

**SCIENTIFIC APPROACHES
TO MODERNIZING
THE ECONOMIC SYSTEM:
VECTOR OF DEVELOPMENT**

Collective monograph



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CHAPTER 1

GREEN TOURISM AS A PERSPECTIVE DIRECTION FOR RURAL ENTREPRENEURSHIP DEVELOPMENT

Boiko V. O.

INTRODUCTION

The current state of market transformation of the Ukrainian economy requires the search for new forms of economic management in rural areas. One such form can be small business, as it maximizes the interests of manufacturers and consumers of products. In addition, all segments of people, especially rural, are interested in the development of this sector of the economy. Because it becomes the basis for the formation of the modern economic system of the country by providing employment to a large part of the population. Rural green tourism is a promising manifestation of entrepreneurial activity in rural areas. The development of green tourism is a proven world practice as a way of raising the incomes of rural people. There is currently no systemic national policy in this area in Ukraine. It is necessary to make extensive use of the European practice and to create the necessary legislative environment as soon as possible to overcome the problems hampering the development of rural green tourism based on personal husbandries and farm enterprises. According to statistics, 35% of residents of the EU cities prefer a holiday in rural areas. One third go there because of the busy rhythm of city life, 20% combine holidays with active self-guided travels, the same amount of people just wants to spend time outdoors. Rural tourism has been around for over half a century. Alsace in the south of France is considered to be its place of origin. In the early 1950s, many farmers began to travel to cities because of losses in agriculture. To stop the migration, the French government proposed to arrange farms for receiving tourists. And in the 1970s rural tourism gained its own status. Now it brings in 1 billion USD profits to the state budget of France and 3 billion USD to the regional budgets.

Rural tourism is also popular in Austria, England, Germany, Italy and Spain. In 1992, the EU reformed its Common Agricultural Policy and started targeted funding of the sphere, in particular, for rural road construction. After all, according to EBRD experts, for people born in a countryside, their accommodation in a city is 20 times more expensive

than creating the conditions for their life and work in the village. It is also estimated that the income from one place of accommodation is equivalent to the income a farmer brings per one cow per year¹. Rural green tourism is a form of business activity, it can be attributed to the field of small business, which forms the market environment in the domestic agro-industrial complex. Its development contributes to the creation of new jobs in the countryside, the introduction of scientific and technological progress in small forms of agricultural production, it is an important source of formation of local budgets and budgets of peasants. They become a buffer zone that reduces the risk of destruction of the potential of large-scale agricultural production². The development of rural tourism as a new form of entrepreneurial activity requires substantiation of many aspects, which should promote further development and ensure a proper level of competition, which is especially important in market conditions. Therefore, the main task of the article is to study the general concept of the «green» economy, to consider the features of rural tourism in the southern region and to identify factors that have a negative impact on its development.

1.1. «Green» economy as an innovative direction in world economic activity

Over the past three decades, humanity made significant progress in improving material well-being. But this progress was made at the cost of deteriorating the planet's natural environment. Continuing economic development without significant change of the current economic model will lead to increase of environmental threats and make sustainable development impossible. Taking this into consideration, economists, sociologists, politicians, representatives of the natural sciences and business begun to look for new paths of development that can restore the natural environment while ensuring a decent standard of living for the population. One of the results of this search was the concept of the «green» economy, which, with the support of international organizations and national governments, gained considerable popularity.

The term «green» economy was first introduced in 1989 in a report prepared by a group of environmental economists for the United

¹ Kak ES pomogaet razvivat «zeleniy» turizm v Ukraine [How the EU helps to develop green tourism in Ukraine]. URL: <https://news.finance.ua/ru/news-/285915/kak-es-pomogaet-razvivat-zeleniy-turizm-v-ukraine>

² Korobka S.V. (2011). Zelenyi turizm yak riznovyd pidpriemnytskoi diialnosti v silskii mistsevosti [Green tourism as a type of entrepreneurial activity in rural areas]. *Visnyk Chernivetskoho torhovelno-ekonomichnoho instytutu*. Vypusk II (42). Chastyna I. URL: http://tourlib.net/statti_ukr/korobka2.htm

Kingdom Government in the framework of consultations on sustainable development and its measurement³.

The concept of a «green economy» has become particularly important in recent years. It is widely discussed not only by economists, but also by politicians in the context of sustainable development and poverty eradication, backwardness and starvation. The engine of the process of globalization is modernization and transition of the world economy, especially of the industrial countries, to a new technological institution, which, together with a qualitative updating of the technological base, improving the efficiency of production and competitiveness of the economy, is intended to ensure the improvement of quality of life and living environment. Abroad, the transition is being implemented by the «green» growth economic policy formally adopted by the Organization for Economic Co-operation and Development (OECD) in 2009 as a strategic direction for the development of all its members for the long (up to 2030) and more distant (up to 2050) perspective.

The rational use of scarce natural resources on the planet and the reduction of the dependence of the economy on traditional fossil energy sources, which have a negative impact on climate change and cause energy vulnerability in many countries, are fundamental factors for the survival of socio-economic systems in the 21st century⁴.

According to scientists, in 30 years the world's population will increase by about 30% to 9 billion people in 2050 compared to the current 7 billion people, with 98% of it will live in developing countries and new independent states. The population of cities will double, the ratio of the middle class will increase. People aged 65 and over will account for about 20% of the world's population as a result of aging. To provide the planet's growing population with food and energy, an increase in agricultural productivity of an average of 2% per year is required. Today, the agricultural sector consumes over 70% of the world's drinking water resources through traditional tillage technologies and is responsible for 13% of the world's greenhouse gas emissions. The population is expected to generate more than 13.1 billion tonnes of waste in 2050 due to rising living standards and incomes. This is 20% more

³ Pearce D. Markandya A., Barbier E. Blueprint for a green economy. London : Earthscan Publications Ltd, 1989. 193 p. [UK pound]6.95. ISBN 1 85383 066 6.: Blueprint 2: Greening the World, *Ecological Economics*, Elsevier, vol. 7(1), pages 75-78, February. URL: <https://ideas.repec.org/a/eee/ecolec/v7y1993i1p75-78.html>.

⁴ Musina L. Stan i perspektyvy rozvytku zelenoi ekonomiky ta zelenoho biznesu v Ukraini [State and prospects of development of green economy and green business in Ukraine]. *Analychna dopovid*. URL: <http://eep.org.ua>

than in 2019, despite the fact that only 25% of all waste today is disposed or recovered. Global energy demand will increase by 36% during 2018-2035⁵.

In view of this global challenge, international organizations and the business community are working to improve the structure of the economy and the models of production and consumption of resources to transfer global growth into more sustainable rails. Particular attention is paid to the following studies:

- implementation of new resource-efficient and cleaner technologies;
- finding solutions to climate change;
- increasing the efficiency of agriculture and forestry;
- urban and infrastructure refresh;
- correction of human values and behavior towards sustainability.

The global financial crisis at the end of the last decade has cast doubt on people's beliefs in business and government action, and has stepped up the search for answers to many complex issues in society. These include how to measure success and progress, how to decouple economic growth from resource consumption and ecosystem degradation, and tap into new sources of growth related to the use of resource-efficient and eco-friendly technologies and innovations.

Core of such pursuits is the development and refinement of the concept of sustainability that binds the well-being of the present and future generations: meeting the needs of the modern age should not undermine the ability of future generations to meet their own needs.

Accordingly, the implementation of the «green» economy to achieve sustainable development principles has several main directions:

1) direction of «inexhaustible resources»: renewable energy resources; recycling of materials; organic agriculture that consumes the least energy, does not use artificial means of protection and nutrition of plants, GMO;

2) optimization direction: energy efficiency of production and housing; reduction of using cars; reduction of products energy value; reduction of water consumption; restoration of forests and conservation areas;

3) social direction: the principle of equality in the allocation of scarce resources; solving land allocation and land use planning; a

⁵ Berezhna Yu.S. (2012). Kontsepsiia «zelenoi ekonomiky»: mizhnarodnyi aspekt [Green economy concept: an international aspect]. *Uchenyie zapiski Tavricheskogo natsionalnogo universiteta im. V.I. Vernadskogo*, no. 1, pp. 210–215.

financial regulation system that guarantees the basic needs of most people;

4) managerial direction: changing the measurement value of wealth and the success of states, which means that GDP should be complemented by indicators of natural services and biodiversity conservation; a global security system with interventions in developing countries; investment in institutionalism, optimization of management and decision-making.

It is important to emphasize that the concept of the «green» economy does not replace the concept of sustainability, but develops it and is a means of its practical implementation. «Green» development can only be ensured if environmental and economic policies are integrated in such a way that social progress, economic growth and the improvement of the quality of life of the population occur against the backdrop of reducing threats to the environment⁶.

The transition to the «green» economy is based on innovative solutions, in particular, on radical changes in the social sphere. Social innovation is connected with the formation of public awareness, modernization of education and employment. Awareness and understanding of the complexities of global economic, environmental and social issues, as well as new opportunities, are prerequisites for defining priorities and behavior and require a focused policy to shape a modern worldview.

Taking into account the above approaches and combining them with the aforementioned goals of the “green” economy, we can conclude that it is advisable to highlight the following 10 basic principles of the “green” economy.

1. Orientation to the future: taking into account the consequences of economic activity for the existence of future generations.

2. Measurability and comparability: creation of an open system of national and international reports on the level of economic and social development of territories and their impact on the environment, development of adequate indicators of social development assessment that would take into account the environmental component.

3. Sustainable production and consumption: a reorientation from traditional standards and production and consumption patterns to the newest «green».

⁶ Halushkina T.P. (2012). «Zelena» ekonomika v sektoralnii modeli rozvytku Ukrainy [Green economy in the sectoral model of development of Ukraine]. *Ekonomichni innovatsii*, no. 48. URL: <http://archive.nbu.gov.ua>

4. Social development: increasing the employment rate of the population in the “green” sectors of the economy, improving the quality of life through increasing incomes and access to better resources, ensuring the right of citizens to personal development.

5. Public cooperation: involving the broad public, business, governmental institutions, international and non-governmental organizations in joint actions to shape the «green» economy.

6. Resource efficiency: increasing the level of resource efficiency, recycling and increasing the economic impact of reducing negative environmental impacts.

7. Environmental friendliness: reduction of negative anthropogenic impact on the environment, in particular, of emissions of greenhouse gases, solid waste, pollution of water bodies and land, preservation of biodiversity and environmental protection, introduction of environmental education of the population.

8. Cost-effectiveness: the ongoing costs of implementing green standards should not be a constraint on economic development, but should help to create the basis for the long-term development.

9. Comprehensive implementation of the «green» economy principles at all levels of government and in all areas of activity.

10. Equality and equity: equal access and equitable distribution of natural resources. These principles reflect the most important aspects of the «green» economy within the concept of sustainability⁷.

Greening the economy, seen as a way to foster economic progress while ensuring environmental sustainability and social equality, is recognized as a promising path for sustainability. For this reason, the UN and its Member States are working to embrace green economy approaches in their instruments, including the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDG).

The «Environment for Europe» process began with the First Pan-European Conference of Ministers of the Environment in Dobris Castle in June 1991.

At the Seventh Conference on «Environment for Europe» held in Astana, Kazakhstan in 2011, ministers of the environment decided to promote the transition to the «green» economy. They stressed the need to step up efforts to reduce economic growth from environmental

⁷ Chmyr O.S., Zakharkivych N.P. (2013). «Zelena» ekonomika: sutnist, tsili ta bazovi pryntsyipy [Green economy: the essence, goals and basic principles]. *Ekonomichnyi visnyk Donbasu*, no. 3 (33), pp. 54–62.

degradation by stimulating green investment and innovation, promoting sustainable production, improving energy and resource efficiency. They also stressed the importance of developing the human, institutional and economic capacity to support the greening of the economy, in particular through research, education and training of specialists.

