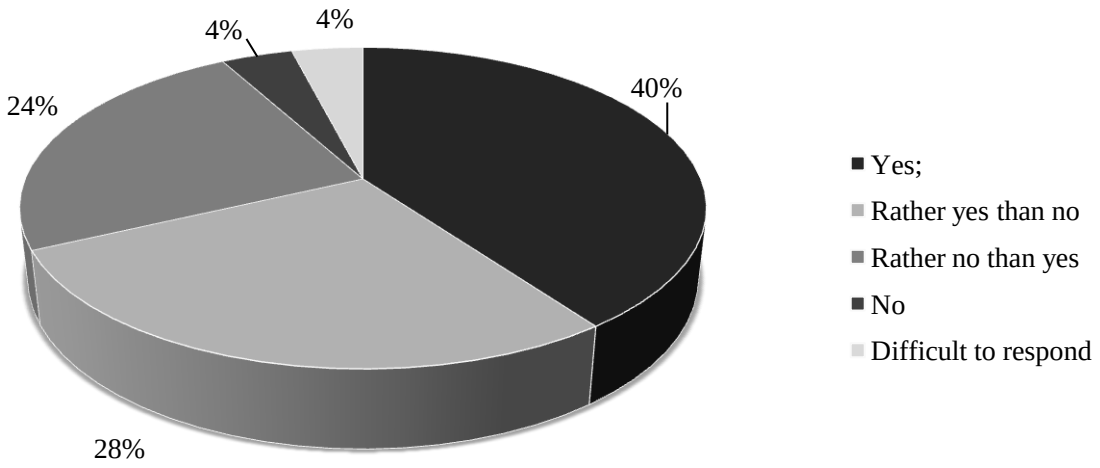

Fig. 5. The presence of experimental group participants' needs in trainings on the development of corporate culture of a privately owned university (in % of the total number of respondents)

Source: the author's development

For example, the participants gave the following answers: "I believe that the development of the university's corporate culture plays a key role in ensuring effective operation"; "I am interested in new methods and diagnostics of corporate culture"; "Participation in the training will expand my understanding of the peculiarities of organizational culture", etc.

In addition, 20% of the respondents indicated the need for professional and personal development, and 15% specified their social and communication needs (building relationships, improving communication, etc.) as the main motives for participation in the training.

In our opinion, we can say that in order to ensure its high efficiency, the training should help meet not only the needs related to the content of the stated problem, but also a number of other social and psychological needs of the individual.

The second criterion "analysis of expectations of the experimental group participants" was evaluated using the following questions: "What knowledge do I want to get from the training?" and "What specific practical skills and abilities do I want to master?". These questions were open, so the participants had an opportunity

to freely express their expectations. The answers we received were analysed using the content analysis, which allowed us to obtain the following results.