The Eighth Conference of Ministers «Environment for Europe», held in 2016 in Batumi, Georgia, advanced the process of transition to the «green» economy in the region in response to the commitments made in Astana and focused on the question of how to begin this process. The intention is to support the Ministries of the Environment in launching and promoting discussions on the «green» economy in the governments of the European countries and in other relevant forums and in promoting the agenda for the «green» economy.

The Pan-European Green Economy Strategic Framework was endorsed at the Conference. The strategic framework provides the pan-European region to implement a model of development that would ensure economic progress, social justice and the sustainable use of ecosystems and natural resources in order to meet the needs of the present generation without compromising the ability of future generations to meet their needs. The «green» economy, as one of the approaches to reorienting consumer habits, investments and trade in support of the inclusive «green» economy aimed at overall prosperity, is one of the promising ways to achieve sustainability goals in the region and beyond.

Greening the economy in the Pan-European region will achieve three main objectives:

Reduction of environmental risks and scarcity of natural resources;

Strengthening economic progress;

Improving human well-being and strengthening social justice.

Achieving these three objectives will foster prosperity through economic progress, ensuring environmental sustainability and social inclusivity. This can be achieved by stimulating and encouraging investment and trade to support such economic progress that would ensure greater fairness and not be accompanied by environmental degradation. In addition, to achieve this, consumers need to be stimulated to change their habits so as to prevent excessive consumption and bring to the fore the green goods and services. Supporting natural capital, ecosystems and related services in this way will improve the quality of life and promote overall prosperity, while

decreasing environmental load will reduce human health risks and increase well-being⁸.

1.2. Current trends in green tourism development in the Southern region

In Ukraine, there are all the prerequisites for the development of rural recreation, which can be seen as a specific form of ancillary economic activity in rural areas using the natural and cultural potential of the region, or as a form of small business that allows to solve to some extent the problem of employment of rural population, to improve its well-being, to make fuller use of the natural and historical and cultural potential of the countryside. The case of rural recreation development has a real state perspective and contributes to improving the socio-economic situation of rural areas.

Rural tourism helps residents to solve a number of social and economic problems: the on-site realization of agricultural products and increase the employment of rural population in many areas of the economy: in the hotel business, communications, banking, transport. That is, it is the area where the multiplier effect is most clearly manifested. Its development will greatly benefit agriculture, construction, culture, local crafts, etc⁹.

The development of rural green tourism encourages the improvement of rural estates, streets, villages as a whole, and stimulates the development of social infrastructure. A significant role is played by the development of rural green tourism in raising the cultural and educational level of the rural population. Preparing to receive and serve vacationers, members of peasant families are involuntarily forced to update their knowledge of housekeeping, hygiene and sanitation, cooking, etc., communication with guests extends their horizons, allows to make new acquaintances, to strike up new friends in different locations¹⁰.

In the course of decentralization in the territory of the ATC (amalgamated territorial community), a special need for the activities of the local population, other than large agricultural production, arose for

⁸ «Zelena» ekonomika – novyi hlobalnyi napriamok rozvytku [Green economy is a new global development area]. URL: <http://ecoosvita.org.ua/storinka-knygy/zelena-ekonomika>

⁹ Zakharchenko O.V. (2014). Perspektyvy rozvytku silskoho turyzmu [Rural tourism development prospects.]. *Zbirnyk naukovykh prats Tavriiskoho derzhavnogo ahrotekhnolohichnoho universytetu (ekonomichni nauky)*, no. 4(28), pp. 97–100.

¹⁰ Stepanov V.Iu. (2018). Silskiy zeleniy turizm v Ukraini: problemy ta perspektyvy [Rural green tourism in Ukraine: problems and prospects]. *Aktualni problemy derzhavnogo upravlinnia*, no. 1(53), pp. 1–5.

the sustainability. Citizens, in turn, seek to relax in recreational areas devoid of urbanism.

Rural tourism in Europe went the way of developing niche services. A citizen client can choose a farm for a specialty visit: winemaking, beekeeping, cheesemaking, poultry farming, horse breeding and more. To identify the features of the services, graphics have been developed that accompany the sites of the farms, and logo-identifiers carry stylized images of a form of recreation, for different preferences.

In Ukraine, the main operating model is a family farm based on a personal peasant farm. The requirements for such farms are clearly defined and spelled out. The main requirement for the location of the guests in the farmstead is the comfort that the locals are accustomed to: modern (albeit stylized) furniture and bathroom accessories, the Internet, the appropriate sanitary level.

For apartment buildings, estates are divided into two basic types. The first is an outwardly one hundred percent authentic modern building. The second is a modern house of original architecture. An important feature of a farmstead is a place where the guest can retire or spend time with his/her family, free from the owners' attention. There are many methods of its realization: gazebo-braided from the vine, lakes with islands, on which there are some bizarre huts, etc. The psychological readiness of the whole farmer family to welcome strangers into their yard is very important¹¹.

The dynamics of the transformations taking place in Ukraine require fundamentally new approaches to planning the development of all branches of the Kherson region, and even more so for those recognized as priorities in the region. Significant industries include tourism. It is the construction of the tourism development strategy, initiated by the Department of Culture and Tourism of the Kherson Regional State Administration, which is the basis for creating the conditions for transition of the industry to the state of competitiveness in the Ukrainian tourist market. The planning process itself is a special kind of decision making regarding the specific future of the recreation and resort complex and tourism. Action programs are sought by the community as a whole of the «triangular cooperation» (business, public movement, government, etc.) and can be comprehended even with the influence of various internal and external factors.

¹¹ Makul'skyi K. Sil'skyi zelenyi turyzm akumuliuie prynady pryrody, tradytsii i nishevykh promysliv [Rural green tourism accumulates the charms of nature, traditions and niches]. URL: <http://www.agroprofi.com.ua/statti/1713-sil'skyi-zelenyy-turyzm-akumuluyue-prynady-pryrody-tradytsiy-i-nishevykh-promysliv>

The Kherson region is a unique territory for tourism, rest and recreation, which has enough advantages for the formation and development of a powerful resort and tourist complex. The region has a wide access to the Dnipro main waterway, and it is the only one of the regions of Ukraine that has access to two seas simultaneously: the Black Sea and the Azov Sea. Exactly in the Kherson region there are located: Oleshkivski sands, the only natural desert in Europe, «Stanislavski Cliffs», the largest man-made forest in the world and even unique mountain landscapes in the middle of the steppe .

The region has: 12 resorts; more than 450 km of sea coastline; 200 km of which are equipped with sand beaches; the «Arabatska Arrow», the longest sandbar in the world; more than 70 deposits of healing balneal resources (mineral and thermal waters, therapeutic muds, brine of the lakes), among which is the unique Lemuriiske Lake, the medical mud of which has been tested, certified and approved for use as a therapeutic and cosmetic product. Skadovsk is a resort of national standing, a center for children's health and recreation.

There are 80 objects of national, international and local importance in the territory of the region. Of the four biosphere reserves of Ukraine, two are located in the Kherson region. These are the Black Sea biosphere reserve and Askaniia-Nova, which are part of the UNESCO World Network of Biosphere Reserves. The real tourist pearls of the region are the national nature parks: Azov-Syvash, Oleshkivsky Sands, Dzharylhatskyi, Nyzhniodniprovskyi and the recently created Kamianska Sich.

In Kherson region, green tourism is gaining momentum, with 70% of the population living in the city. Therefore, rural holidays are attracting more and more locals who choose not to spend on expensive comfortable hotels, but a budget farmstead with national colors. The Kherson region has huge potential for the development of rural green tourism. There are 49 rural green tourism estates in the region. Due to the development of rural green tourism, material well-being is increasing and the employment problems of the rural population are partially solving¹².

An important prospect for rural green tourism development is the expansion of opportunities to sell personal ancillary products on site not as agricultural raw materials, but as finished products after proper processing and preparation. Farmsteads that take holidaygoers are also

¹² Boiko V. (2016). Algorithm of developing competitive strategies and the trends of realizing them for agricultural enterprises. *ScienceRise*. T. 2, N 1 (19), 30-34. DOI: 10.15587/2313-8416.2016.60349. [in Ukrainian]

improving the structure of crops in the backyard, taking into account the needs of guests, expanding the range of vegetables, fruit trees, berries, etc.; develop and diversify farm animals, plant a greenhouse.

In its functions, preparing and meeting guests cannot be a banal and mechanical procedure. Namely: provision of the room fund ready for reception of guests, its cleanliness control, support of the electricity and water supply systems functioning, conditioning, arrangement of the territory, provision of food culture, provision of thematic information and cognitive, cultural, animation space, function of operational assistance (in emergency cases: the need for medical care, fire safety, law enforcement, etc.). Not only the landlady and the landlord are involved, but also other residents of the estate, including teenagers and children. Each is assigned a specific function, which is performed according to internal instructions, but with creativity and enthusiasm.

Thus, the study of the phases of the rural tourism guest cycle revealed important aspects of the hosts' interaction with potential clients and allowed to create a new vision of hospitality as an element of their own business, built on the systematic ability to work in the tourism market qualitatively.

Annually, in April-May, within the framework of the International Tourism Forum «The Kherson region – rest, treatment, trips in the Tavriia ecological conditions» meetings of sections «Rural green tourism as a promising direction of village revival» are held, which present the potential of rural territories of the Kherson region in the sphere of green tourism.

The decision of the Kherson regional council № 1095 dated December 14, 2018 approved the regional program «Development of tourism and resorts in the Kherson region» for the period of 2019-2021, which provides measures to support rural green and agritourism, in particular:

- promotion of certification of estates and green tourism bases (certificates of conformity of services for accommodation and food);
- conducting professional and counseling events with the participation of profile associations on the promotion of recreation in rural areas in the Kherson region, the issuance of annual specialized catalogs, media coverage;
- formation of tourist stay programs at the territory of the region at any time of the year.

In addition, an agricultural service cooperative «Zacharovanyi sad» of fruit and berry type was created in the territory of the region in the

Holopristansky district in 2018, one of its activities is the organization of various types of recreation and entertainment.

The Kherson region for some time positioned itself as the largest fruit and vegetable area of Ukraine. It is now concluded that rural tourism is perhaps the only sustainable development path beyond large-scale agricultural production. The area is heavily plowed and at the same time has a very high percentage of protected natural lands, compared to other regions of the country: 13% of the territory. But there are no objects of excessive tourist attraction.

As an anchor idea, the historical component was chosen here: «the wild field» and «the milky way». Despite the historical name of «the wild field», this place has always been inhabited by people. In addition, there were trade routes to the salt fields on the floodplain of the Azov Sea – Syvash, and on the Black Sea – near the Dnipro river mouth of the settlement Prohnoiska Palanka (now the village Heroiske).

The chumaks' way through the wild field began in the town of Beryslav, where there was a crossing through the Dnipro river. Further, the salt road was divided: to Syvash to the South-East, and to Prohnoiska Palanka to the South-West. The organizers of the project «Salt Way» connected the route: from Kherson tourists go to Beryslav, then to Syvash, from there to Heroiske and again to Kherson. Along the route, tourists visit villages with facilities that attract local villagers to serve guests. There are stopping points with high comfort and prices, as well as moderate comfort and appropriate prices.

An example of a high price level is the village of Kozatske. There are natural objects: waterfalls in the steppes near the ruins of Prince Trubetskoi's palace. Anchor object is the «Trubetskoi's Chateau»: an original ancient building of aristocrats country house with wine production. The restored complex has a hotel, restaurant, wine cellars. An example of a moderately priced object is the village of Hryhorivka with 40 farmsteads of different agricultural activities. Tourists can go the entire route or visit selected sites. An example of the project «Salt Way» demonstrates how rural green tourism helps to implement sustainable rural development policies¹³.

The Kherson region gained the glory of Ukraine's breadbasket long time ago, but the southern region specializes not only in cereals and fruit

¹³ Makulskyi K. Silskyi zelenyi turyzm akumuliuie prynady pryrody, tradytsii i nishevykh promysliv [Rural green tourism accumulates the charms of nature, traditions and niches]. URL: <http://www.agroprofi.com.ua/statti/1713-silskyi-zelenyi-turyzm-akumuluyue-prynady-pryrody-tradytsiy-i-nishevykh-promysliv>

and vegetables, the region has considerable potential in the field of viticulture and winemaking. In terms of climate or soil, the Kherson region is not inferior to the world-famous wine provinces: French Bordeaux or Northern and Central Italy. The lower Dnipro zone is ideal for growing sunberry.

The European practice shows that family wineries are an effective legal form of business in the gastronomy. In Ukraine, throughout the reform period, family-type wineries have not expanded since the formation of optimal vineyard areas and the creation of a wine production base require considerable financial resources.

The first family-owned winery in Ukraine was established in the Kherson region on the basis of the farm of «Kurin», headed by Mykola Khalupenko. Vineyards cover 40 hectares, and his own winery produces 60,000 bottles of wine a year.

The farmer does not involve foreign experts in the work, the reason is the desire to make authentic wine and demonstrate the benefits of a domestic product. For the season, the chateau processes 30-50 tonnes of grapes, 85% of the produce is dry wines, but the uniqueness of the muscat chateau will surprise any expert with a bouquet of aromas. There are 53 wooden barrels of 200, 250 and 500 liters in the wine cellar. Their wines are aged for two years. Ordinary wines are stored in metal barrels. Since 2011, the owner has laid the best dessert wines in the collection. The floral aroma of white dry wines and fruity shades of rose wine are noticeable when wine tasting. The enterprise actively develops the direction of gastronomy, cooperating with tourist operators of the south of Ukraine. Many tour companies during the excursion to the Kherson region (on the pink lakes, geysers, sea coast, to the Askaniia-Nova Reserve) visit the «Kurin» winery as part of the tour. More than 50 tastings were held in 2019, which certainly help to expand the market and increase the number of wine connoisseurs¹⁴.

The agrarian complex of the region is the basis of stable development of the Kherson region, and it is not only production, but also the development of rural territories, employment and as a consequence, improving the standard of living¹⁵. The Kherson region is

¹⁴ Avercheva N.O., Boiko V.O., Boiko L.O. (2019). Ekonomichna otsinka potentsialu haluzi vynohradarstva rehionu [Economic evaluation of the potential of viticulture industry of the region]. *Ekonomika APK*, no. 6, pp. 15-25. DOI: <https://doi.org/10.32317/2221-1055.20190615> [in Ukrainian]

¹⁵Boiko V. (2017). Determinants of development of small and medium enterprises in the region of Kherson [Electronic resource]. *Agricultural and Resource Economics: International Scientific E-Journal*. Vol. 3. No. 2. P. 22–29. URL: www.are-journal.com

eco-friendly, investment-friendly and open to cooperation with the inexhaustible natural and human resources.

In the tourist market, the region has a number of significant competitive advantages that must be harmoniously used in the development steps of the recreation and resort complex. It includes the historical and multinational resource of the «steppe» and sub-Dnipro regions, which are insufficiently developed today for the «seaside» sector, the opportunities of the Black Sea and the Azov sea coast, a factor of ecological consciousness of the modern tourist, culinary and wine-making «zets» traditions are so distinctive for the local traditions of hospitality.

The vision of the future of the Kherson region in view of the development of the tourist and recreational complex has the following wording: «The Kherson region is the center of the Ukrainian Black Sea region, the edge of two seas, unique multinational steppe culture, ecological cleanliness and high quality of life and hospitality of the residents». Thus, it is possible to formulate the mission of the tourist and recreational complex of Kherson region: «By way of the introduction of high standards of hospitality in tourism institutions of the Kherson region to improving the quality of life of residents»¹⁶.

The performance of SWOT-analysis for the weaknesses and strengths of the region for the tourism industry has identified the following trends. Among the strengths are the geographical location, holding festivals, fairs, traditions of melons, winemaking, vegetable growing, the presence of reserves, wetlands, national and international nature parks, the availability of medicinal water, brine and mud. In addition, rural tourism does not require large startup capital, is based on a sustainability model with favorable market conditions.

Among the weaknesses, the greatest importance is attached to the lack of image of Kherson region in the world as an area of interest for recreation and rest, neglected state of communal infrastructure, lack of compliance of tourist establishments with international standards, low qualification of personnel, lack of systematic information support to the industry, insignificant investments in industry and of the well-defined strategy of development of green and rural tourism in Ukraine.

The analysis of weaknesses and strengths created the prerequisites for determining the direction of efforts in the field of development. The

¹⁶ Kravets O. Silskyi turizm – tradytsii hostynnosti, yaki prynosiat prybutok [Rural tourism – profit-making hospitality traditions]. URL: http://artkavun.kherson.ua/uaslskij_turizm__tradits_gostinnost_jak_prinosjat_pributok.htm

following trajectories were proposed: creation of the image of the Kherson region as a European tourism center, rational use of tourist resources, extension of the tourist season, inter-municipal interaction, cooperation of communities that have tourist attractions and infrastructure, which would contribute to the long-term retention of tourists in their territory: to entertain, intrigue, surprise. Deployment of directions of tourist-recreational complex development causes creation of a coherent system of strategic and operational goals for fulfilling the mission of the region in the tourism industry.

Thus, the systematic approach and elaboration of the expert and partner model of development of the tourist and recreational complex of the Kherson region allow to present at the state level a «living» holistic concept, with specific planning and vision of the direction of movement, which is the most important stage of becoming a priority for the field of economy.

CONCLUSIONS

Based on the analysis, it is established that there is a tendency to conserve natural resources all over the world. The «green» economy, as a field in economic science, has begun active development, introducing alternative means of preserving natural resources. A similar trend is observed in Ukraine, but it has a weak development, which is due to a greater extent to economic problems and lack of funding.

Current trends on Earth have no signs of sustainability, and traditional responses to these problems usually depend on the type of economic growth that is strongly associated with the additional consumption of resources. Therefore, the development of the «green» economy should involve a revision of the standards of life of society in order to preserve the natural environment, increase resource efficiency and a phased approach to production, technological, socio-economic and natural-geographical specificities of regions and countries.

The green tourism is a strategic initiative that can make a significant contribution to the economic growth and quality of life of rural residents. However, there is an awareness that tourism must be sustainable in its development and responsible to society and the environment. In the coming years, the Ukrainian village is able to create a system of world-class tourism services, without losing its identity and diversity of national cultures. Urban residents make up more than half of Ukraine's population, and this is a huge potential for generating demand for rural «green tourism» services.

Analysis of the prerequisites and trends of tourism development in the Kherson region shows that the region has significant opportunities to enter the most developed regions of Europe in terms of tourism: favorable geopolitical location, comfortable microclimatic conditions, diverse landscape, unique flora and fauna, historical and architectural heritage, developed transportation network, sufficient human, material, including natural, resources.

Rural tourism is one of the most promising directions of development of the agricultural sector of the Ukrainian economy and can be an impetus for the development of small and medium-sized businesses in rural areas.

SUMMARY

The article analyzes the strategic priorities of the formation of new «green» directions of the economy and outlines the current trends of implementation of its ideology in the national dimension. The basic principles of sustainability in the implementation of the «green» economy are considered. The directions of further stages of development of the «green» economy in Ukraine are determined.

Resource potential of rural territories of the Kherson region as a prerequisite for development of green tourism in the southern region is investigated. The attention is paid to the problems of development of rural green tourism as a kind of entrepreneurial activity in rural areas. The directions of increasing the level of utilization of the tourist and recreational potential of the Kherson region have been substantiated, taking into account the need to conserve natural and anthropogenic tourist resources, improving the activity of tourism enterprises.

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CHAPTER 2

CYCLICAL NATURE OF DEVELOPMENT OF THE NATIONAL ECONOMY'S INNOVATIVE PROCESSES

Verkhoglyadova N. I.

INTRODUCTION

The problem of cyclical fluctuations in the economy was considered by scientists almost from the very beginning of the existence of economic science. A. Smith, who proposed the concept of economic growth, relied on the fact that it is ensured by technological progress as a result of the growing division of labor. The idea of A. Smith about the flexibility of salaries and prices formed the basis of the crisis-free growth theory of J. Say and D. Ricardo. On the other hand, T. Malthus and K. Marx put forward directly opposite theories. According to Malthus, a sufficient level of demand in the economy is unattainable without the participation of a third party. K. Marx believed that the limiting factor, which is leading to the alternation of periods of economic growth and decline, is the limited consumption of the masses, which counteracts the desire of the capitalists to develop productive forces.

At the heart of most modern cyclical theories in economics is the concept of an accelerator multiplier, put forward by neo-Keynesians. According to representatives of this direction in economic science, crisis-free economic growth is possible if the state will provide the correct policy concerning the regulation of the so-called “super-cumulative” effect, based on the action of both the multiplier and accelerator effects¹. The famous economist N. Kondrat’ev put forward the idea that long-term economic fluctuations (“long waves”) arise as a result of changes in production technologies as a result of scientific and technological progress². Economists F. Kidland and A. Prescott consider that stochastic shocks caused by fluctuations in aggregate labor productivity are the source of cyclical fluctuations in the economy. Their researches about the problems of economic cycles took into account the totality of stochastic (probabilistic) macroeconomic factors and created

¹Blauh M. (2001). *Ekonomichna teoriia v retrospektyvi* [Economic theory in retrospect]. Kyiv : Osnovy, 672 p.

²Kondratev N.D. (1993). *Izbrannyye sochineniya* [Selected Works]. Moskva : Ekonomika, 544 p.

the prerequisites for a deeper understanding of important aspects of the essence, patterns of development and functioning of economic cycles³.

Global changes taking place in the economic life of society are manifested before and at the beginning of the rising wave of each economic cycle and consist in global changes in the technical and technological equipment of production, the attraction of new countries to world economic relations and changes in money circulation, which in turn are reflected on the course of innovative processes of national economies. The main role in the cyclical nature and patterns of such changes belongs to innovation.

In modern conditions, the study of the dynamics of innovative activity and the preparation of a further forecast of the course of innovative processes and the functioning of enterprises, which are active in this field is especially actually, since it allows us to suggest possible fluctuations and develop recommendations for their prevention with the aim to the progressive development of the economy as a whole. Fluctuations can occur in a large number of dynamic indicators, while some indicators may not reflect them. In this regard, the development and usage of a system of indicators of the cyclical economy are an integral part of the analysis of innovative processes.

Analysis of innovation activity cycles for the modern Ukrainian economy is a fairly relevant area of applied economic research.

The word “innovation” is derived from the verb “innovate”, meaning “to modify or modernize”, which reflects the basic idea of innovation, which is to upgrade.

Moreover, the innovation process is the process of converting scientific knowledge into innovation, which can be represented as a sequential series of changes from the emergence of an idea to the final product and its further commercialization aimed at the effective functioning of all constituent elements⁴.

The cyclical nature of innovation processes depends on the uneven implementation of innovations, and this, in turn, is due to the impact on the innovation process of a large number of factors, the systematization and timely identification of which will make it possible to predict the development of innovative processes in the national economy, given the

³ Balashova E. (2005). Finn Kyudland i Edvard Preskott: dvizhuschie silyi eko-nomicheskikh tsiklov [Finn Cudland and Edward Prescott: drivers of economic cycle]. *Voprosyi ekonomiki*, no. 1, pp. 133–143.

⁴ Beketov N.V. (2008). Tsiklichnost razvitiya ekonomicheskoy sistemy i innovatsionnyie otnosheniya v konkurentnoy srede [The cyclical development of the economic system and innovative relations in a competitive environment]. *Vestnik HGAEP*, no. 1(34), pp. 4–11.

fact that the creation of favorable external conditions is necessary for the innovation process, contributing to innovative development.

Factor (from lat. factor – doing, producing) – the reason, the driving force of any process, which determines the nature of its individual features.