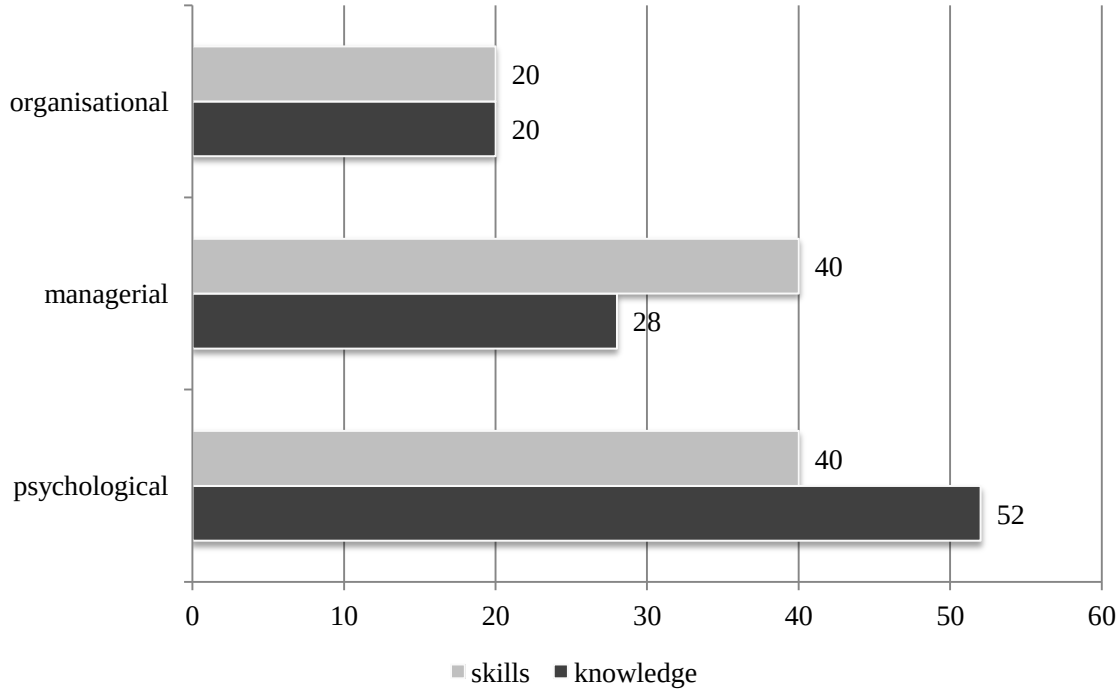

Fig. 6. The main groups of knowledge and practical skills that the participants would like to master (in % of the total number of respondents)

Source: the author's development

The knowledge and skills indicated by the respondents, which they would like to master during the training, were divided into 3 groups (psychological, managerial and organizational ones). As can be seen on Figure 9, more than half of the participants (52%) are interested in obtaining psychological knowledge, and a much smaller percentage of the respondents expect to receive managerial and organizational knowledge (28% and 20% respectively). When it comes to practical skills, the number of participants who would like to gain management skills is higher (40%).

We can conclude that the university managers are interested in gaining psychological knowledge and mastering practical psychological skills. At the same time, a significant part of managers is focused only on managerial and organizational knowledge and skills. In other words, a task of the training to strengthen understanding of the importance of psychological factors in the activities of a university becomes mandatory.

Let us move on to the analysis of *the third additional criterion*" justifying expectations of the experimental group participants." The results of the survey under this criterion are presented in Table 5.

Table 5. The extent to which expectations of the experimental group participants regarding the training were met (after the completion of the molding experiment) (in % of the total number of respondents)

The extent to which the expectations have been met	Number
Were fully met	84,0
Were almost met	8,0
Were met partially	8,0
Were not met	0,0

Source: the author's development

The results of the study show that the expectations that the participants had at the beginning of the training were generally met. The received data show that only 8% of expectations of the experimental group participants "were partially met" and another 8% of respondents' "expectations were almost met." The rest of the participants in the experimental group (84%) indicated that their expectations were "fully met."

When it comes to *the analysis of the effectiveness* of the training, the experimental group participants generally positively assessed the effectiveness of the training, both in terms of content and form of activities. The proposed questions received a fairly high score (the average value of the sampling as a whole is from 4.56 to 4.9 out of 5 possible points). It should be noted that the survey was conducted anonymously, which indicates a sufficient objectivity of the results.

The performance questionnaire also contained "open-end" questions aimed at assessing the content and form of the training. The analysis of the obtained results showed that the university managers along with the issues that were considered in the course of the training would like to pay attention to other psychological problems of organizations (communication, team building, conflict settlements, etc.) in the future.

Among the additional forms and methods of activities, the group members mentioned business games and analysis of management situations.