Factors of innovative development can be divided into stagnant (slowing down) and stimulating; by the level of influence – factors affecting the global, macro-, meso- and micro-levels⁵.

In our opinion, it should be singled out separately the groups of factors that contribute to the development of innovative processes and prevent it. In each of these groups, it is possible to distinguish economic, technological and political-legal factors (Table 1).

Table 1

Factors contributing to and impeding the innovation

Group of factors	Factors, which impeded the innovation activity	Factors, which contribute to the innovation activity
Economic-technological	Lack of funds to finance innovative projects, imperfection or obsolescence of the material and scientific-technical base, lack of reserve capacities, dominance of the interests of current production.	The presence of a reserve of financial and material and technical means, advanced technologies, the necessary economic and scientific-technical infrastructure.
Political-legal	Restrictions on antitrust, tax, depreciation, patent and licensing laws.	Legislative measures (especially incentives) that encourage innovation, government support for innovation

In addition to the factors above, the cyclical nature of innovation is also influenced by institutional factors (Table 2).

Factors affecting the innovation process and its cyclical nature include two groups:

- the innovation cycle, particularly, the duration and amplitude of fluctuations;
- cyclical nature of innovation.

⁵Beketov N.V. (2008). Tsiklichnost razvitiya ekonomicheskoy sistemy i innovatsionnyie otnosheniya v konkurentnoy srede [The cyclical development of the economic system and innovative relations in a competitive environment]. *Vestnik HGAEP*, no. 1(34), pp. 4–11.

Table 2

Institutional factors of innovation cyclical nature

Factor	Characteristics
1. Legislative and legal norms in the field of innovation.	This factor includes a well-developed system of legislative and other acts of all levels of the hierarchy, providing economic entities with the necessary tools for concluding and observing contracts with minimal costs.
2. The system of public administration of the innovation process	The organization of this system should provide all economic operators with equal access to resources, as well as contribute to the specification of property rights.
3. Innovation market infrastructure: - financial system; - credit ensuring system; - media system.	This factor provides a relationship between all economic entities and is an important element of their interaction, a tool to reduce transaction costs; influences public opinion, thus represents a management tool for stimulating the search for innovations and their implementation
4. The system of cultural, religious values and behavioral characteristics of innovators and consumers of innovations.	This group of factors determines the configuration of institutions and allows to predict the results of institutional changes, as well as sets the direction of the institutional development of innovations.

The cycle time depends on the factors of the first group, which include such as the amount of capital and its compliance to needs, the presence of demand for a new product, the level of inflation, the activity of sales of a new product to the saturation point, personnel and pricing policies.

Factors that, in turn, determine the amplitude of fluctuations in the innovation process include production volumes, advertising costs, and marketing.

The second group of factors that affect the cyclical nature of innovations is proposed to be considered within the framework of cyclical phases, the detailed characteristic of which is presented in table 4.

Today there is no single interpretation of the cyclical phase. In our opinion, the cyclic phase is a period from one peak point to another, the change of which occurs under the influence of certain factors.

Table 3

Factors affecting the innovation cycle

Sign	Factor
Cycle duration	The volume of capital and its relevance to demand, the presence of demand for a new product, inflation, sales activity of a new product to the saturation point, personnel and pricing policies
Fluctuations' amplitude	Volumes of production. Costs of advertising and marketing of products

Factors affecting the cyclical nature of innovations, in our opinion, should be grouped according to the cyclical phases.

Innovations translate the economic situation from decreasing to an increasing trend, while their distribution over time stretches occurs unevenly. Part of the explanation for the economic fluctuations comes down to technical innovations and improvements to the introduction of resources in exploitation, as well as the development of new territorial segments. The phases of innovation cycles include growth, peak, stagnation, decline, depression⁶. The characteristics of the factors affecting the cyclical nature of innovation are presented in table 4.

Table 4

Factors affecting the cycle nature of innovation

Phase of the cycle	Factors
Growth (rise)	Increasing of demand, production, credit expansion, rising of inflation and nominal interest rates, high innovation activity to implement inventions, which were made in the fall and depression phases. Rapid growth of new industries. Opening and rapid development of new markets, stimulation of competition.
Peak(vertex)	Price stabilization, low inflation level, production intensification, high level of employment.
Stagnation (standstill)	A sharp splashin prices and interest rates, the transition of inflation to hyperinflation, high patent activity (inventions are reduced to small improvements), overproduction of means of production.

⁶Zamulin O. (2005). Kontsepsiya realnyih ekonomicheskikh tsiklov i ee rol v evolyutsii makroekonomicheskoy teorii [The concept of real economic cycles and its role in the evolution of macroeconomic theory]. *Voprosyi ekonomiki*, no. 1, pp. 144–152.

Phase of the cycle	Factors
Fall (descent)	Decrease the inflation, real and nominal rates, predominance of portfolio investments, decrease in demand, increase of protectionism, falling of prices and production in monopolized industries.
Depression (crisis)	Zero interest rates, low demand, the release of resources and high unemployment, the creation of important inventions, which will be implemented almost simultaneously at the beginning of the growth phase and will create new industries and a new technological style.

Such grouping of factors allows identifying weak links in the structure of the innovation process to formulate a targeted innovation policy.

The detailed characterization of the factors presented in table 4 more fully shows the cyclical nature of innovation processes.

Thus, identifying the factors influencing the innovation cycle in a particular phase of the cyclicity of innovations allows us to determine a set of measures that correct or stimulate innovation processes, if necessary, and to identify those periods when the pace of technological progress exceeds the expected results.

As we consider innovative processes, it can be said that, ultimately, the cause of the cyclicity of innovation processes is the emergence in the depression phase of important inventions, which are subsequently introduced in the growth phase, and factors that directly affect each phase of cyclicity also play their role in cycles duration⁷.

2.1. The system of indicators of cyclicity and features of its application

The system of cyclicity indicators is widely used by international research institutes in different countries for analyzing business cycles and forecasting their turning points.

Indicators are readily observable and measurable characteristics of the object being studied that reflect changes occurring with it.

The description of the indicator in the most general case should include:

⁷ Zarova E.V. (2010). Statisticheskie indikatoryi kratkosrochnyih ekonomicheskikh tsiklov v razvitii regiona : monografiya [Statistical indicators of short-term economic cycles in the development of the region: monograph]. Samara : Izd-vo Samar. gos. ekon. un-ta, 215 p.

- definition (an accurate and unambiguous answer to the question of what this indicator is);
- a tool for measuring this indicator;
- frequency of measurement;

Besides, the description of the indicator may include:

- a description of what exactly this indicator measures. It may be necessary if the definition does not provide sufficient information for users;
- a brief description of the measurement methodology (answer to the question of how to determine the value of the indicator). It may be necessary to perform a measurement using a recommended technique or tool;
- advantages and strengths of this indicator, as well as limitations concerning its usage. These characteristics of the indicator are refined as it is used. They may be needed for further interpretation of the data and for improvement of the indicator system.

Under the system of indicators, we understand a set of indicators that can interpret the change in the state of the object under study. Depending on the object of measurement, it is distinguished systems of indicators of resources, process, a direct result, overall result, influence⁸.

As a result of the analysis of foreign experience, the next requirements to the system of indicators were identified:

- possibility of quantitative expression;
- ability to use statistics;
- low costs for information gathering and calculations;
- ability to evaluate the change in the state of an object in time;
- possibility of matchings and comparisons with other similar objects.

In the international practice of economic cycle research, the industrial production index (IPI) is considered the most suitable indicator for measuring overall economic activity. This indicator is used to identify cycle turning points in many countries⁹. The choice of this indicator as a base range is primarily explained because it is available monthly in most countries, therefore, the industrial production index best reflects the cyclical nature of the entire economic system. Of course, it would be more preferable to use the GDP indicator as to the base

⁸ Makarenko I.P. Nekotoryie instrumentyi prognoza ekonomicheskoy dinamiki i ekonomicheskikh krizisov [Some tools for forecasting economic dynamics and economic crises]. URL: <http://www.iee.org.ua/> (accessed: 10.06.2019).

⁹ Yakovets Yu.V. (1999). Tsiklyi. Krizisyi. Prognozyi [Cycles. Crises. Forecasts]. Moskva : Nauka, 448 p.

dynamic row, but in many countries, the GDP is calculated only by a year or quarterly and published very late. In addition, a long observation showed that the graphs of the IPI cycles and GDP are interrelated, therefore, cyclical indicators based on the industrial production index can also serve as cycle indicators for GDP.

The methodology for obtaining cyclical indicators based on the dynamic range of economic indicators was developed mainly at the National Bureau of Economic Research (NBER) in the United States. In the work of the NBER, business activity cycles are defined as a periodically repeating sequence of phases of increasing and decreasing levels of a large number of economic and financial indicators. These cyclic fluctuations occur continuously, and the duration of the cycle is usually several years¹⁰.

Nowadays, there are systems of indicators that reflect one or another phase of the business cycle in the state of the national economy – a system of cyclical indicators. According to N. Petukhov, these same cyclical systems can be successfully applied to determine the cyclical nature of the innovation process. Innovations affect technology at all phases of their life cycle, which in turn will affect the socio-economic system as a whole¹¹.

Along with the basic dynamic range, cyclic indicators are divided into three groups of indicators:

- “leading”;
- “matching (synchronous)”;
- “delayed”.

In most countries, a group of “matching” indicators, the basic dynamic range of which is the dynamics of macroeconomic indicators, which are combined into a composite index.

Some cyclical indicators are not equally successfully applied for different countries due to differences in the structure of the economies of these countries, the rules, and traditions of statistical accounting.

At the same time, along with “matching” indicators, national systems of so-called “leading” indicators are widespread in international practice, the dynamics of which are “ahead” of the dynamics of “matching” indicators.

¹⁰Zamulin O. (2005). Kontseptsiya realnyih ekonomicheskikh tsiklov i ee rol v evolyutsii makroekonomicheskoy teorii [The concept of real economic cycles and its role in the evolution of macroeconomic theory]. *Voprosyi ekonomiki*, no. 1, pp. 144–152.

¹¹Petuhov N.A. (2012). Innovatsionnyie faktoryi razvitiya sovremennyih ekonomicheskikh sistem: avtoref. ... kand. ekon. nauk: 08.00.05. Krasnodar. URL: <http://rudocs.exdat.com/docs/index-527491.html> (data zvernennyya: 14.11.2019).

Indicators that make up the category of “leading ones” are also selected based on the following criteria: relevance, cyclicity in change, practical application.

Moreover, relevance is determined by the following factors:

- economic significance, that is, there must be a reason of economic nature for the indicator to influence the cycle, only then the dynamic range of this indicator, and, therefore, the indicator itself can be accepted as “leading”;

- the degree of coverage of innovation processes with this indicator, in which ranges with wide coverage from representativeness of the corresponding sphere of economic activity are preferable in comparison with ranges with narrow coverage.

The cyclicity in change is characterized by:

- the duration and sequence of advancing the indicator value over the base cycle at turning points;

- cyclic correspondence between the indicator and the base range – in the case of a large relationship between the cyclic behavior, the indicator will be a guideline, not only indicating turning points but also changes during the entire cycle;

- the absence of additional cycles or missing cycles: in comparison with the basic time range;

- smoothness in cyclic dynamics, so that it is possible to distinguish cyclical changes in the dynamic series from random movements.

The practical application of such indicators is based on:

- the lightness of collection and updating of necessary information;

- frequency of publications (in particular, monthly publications are preferable to quarterly ones);

- the absence of large differences between preliminary and final data;

- the availability of information series for a long time without omissions.

It is believed that when selecting possible cyclical “leading” indicators, the determining criterion is economic significance. Moreover, to choose the dynamic range as a cyclical “leading” indicator, there must be an economic logic for the relationship of this indicator with the cycle¹².

¹²Haberler G. (2005). Prosvetanie i depressiya: teoreticheskiy analiz tsiklicheskih kolebaniy [Prosperity and depression: a theoretical analysis of cyclic vibrations]. Chelyabinsk : Sotsium, 474 p.