Table 6. Evaluation of the effectiveness of the training by the experimental group participants (after completion of the molding experiment)

No	Questionnaire questions	Average value, points
1. By its content:		
1.а)	To what extent does the content of the training correspond to your professional needs and interests?	4,6
2. By methods and forms of work:		
2.а)	How effective were the methods and forms of acitivities during the training (for finding out key ideas, the content of a particular problem, etc.)?	4,88
2.б)	How convenient and comfortable were the methods and forms of activities during the training (for example, in terms of opportunities to communicate with other people during completing tasks, places in the space of the room, your physical and mental condition, etc.)?	4,9

Source: the author's development

Conducting this training helped university staff (according to the participants' opinions) to create a positive attitude to innovative changes in the current turbulent conditions; to improve the loyalty level to the development of corporate culture at the University; to improve the personal qualities of the participants, which will help increase the level of work efficiency in the conditions of changes; to realize the impact of the importance of organizational culture on the efficiency and quality of the educational process; to form the necessary level of knowledge, skills and abilities to ensure formation of corporate culture of a privately owned higher education institution; to master the skills of analysing the factors that shape corporate culture.

In the end, most of the respondents expressed a wish to continue working on the psychological support for the university's activity.

In other words, in general, the results of the molding experiment confirmed the effectiveness of the training developed by us and proved the possibility of its use for psychological training of managers to develop the organizational culture of a privately owned university.

The results of the molding experiment made it possible to draw the following conclusions:

1. Psychological training of managers with a purpose to develop corporate culture of a privately owned university should be carried out with the help of the training program "Corporate culture of a privately owned university";

2. By its structure, the training program consisted of three training sessions (training session I "Organizational culture as an important factor in ensuring the efficiency and development of the organization"; training session II "Corporate culture of privately owned education institutions"; training session III "Development of corporate culture of privately owned education institutions"). Each of the above, in its turn, contained the introductory and concluding parts and two modules. In addition, the program provided for *self-study* in a form of homework assignments;

3. The training includes the following active methods and forms of psychological training of the university managers such as mini-lectures; filling in worksheets; "Brainstorming"; group and open-ended discussions; situation analysis; painting; project implementation, psychological workshops, etc.

4. The comparative analysis of the results of diagnostic assessments before and after the molding experiment in the experimental and control groups made by the main indicators of organizational culture of a privately owned university showed the presence of statistically significant differences between the first and second assessments in the experimental group, which manifested themselves in the following, namely:

– Increasing the maturity level of organizational culture under the components of "communication" and "motivation and morality";

– The growth of average indicators of the maturity level of the "clan" type of culture;
– Increasing average indicators of the maturity level of "the person culture";

5. The analysis of additional criteria for assessing the effectiveness of the training (evaluation of the need and overall motivation of the experimental group participants to take part in the training; analysis of expectations of the experimental group participants; meeting expectations of the experimental group participants; evaluation of the effectiveness of the training by the experimental group participants (according to the content, forms and methods of activities and the overall score) also showed a positive result of the implementation of the training program for psychological training of managers of a privately owned university for the purposes of development of corporate culture.

The logic of presenting the material proposed by the author is as follows: a theoretical analysis of components of corporate culture, description of their value-based, behavioural and educational content, experimental confirmation of the role of culture as a core factor in the activity of an education institution, focus on development of key elements of the cultural complex. In other words, all of the above, in fact, shapes a strategy for developing corporate culture of a privately owned higher education institution.

The main points of this Strategy are as follows:

- ensuring the competitiveness of universities by forming staff readiness for changes, including introduction of innovative technologies in the educational process, introduction of new and meaningful update of existing specializations for trainings in accordance with the needs of the labour market, integration of education into the European educational area
- promoting the development of subcultures of corporations formed in separate units and teams, their integration into a new quality that is into the corporate culture of an education institution;
- combination of corporate and cultural values with deontological requirements of professional behaviour of students and teachers. Formation and development of stereotypes among students, in fact, of the corporate behaviour of a future specialist;
- gradual adding advantages of the entrepreneurial type of management to the liberal and democratic style of a university management;
- creation conditions for manifestation and realization of individual and creative qualities of university staff and students;
- preservation and increase of acquired material and spiritual corporate values. Directing a set of measures to form organizational and psychological stereotypes of thinking and behaviour of their participants;

- making strategic and tactical solutions in development of corporate culture human-centralized, meeting personal and individual needs of each subject of corporate culture as a condition for building their potential.

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