Economic “leading” indicators are classified into the following categories:

- 1) indicators that respond at an early stage;
- 2) quickly responding indicators;
- 3) indicators, which are sensitive to economic expectations;
- 4) indicators, driving other indicators;
- 5) other indicators.

An important element in the analysis of innovation activity cycles is the construction of composite (composite) indicators. This entails the combination of cyclic indicators into a single synthetic indicator. Such composite indicators are designed to weaken the so-called «false signals» (random fluctuations) and give the composite indicator better tracking and predictive properties than any of the components.

As far as components of the composite indicator are not completely correlated, composite indicators reduce the “false signals” caused by measurement errors.

The most important step in the study of the cyclical nature of the innovative activity is the determination of the cycle duration and dates of peaks and dimples, the so-called peak changes.

To determine the tipping points of the cycle, the US NBER methodology is used, according to which the moment of change in the cycle is selected based on the following criteria: the phase duration should be at least five months, and the cycle duration should be at least 15 months if you consider the length of time from the peak or from one lowest point of the cycle to another.

One of the main goals of using systems of cyclic indicators is the prediction of turning points since all market participants need to know the economic situation at any given moment.

In our opinion, all these systems can also be used to measure the activity of innovation processes, because the innovation process itself is one of the indicators of business activity in the economy.

Currently, it seems relevant to determine the set of indicators that optimally reflects the cyclical nature of innovation processes. Using just one indicator for these purposes is not enough.

According to the theses mentioned above, we have formed table 5, which characterizes the indicators of cyclical innovation processes.

This table gives opportunity to choose a specific type or form a composite indicator of the cyclical nature of innovative processes, which, in our opinion, is the most optimal for predicting innovation in the economy.

Table 5

Indicators of cyclical innovation processes

Type	Characteristic
Leading	Indicators, which help to predict beforehand the innovation fluctuations
Matching	Indicators, which confirm the real fluctuation of innovative activity
Delayed	Indicators, confirming fluctuations in innovation activity

We propose to form a composite indicator of the cyclical nature of the innovation process of the national economy using the input (resource), functional (resultative) and perspective (activity indicators) indicators. The composition of indicators of each group can be formed using correlation and regression analysis by selecting the most significant ones that will reflect the cyclical nature.

The most commonly used types of models are¹³:

1. with steady development – linear: $Y_t = b_0 + b_1t + b_2t^2$;

2. with growth with acceleration:

a. second-order parabola: $Y_t = b_0 + b_1t + b_2t^2$;

b. cubic parabola: $Y_t = b_0 + b_1t + b_2t^2 + b_3t^3$;

3. at constant growth rates – indicative: $Y_t = b_0b_1t$;

4. with a decrease with deceleration – hyperbolic: $Y_t = b_0 + b_1x1/t$.

We propose to present a composite indicator of the cyclical nature of the innovation process of the national economy in its initial linear form:

$$I_c = a_1I_i + a_2I_f + a_3I_p \quad (1)$$

where I_c – is the composite cyclical indicator;

a_1, a_2, a_3 – weighting coefficients of indicators;

I_i – incoming indicator;

I_f – functional indicator;

I_p – perspective indicator.

The input indicators of the cyclical nature of the innovation process, on our opinion, include indicators of sources of financing the innovation.

The list of functional indicators includes indicators of the development, implementation and realization of innovation.

¹³Zarova E.V. (2010). Statisticheskie indikatoryi kratkosrochnyih ekonomicheskikh tsiklov v razvitiitii regiona : monografiya [Statistical indicators of short-term economic cycles in the development of the region: monograph]. Samara : Izd-vo Samar. gos. ekon. un-ta, 215 p.

Prospective indicators include indicators of innovative activity.

Moreover, depending on the analysis period, the type of model for forecasting may be different.

Thus, the correct choice of cyclical indicators is a prerequisite for successfully predicting fluctuations in innovation activity in the economy.

2.2. Analytical assessment of the cyclical factors of innovative processes in the economy of Ukraine for 2000-2018

Today, the situation in Ukraine is the next. Although economic parameters show better movement than planned, the innovation situation, unfortunately, remains unstable, especially the situation with financing innovation is deplorable (tab. 6).

Table 6

Sources of financing innovation in Ukraine¹⁴

	Costs for innovation, mln. UAH	Including from the expense of funds			
		own	state budget	non-resident investors	other sources
2000	1757,1	1399,3	7,7	133,1	217,0
2001	1971,4	1654,0	55,8	58,5	203,1
2002	3013,8	2141,8	45,5	264,1	562,4
2003	3059,8	2148,4	93,0	130,0	688,4
2004	4534,6	3501,5	63,4	112,4	857,3
2005	5751,6	5045,4	28,1	157,9	520,2
2006	6160,0	5211,4	114,4	176,2	658,0
2007	10821,0	7969,7	144,8	321,8	2384,7
2008	11994,2	7264,0	336,9	115,4	4277,9
2009	7949,9	5169,4	127,0	1512,9	1140,6
2010	8045,5	4775,2	87,0	2411,4	771,9
2011	14333,9	7585,6	149,2	56,9	6542,2
2012	11480,6	7335,9	224,3	994,8	2925,6
2013	9562,6	6973,4	24,7	1253,2	1311,3
2014	7695,9	6540,3	344,1	138,7	672,8
2015	13813,7	13427,0	55,1	58,6	273,0
2016	23229,5	22036,0	179,0	23,4	991,1
2017	9117,5	7704,1	227,3	107,8	1078,3
2018	12180,1	10742,0	639,1	107,0	692,0

¹⁴Derzhavna sluzhba statystyky Ukrainy [State Statistics Service of Ukraine]. URL: <http://www.ukrstat.gov.ua> (accessed: 07.10.2019).

If we look at the chart above, we will see that the peak points of the innovation cycle in the cost of innovation are those years that preceded the crisis in the economy.

At the same time, if you consider the sources of financing, you can see the next situation (Figure 1).

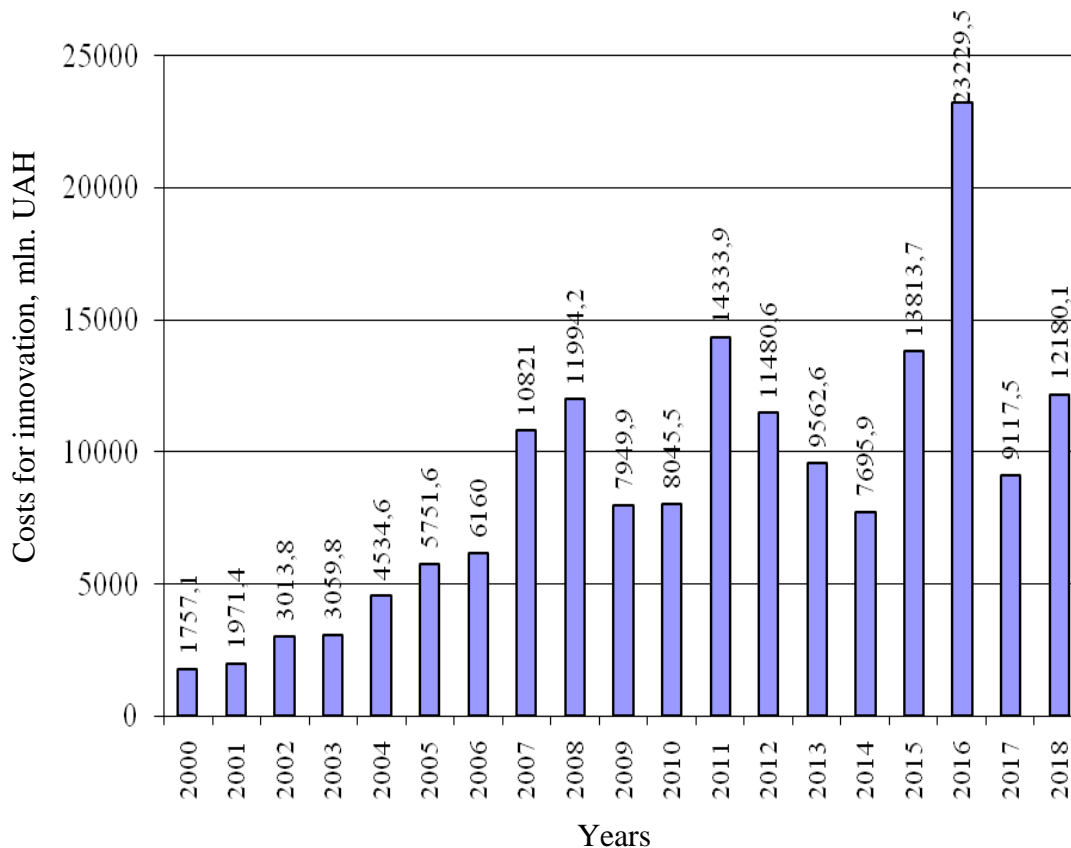


Figure 1. Dynamics of costs for innovation, mln. UAH

Peak periods of the innovation costs growth were 2008, 2011 and 2016.

The result shows that the progressive development of the innovation process of the national economy of Ukraine (2000–2018) prevails in the analyzed period. The state of overall development of the innovation process in Ukraine is characterized by an immediate increase in the rate of growth of indicators of the resource direction, which is followed by a sharp decline. Based on the results obtained, we can predict the following phases of the innovation cost cycle in the future: 2019-2020 – sustained growth, 2021-2023 – the fall and the depression, 2023 – the revival, 2024 – the peak of the growth of the innovation cost and the beginning of a new cycle.

Regarding the dynamics of the cost of innovation by funding sources, it is possible to distinguish the sharp growth in 2016 and the same sharp decline in 2017 from own funds (Figure 2).

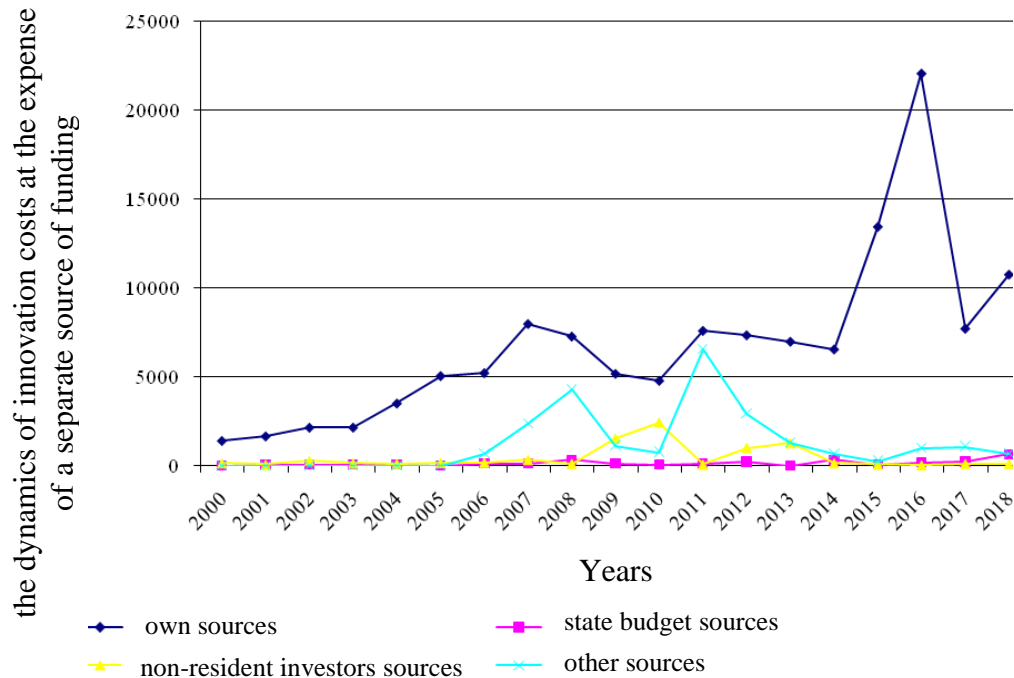


Figure 2. Dynamics of costs for innovation by sources of financing, mln

The dynamics of other sources of financing innovation are changing less intensively. There is no cyclicity in the state budget funds, although the size of such financing is miserable.

The dynamic of innovation costs for the period 2000-2018 years is presented in Figure 3.

Today in Ukraine the innovation process is depressed. The data of the State Statistics Service of Ukraine, which show that more than 15% of innovations are introduced in industry and other sectors of the economy, – are either imperfection of the methodology of statistical accounting, or features of reliability of statistical reporting of firms and entrepreneurs, where the wish is given as valid.

As can be seen from figure 4, with the current growth trend in the share of the number of innovation-active enterprises, there is a clear downward trend in the share of sales of innovative products, which indicates a forthcoming decline in demand for innovations, despite the growth of enterprises that introduce innovations.

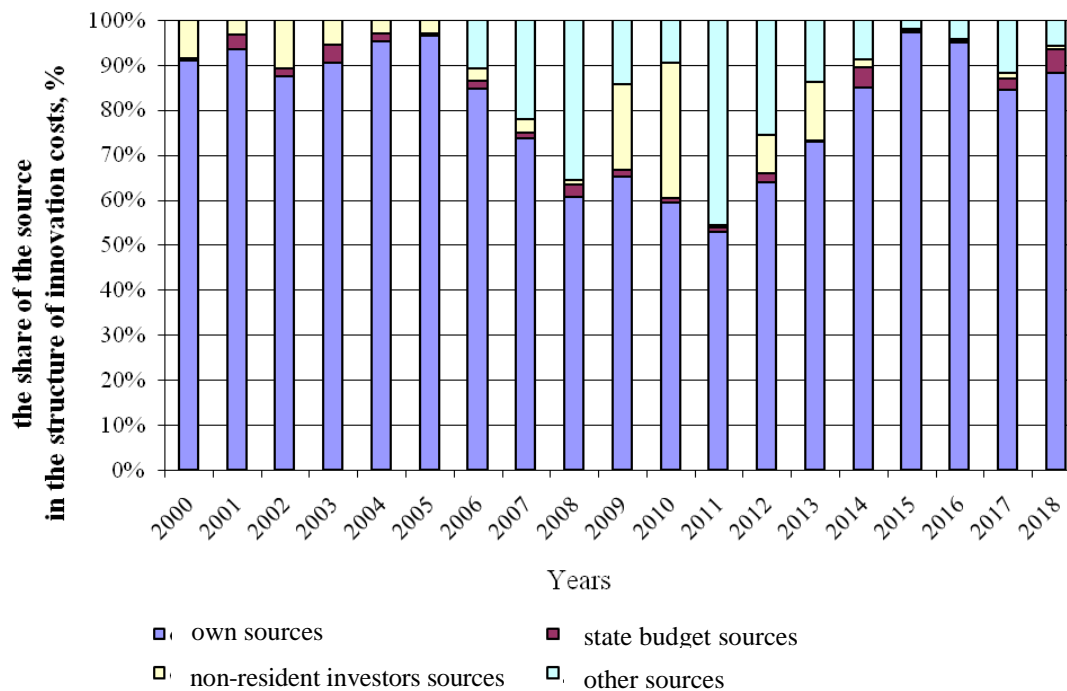


Figure 3. Dynamics of costs for innovation, %

Table 7

Dynamics of indexes, characterizing functional and perspective indicators of innovation processes in Ukraine

Year	The share of the number of enterprises that implemented innovations%	The share of sales of innovative products (goods, services),%	The share of innovation active enterprises, %
2000	14,8	9,4	18,0
2001	14,3	6,8	16,5
2002	14,6	7,0	18,0
2003	11,5	5,6	15,1
2004	10,0	5,8	13,7
2005	8,2	6,5	11,9
2006	10,0	6,7	11,2
2007	11,5	6,7	14,2
2008	10,8	5,9	13,0
2009	10,7	4,8	12,8
2010	11,5	3,8	13,8
2011	12,8	3,8	16,2
2012	13,6	3,3	17,4
2013	13,6	3,3	16,8
2014	12,1	2,5	16,1
2015	15,2	1,4	17,3

Year	The share of the number of enterprises that implemented innovations%	The share of sales of innovative products (goods, services),%	The share of innovation active enterprises,%
2016	16,6	1,2	18,9
2017	14,3	0,7	16,2
2018	15,6	0,8	16,4

For a clearer picture, we have translated the table data into a graphical dimension (Figure 4).

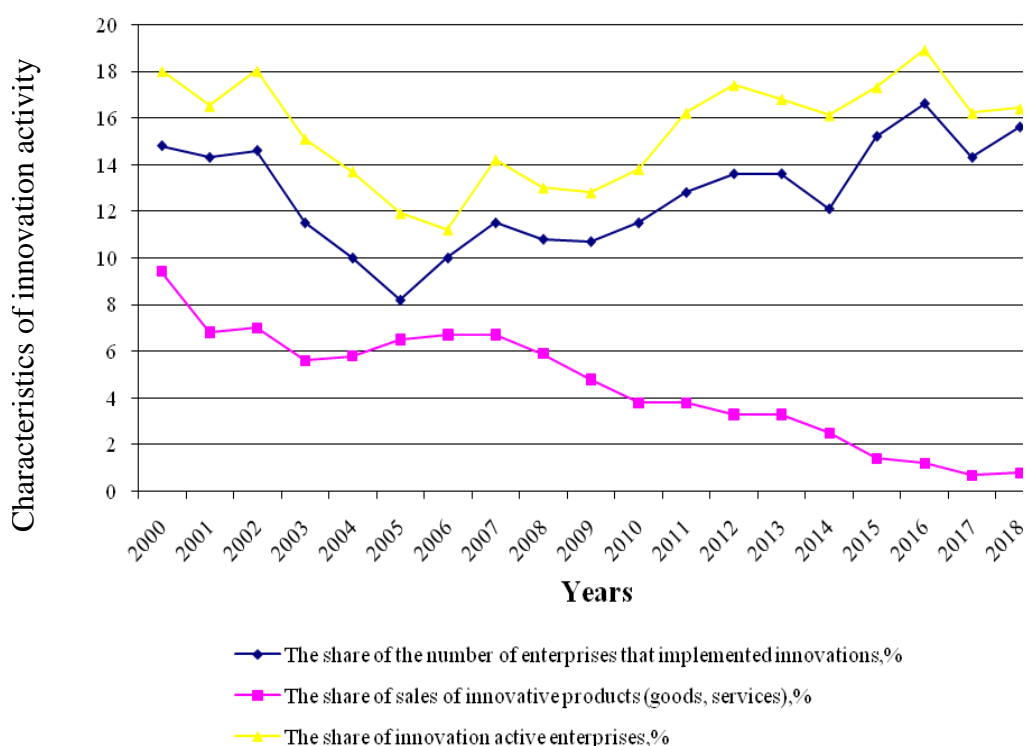


Figure 4. Dynamics of indexes, characterizing functional and perspective indicators of innovation processes in Ukraine

In general, the period from 2000 to 2018 allows us to identify only short-term cycles of development of innovative processes in the Ukrainian economy. To get a clearer picture of cyclicity and to make forecasts for the long term, it is necessary to increase the number of observations, for example, quarterly, which today causes difficulties due to the limited availability of necessary information.

CONCLUSIONS

Thus, the great crisis potential, which manifests itself on the eve of the natural economic crisis, which our economy is entering, poses an increased risk for the innovative development of the Ukrainian economy.

Considering rather conflicting opinions of various experts, we can conclude that in the long term, seeing the intensity of innovation in developed countries, Ukraine's position among other countries cannot be called strong. Moreover, given the appearing deterioration in global markets, according to experts' forecasts, Ukraine's short-term economic growth in the innovation sector is also at risk, despite some positive trends.

Due to the fact that the developed indicators show cycles, but each in its own way, it is necessary to construct one composite of several indicators, which, thanks to generalization (averaging), will be better at predicting cycles than each separately.

The study of indicators of the cyclicity of the innovation process carried out in this work for sure leads to the idea that there is an urgent need to build a composite indicator of the cyclicity of the innovation process. The search and construction of such an indicator are one of the perspective directions for the development of scientific thought. Moreover, it is advisable to build the indicator itself according to the requirements of modern economic theory, i.e. when measuring cyclicity, it should reflect resources, results, and prospects for the development of the innovation process.

Further research is planned to be carried out in the field of determining adaptive models of each of the components of a composite indicator to determine their weight coefficients.

As the author's studies showed, an indicative analysis is the most acceptable approach for diagnosing. Thus, a detailed examination of the factors affecting the cyclical nature of innovation processes, namely, the innovation cycle itself and its amplitude, will make it possible to clarify the list of indicators, which would be necessary for evaluating and timely identifying the causes of cyclical innovation processes.

SUMMARY

The aim of this work is to systematize the development factors of the innovation process to justify the system of indicators of cyclicity, which can be used to analyze the cyclicity of the innovative process and predict their results. The paper clarifies the concepts of innovation, the innovation process, and cyclicity. Factors, influencing the

innovation cycle and cyclicity of innovation, are systematized. A system of indicators of the cyclicity of innovative processes has been developed. The necessity of building a composite indicator of the cyclicity of the innovation process is justified. Based on the analysis of information, which characterizes the innovative processes in Ukraine from 2000 to 2018, emerging negative trends in innovative development have been identified. It has been suggested that Ukraine's short-term economic growth in the innovation sector is endangered, despite some positive trends.

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CHAPTER 3

BASIC FUNDAMENTALS OF INVESTING OF SOCIAL MODERNIZATION OF THE STATE

Volska O. M.

INTRODUCTION

The effectiveness of social modernization of the state requires the formation of investment attractiveness of social sectors through state regulation of social investing. This process must be governed by two state principles: the principle of social equity and the principle of socio-economic efficiency. The essence of state regulation of investments in social modernization lies in the performance of functions of public authorities. These functions are the provision of public services to which social services belong; financing of social sectors; stimulation of attraction of investments in social development of the state (through realization of communication function) with the purpose of reception of social effect. The fulfillment of the communicative function in the process of attracting investments in social modernization is connected with the formation of attractiveness of social sectors. The amount of funds that the investor will finance depends on the investor's awareness of condition of the object of social sector. The main objective of social investing is to improve the quality of life of the population of the state, through the improvement of its components.

The object of research is social investing in the works of such foreign scientists as: Veblen T.¹(1), Buchanan J.²(2), Rostow W.³. They viewed this type of investing as a tool for reproducing society, but this theory did not have much development.

Some results that were of importance for its development were not systematized, and the relevance of this development can be noted in the analysis of current views on social investing.

The study of scientific literature indicates that such ideas go through the perception of investment support in terms of creating conditions for

¹Veblen T. (1984). *Teoriya prazdnogo klasa* [Idle class theory]. Moscow: Progres.

²Bukenen Dj. (1994). *Konstitystiya ekonomicheskoi politiki* [Constitution of economic policy]. *Economic issues*, no 6, pp. 104-113.

³Rostoy V. (1961). *Stadii ekonomicheskogo rosta* [Stages of economic growth]. New York: Frederik.

sustainable growth of micro- and macroeconomic entities (4)⁴ through the prism of existing patterns in terms of the dependence of investing results on investment volumes as quantitatively limited resources (5)⁵. There are two sides of investment support: resource (in the most general view, investment support is treated by scientists as a set of tangible and intangible resources invested in implemented projects) (6)⁶ and organizational side as a set of investing methods used to achieve strategic goals and objectives aimed at increasing assets, generating revenue or achieving other positive effects, as well as the concentration and sale investment measures themselves (7)⁷. In some cases, the elements of investment support are: identifying the need for investment, sources of investment and methods of their involvement (4), the choice of rational management methods in the field of investing (7), conditions for the implementation of the investing process (6).

That is, as rightly stated by M.Yu. Kodenska, investment support as a category of economy reflects the multidimensional organizational and economic conditions, means, measures and economic relationships, which are manifested in the process of movement of value advanced in capital, with the purpose of accumulation, formation and use of investment resources⁸.

In modern literature, there are two concepts of «social investment» and «social investing», if the first component of the phrase implies a direction on the development of society, the second component has differences. Based on the existing author's approaches, it can be noted that social investment is a collection of monetary, material, management, technological and other resources that are directed to the objects of social infrastructure for the purpose of obtaining primarily social effect. Social

⁴Kapitanest A.V., Strelstov A.V., Eroshevskii S.A. (2014). Investitionnoe obespechenie ystoichivogo ekonomicheskogo razvitiya promishlennix predpriyatii [Investment support for sustainable economic development of industrial enterprises]. *Economics and Management*, vol.4, no 113, pp. 49-52.

⁵Veretennikova O.V., Bondarenko A.V. (2010). Sistemni xarakteristiki investitsionogo rinky i ix rol v sychasnix ymovax ekonomichnogo rozvitky [System characteristics of the investment market and their role in the current economic development]. *Scientific Bulletin: Finance, Banks, Investments*, vol. 1, no 10, pp. 60-63.

⁶Kapitanest A.V. (2010). Investistine zabezpechenya fermerskix gospodarstv [Investment support of farmers' state grants]. *All-Ukrainian science and virological journal: Innovation Economy*, no 5, pp. 141-144.

⁷Shevstova Ya.A. (2002). Investistine zabezpechenya liyalnosti pidpriemstv [Investments in public health services] (PhD Thesis), Lygansk: East Ukrainian National University. V. Dalia.

⁸Kodenska M.U. (2013). Motivastini chiniki investitsionogo zabezpechenya rozvitky agrarno-promislovogo virobnistva [Motivational factors of investment support for the development of agro-industrial production]. *Bulletin of the Academy of Labor and Social Relations of the Federation of Trade Unions of Ukraine*, no 2, pp. 62-66.

investing is the process of attracting investment resources to social infrastructure, which has stages and milestones⁹.

3.1. The main tasks of social investing

In market conditions, forms and methods of coordinating public administration of social modernization are capable of solving those organizational and managerial tasks that are adequate to the level of their complexity. In our view, this class of tasks involves attracting investment in the social modernization of the state.

This task is possible through the following steps.

1. To create conditions for continuous improvement of forms and methods of organization of regulation in accordance with the level of complexity of the tasks to be solved, the requirements of the environment, using active means of eliminating dynamic contradictions in the system of state influence on the process of attracting investments in social modernization.

2. To ensure a clear delineation of the goals, functions, rights and responsibilities of each link, the subsystem of public administration of social modernization. It will create the conditions for attraction of investments.

Undoubtedly, building a quality system of attracting investing resources in social development requires determining the assessment of the effectiveness of social investment projects¹⁰.

The scientific literature on management uses the following concepts: purposeful effectiveness, which is determined by the degree of alignment of the results of the action with the purpose intended; social efficiency characterizes the result of social work; organizational effectiveness determines the form of interconnections of the elements of the management system.

There are four main indicators of effectiveness that characterize the level of investment in the social sphere: social effect is an effect determined by the level of public satisfaction with the quality of life; social efficiency is the indicators of the level and quality of life in a particular territory; socio-economic efficiency is a monetary indicator, the income that an investor receives after the implementation of an

⁹Veretennikova O.V. (2012). Genezis formyvannya instytytu sostialnogo investyvanya [The genesis of the formation of social investment institution]. *Economics and law*, vol. 3, no 34, pp. 47-53.

¹⁰Volska O.M. (2018). Teoretichni zasady sostialnogo proektyvanya [Theoretical principles of social design] Public Administration Reform and Administration Reform: Theory, Practice, International Experience: Materials of the All-Ukrainian Scientific Pract. Conf. for the international. Participation, Odessa: ORIDY NADY, pp. 341-342.

investment project; cost-effectiveness is a productive indicator that is calculated by dividing profit by cost.

In addition, it is possible to provide a more complete definition of these categories in relation to the process of attracting investment in the social modernization of the state.

1. With regard to the process of attracting investment in the social modernization of the state, first of all, it determines the social effect, which can be estimated by economic and sociological indicators. These indicators are certainly indicators of the quality and standard of living of the population of the region or of the state as a whole: increasing employment rates, improving housing provision, increasing education and health care. All this can be the result of attracting additional investment in the social sectors.

When determining the level of social investing, it is possible to use social performance indicators. These indicators characterize the number of social problems that have been solved through the implementation of an investing project in one social sector or another. For example, offering additional social services, changing the consumer price index, the level of housing provision in the respective territory, reducing unemployment in the region, changing the demographic indicators of the region, etc.

Socio-economic efficiency can be used in assessing the level of investment. Indicators of this type of efficiency may be the number of people receiving social service, reducing the number of poor people, decreasing the operating costs of enterprises related to the social sphere, reducing the number of people receiving social unemployment assistance.

The last efficiency is economic. It is recognized on the basis of cost minimization on the development and implementation of an investment project of a social sector. Its indicators can be net present income, rate of return of a social project, payback period of a social project.

The efficiency of the investment resources receipt can be evaluated on the basis of the realization of the objectives of the investment project, the level of management of the management system, the effectiveness of management decisions on the implementation of the investment project. These decisions are made by state and local governments regarding the feasibility of investing in the social sectors of the respective region.

Performance evaluation can be carried out on the basis of the evaluation of the functioning of the public administration system of social modernization, then performance will be measured not only

mathematically, measures of performance of public authorities on effectiveness of realization the investment projects in a social sector can also be implemented.

In our opinion, the level of effectiveness depends on the growth of indicators of the level and quality of life of the population of a particular region.

If regional authorities cannot influence the establishment of state social guarantees, which are known to be approved at the state level (minimum wage, minimum living wage, minimum retirement age, social assistance level), then local public authorities can influence on several indicators of quality of life (level of health care, level of education, level of provision of housing and communal services, level of employment).

It is by the latter indicators that the level of performance of public authorities can be estimated, and on the basis of these indicators public authorities can determine the effectiveness of social policy implementation in a particular region of the state. These indicators should be decisive in the provision of public funds for the modernization of regional social sectors.

The complexity of assessing the effectiveness of management is also due to a number of specific reasons, such as: the lack of scientifically substantiated standards of management costs, poor control over the timing and quality of tasks, the lack of computer information technologies usage, etc. Governing decisions are related to the future, so goals are not always clearly defined, the resource management model includes complex social needs, political and organizational factors.

The effectiveness of public management of social modernization is the result of achieving the social goal with the maximum possible saving of labor and organizational and material costs. Actually, it is the activity of the management apparatus, which includes the purpose, methods, process and result. However, it is not possible to reduce the multidimensional notion of «management» only to the category «managerial work». Management is a complex phenomenon, a kind of art full of deep social content that is almost impossible to measure accurately, mathematically.

Obviously, there can be no single criterion of effectiveness for all levels of the management structure, they vary depending on the nature of the management body, its place in the management pyramid and social goals. There are no common estimates for social sectors.

It should be noted that organizational and technical actions of employees of public administration apparatus are more amenable to

measuring and determining the effect. However, it should be emphasized that the effectiveness of a regulatory system cannot be reduced to an assessment of its internal activity without evaluating the effectiveness of the impact on the management object.

When assessing the social impact of an investment project, the direct and indirect types of the investment project should be distinguished. By direct type the effect directly related to the implementation of the investment project – the construction (reconstruction, modernization) of the designed objects and their subsequent operation – is understood. The indirect effect is due to tax revenues, additional investments, production development, initiated by the project. As a result, investments made directly into the project induce an additional increase in investment in various social sector as directly in the project implementation region. The social effect of the implementation of a social sphere project on the basis of reproduction is increasing. As a result, the income from social investment is growing and channeled to other social sectors, which provides for higher incomes. This provides for an increase in population demand, an increase in the level of wages, a decrease in unemployment, and an increase in the revenue part of the regional and state budget.

The social effect can be both universal, arising from the implementation of any investment project, and specific, due to certain types of projects and features of the regions in which it is implemented. In addition, the social effect can be both positive and negative.

Let us consider the mechanism of occurrence of various positive social effects.

Creation (reconstruction) of workplaces. New workplaces appear at the projected facilities, as well as construction during the period of construction and assembly works. In addition, the implementation of projects initiates the creation of a large number of workplaces in related industries, depending on the specifics of the project (for example, in the construction industry, mechanical engineering, transport, production and non-production infrastructures in the project implementation areas). The effect of implementing a particular project in the form of profit reinvested in the economy generates a multiplicative effect; the construction and operation of facilities initiate in the long term the creation of new and the reconstruction of existing workplaces in various sectors of the economy.

The positive effect of workplace creation is expressed primarily in the expansion of employment and reduction of unemployment. The effect

of workplace reconstruction is manifested in improving working conditions and, as a consequence, in improving health, reducing cases of general and occupational morbidity, occupational injuries, invalidating the population, premature and avoidable mortality, and increasing life expectancy.

Increasing the standard of living of the population. The increase in household income and the expansion of solvent demand are the result of the remuneration of persons employed in workplaces created (reconstructed) at the projected facilities (direct effect) and the development of production initiated by the project (indirect effect).

Tax revenues from the project, and, in the long run, from the development of production as a consequence of reinvestment of profits. They allow for increased budgetary funding for education, health, culture, social policy, including state aid and compensation at various levels. Thus, wages of the employed in the budgetary sector increase, new workplaces are created in the social sectors, which affects the level and quality of life of the population: the situation on the labor market improves, the incomes from employment and social transfers to the population are increased, the accessibility and quality of the social sphere services provided are increased.

Receiving products (services) produced directly within the project (if directed) by the population in related industries, and as a result of further development of production.

Improvement of the ecological situation as a result of modernization of production, introduction of environmental technologies. This improves the quality of the living environment.

Promoting public health, improving demographics (as a result of reducing premature and avoidable mortality, increasing birth rates, increasing life expectancy). These long-term effects are the combined result of improved working conditions and environmental conditions, rising living standards, developing social infrastructure and innovating in the health care system.

Increasing the educational and qualification levels of workers, reducing the use of unskilled labor (if the projected (reconstructed) production is in demand for highly skilled labor). This effect is particularly evident in the implementation of projects aimed at creating (developing) elements of the national innovation system. Increasing vocational training requirements for employees is an incentive for the development of vocational education.

Reducing social tension in society, ensuring social stability and social support for institutional change.

As it was noted before, the social effect can be both positive and negative. Among the possible negative social consequences of the implementation of investment projects are the following: job cuts due to production modernization; the destruction of competing industries and, as a consequence, the release of labor, the displacement of cheap goods and services from the market; the occurrence of local labor shortages as a result of its outflow from neighboring regions, as well as from the enterprises of the region to the projected facilities; environmental degradation; the emergence of social tensions, social conflicts due to the following factors: increase in the density of development, migration inflow of population in densely populated regions (a similar situation may occur in sparsely populated regions, if the inflow of the population is not accompanied by sufficient development of the social sphere and increase the load on existing objects); the emergence of modern high-paying jobs in depressed and low-living regions, which is not accompanied by increased social needs and investment in local economies, which can lead to firm labor market segmentation and increased social tensions.

Some manifestations of social effect are subject to accurate measurement, in other cases only qualitative assessments and expert conclusions are possible.

When assessing the social effect, its macroeconomic and regional elements must be taken into account, bearing in mind that the social effect achieved at the regional level is an integral part of the macroeconomic effect. The scale of the regional social effect is determined not only by absolute but also by relative indicators that characterize the impact of the investment project on the socio-economic modernization of the regions. Thus, the extent of the social effect is largely determined by the socio-economic situation in the region. Thus, the effect of the establishment of new workplaces will depend on their percentage of existing workplaces in the region and on the situation in the regional labor market.

3.2. Stages of assessment of social effect of investing

The assessment of the social effect of the investing process should include the following components.

Stage 1. Determining the correlation of effects that will occur at macro- and regional levels, identifying the regions that are mostly affected by the project.

In most cases, the investment project is implemented in one or more regions, with the direct effect of workplaces creation and payroll on them, tax revenues appear primarily at the regional level, and indirect effects are redistributed to the macro level. The effect of production of the products envisaged by the project (infrastructure, elements of the innovation system) depending on the scale of the project can be observed both in the region and at the macro level.

For example, when creating social sector objects of local importance in the region, the effect of the services they produce will be manifested at the regional level, at the erection of objects of interregional or state value (university, hospital or consulting and diagnostic center of state subordination, etc.) at the macro level. The effect of the construction of a large transport artery crossing a large territory will be affected both at the macro level and at the level of the respective regions.

If, for example, a large pharmacological production is created, the effect of the products on the consumer market will be at the macro level, and the effect of new workplaces will be mainly at the regional level, the effect of tax revenues will be distributed according to the proportion of contributions to state, regional and local budgets.

Stage 2. Analysis of the initial state of the social sphere and the labor market in the respective regions and forecast trends in their development without taking into account the impact of the investment project.

As the manifestation of regional social effect depends not only on the type of project, but also on the level of socio-economic development of the region, the characterization and forecast of the state of the labor market and social sphere is the starting point for evaluating the investment project.

For this purpose, indicators based on national statistical data should be used, in particular:

- state of the labor market (employment rate, general unemployment, share of unemployed, who have been seeking for a workplace for 12 months and more; level of registered unemployment; forced part-time employment, expressed by the proportion of part-time employees on the initiative of the administration and employees who have been granted leave on the initiative of the administration during the

year, in total; the proportion of those who work in conditions that do not meet the hygiene standards);

- the standard of living of the population (average income per capita, their ratio to the subsistence level; specific gravity and number of the population with incomes below the subsistence level; average monthly salary);

- development of social sphere (in comparison with normative or average indicators of living conditions of population; provision of population with hospitals and outpatient clinics, medical staff, educational institutions, cultural institutions, social services, transport and communication services);

- demographic situation (population reproduction: fertility, mortality, natural increase; migration growth; incidence and disability; population structure by sex and age; average life expectancy);

- environmental situation in the region;

- other indicators specific to certain regions and investment projects (provision of products, services produced at projected productions, etc.).

Stage 3. Carrying out calculations (or, in case of their impossibility, qualitative estimates) by types of social effect, comparison with baseline and forecast regional indicators, and if the scale of types of effect is significant, then with national indicators.

After distinguishing between macroeconomic and regional manifestations of social effect, as well as an analysis of the socio-economic situation and development trends in those regions where the impact of the project is most affected, we should proceed directly to quantitative and qualitative assessments of different types of social effect.

Creation (reconstruction) of workplaces. Direct effect. The rationale for the investment project should include the number of workplaces created, upgraded, reconstructed, as well as the number of employees fired due to modernization. In the absence of such data, the total number of employees required for the construction and operation of the projected facilities (the proportion of employees being fired) may be determined on the basis of applicable industry standards, analog projects, model projects, experimental and peer assessments.

Indirect effect. The number of jobs initiated by the project is calculated by the formula:

$$W = \frac{I \times d}{P}, \quad (1)$$

where W – number of workplaces created (reconstructed); L – volume of combined and multiplied investments; d – the share of investments aimed at workplace creation (according to expert estimates is about 0.8); P – the average cost of establishment the workplace.

Employment expansion through workplaces creation is calculated as the ratio of the number of new workplaces created to the total number of people employed in the region (for large-scale projects in Ukraine as a whole).

In calculating the reduction in the unemployment rate, it is necessary to expertly estimate the share of workplaces created by the unemployed in the region at the time of project implementation, taking into account their vocational qualification and age-sex composition. Then the possible reduction in the number of unemployed and the unemployment rate are determined.

The possible dismissal of competing enterprises due to their destruction and the corresponding increase in unemployment are also assessed by experts, taking into account the fact that part of the dismissed workers can find employment in the projected facilities.

The number of reconstructed workplaces with improved working conditions is indicated in the project justification or determined expertly.

Increasing the standard of living of the population. Direct effect. The level of average wages of workers at the created (reconstructed) places, divided by categories of personnel, is indicated in the justification of the project or determined expertly, taking into account the average wage, in the relevant industry (region) and the specifics of the project.

The ratio between the projected average wage and the corresponding industry and regional average is then determined, the cumulative annual staff income is calculated, its ratio to the monetary income of the population at the regional (or macro) level, and the estimated increase in solvent demand of the population. The cumulative annual staff income is calculated by the formula:

$$D = \sum_i 3_i \times Q_i \times 12 \quad (2),$$

where D – total annual staff income; 3_i – the average monthly salary of i -th category of personnel; Q_i – quantity of i -th category of personnel.

Indirect effect. Growth in incomes of people employed in workplaces created as a result of reinvestment of income is estimated on the basis of the average Ukrainian wage level.

The proportion of tax payments to the budgets of all levels that can be used to finance social expenditures, including education, health,

culture, social policy, including state aid and compensation to the population at local, regional and state levels, is expertly assessed.

Then, there is estimated the total increase in population income from employment (at projected enterprises, places created by reinvesting workers' earnings, created by increasing budget financing for social workplaces) and social transfers. Expert assessment of the possible reduction in scale and level of poverty.

Tax revenues from the implementation of the investment project.

Their volume is calculated on the basis of the estimated production parameters in accordance with the tax legislation. Tax revenues from the development of production due to the reinvestment of profits are expertly assessed.

Qualitative assessments and, where possible, quantitative indicators are used to determine the effect of providing products (services) produced directly within the project to the public.

Improvement (deterioration) of the environmental situation is evaluated according to the relevant indicators, depending on the type of project.

Improving public health, increasing demographics. In some cases, quantitative estimates can be obtained. For example, the reduction of occupational disease and occupational injuries as a result of improved working conditions is estimated on the basis of similar projects and data on occupational and traumatic injuries in the enterprise in the base period (prior to reconstruction).

Reduction of the population morbidity due to the improvement of the ecological situation (reduction / termination of discharge of polluted wastewater, emissions of pollutants into the atmosphere, utilization of toxic waste, increase of the degree of their purification) is estimated by comparing the data on the morbidity of the population in the given region and on the territory. However, it should be kept in mind that improving health can go with a longer time lag, since the population has been subject to adverse environmental factors for a long period of time (pollution of the territory can persist for a long time even after the cessation of harmful emissions).

Impact on the demographic situation of factors such as raising the standard of living of the population, development of social infrastructure can only be assessed qualitatively.

Increasing the educational and qualification level of the workforce and the population as a whole. Direct effect. It is determined by the number of workplaces created for skilled workers and specialists of

higher and secondary qualification. When it comes to job reconstruction, the number of workplaces that will increase the skills requirements for entry-level workers will be determined.

Indirect effect. The cumulative indirect effect is due to the reinvestment of profits into the development of high-tech industries with high-skilled labor demand; development of in-house training and retraining systems; development of the educational sphere at the expense of additional tax revenues to the budget; increasing the availability of educational services through increasing the standard of living (reducing the need for paid work for non-primary workers in the family and, accordingly, the opportunity to continue education, increasing the availability of paid educational services, the opportunity to go to study in another city).

Reducing social tension in society, ensuring social stability.

Improving the social climate due to factors that increase the quality of life of the population, as well as the possibility of occurrence of foci of social tension is evaluated at a qualitative level.

Stage 4. Comparison of positive and negative effects manifested at macro- and regional levels, conclusion of an integrated assessment of social effect, conclusion about the degree of social efficiency of a regional investment project.

In some cases, direct comparison of homogeneous indicators is possible: creation of new workplaces and reduction of existing ones, reduction of emissions of waste of one type and increase of another, etc.

But it is mostly about heterogeneous characteristics, such as job cuts combined with higher wages in the remaining places. Therefore, it is advisable to present the process of assessing effects in a formalized way:

- each type of effect is evaluated by three criteria: the direction of action (positive – negative), the degree of expressiveness of the effect (weak, moderate, significant) and the extent of population coverage;

- a rating scale is introduced, for example, a weak effect covering a small part of the population is estimated at 1 point, a significant effect covering the majority of the population has 5 points (with a corresponding sign);

- summaries of estimates for different types of effect and an integrated assessment of social effect.

In situations where formalized methods cannot be applied, qualitative evaluations should be used to compare different types of effect.

Stage 5. Comparison of social and economic efficiency of the project, development of measures to neutralize negative social effects.

It should be noted that the social effect achieved in turn increases the economic efficiency of the project. It has a manifestation in the growth of the wages of the population, which leads to an increase in the purchasing power of citizens. This increases the level of production of goods and services, the number of poor people decreases, which leads to a decrease in the state's expenditure on the maintenance of people on lower incomes.

At the macro level, the development of human potential as a result of improving the quality of life of the population is one of the factors for ensuring economic growth and competitiveness of the economy. Increasing the educational level and improving the health of the population allow to meet the needs of the economy in skilled labor force, possessing the knowledge and specialties required in modern conditions, high mobility, ability to adapt quickly to intensive structural, technological, information changes in the economy¹¹.

Forms and instruments of assistance to investors from the state authorities are the state support, financial and organizational preferences, as well as means of reaching the interests of the subjects of investment activity (public, group, private). Public investment entities are investment funds and investment companies. Group investment entities are enterprises and banking institutions engaged in investment activities. Private investment entities are foreign and domestic private investors.

Preferences are given to those investors the projects of which are socially defined. A project is recognized as social, if its implementation will contribute to the effective functioning of the social sectors and achieve social impact.

Public Private Partnership (PPP) mechanism may be used to effectively channel investments into the social development of the state. It is a medium- or long-term institutional and organizational alliance for the implementation of socially significant projects at all levels in a wide range of activities based on the sharing of results and risks between partners.

The signs of public private partnership are urgency, objectivity, self-financing, equality, sharing of responsibilities, risks and

¹¹Volska O.M. (2012). Derwavnogo uprvlinyа sostialnim rozvitkom [Public administration of social development]. Donetsk: VIK.

outcomes. Forms of PPP are contractual relations, joint ventures, rent and leasing, concessions, product sharing agreements, etc.

CONCLUSIONS

The most effective form of public private partnership aimed at the social sector, which is suitable for institutional investors, is a concession, among the features of which are: durability; finding the object in the property of the grantor at any time of the transaction; competitive procedure for determining a private partner; simultaneous consideration of the interests of the public and private parties of the partnership, as well as direct consumers of services.

The implementation of a public private partnership mechanism through rent and leasing relationships often causes a conflict of interest, since the property may be used by the recipient not for its intended purpose. The rent cannot at the same time take into account the interests of the public and private parties of the partnership, as well as direct consumers of services.

However, in order for the PPP mechanism to function more effectively, it is necessary to supplement the Law of Ukraine “On Public Private Partnership” with a list of tax benefits for social investors.

With sufficient long-term capital, institutional investors are able to diversify their investment in low-risk social assets. At the same time, they receive tax, legal, economic preferences from the state and positive public opinion. Such activities will also help to raise the standard of living of the population, increase human capital and capacity for its reproduction. In turn, the PPP mechanism will make it profitable, capable of generating income for both the private investor and the state. It will help to transform the economic and organizational mechanism of public administration of social modernization and to build the Ukrainian innovative model of social modernization of the state.

SUMMARY

The article deals with the theoretical principles of social investing. A theoretical definition of the concepts of «social investment» and «social investing» is provided. The main tasks of social investing and a complex of actions are directed at achievement of social effect from attraction of this kind of investments in the work. Social performance indicators are used to assess the level of impact. There are also types of

social effect: direct and indirect. The second part describes the stages of the process of assessing the social impact of investing. There are five main stages of assessment that will help to attract investment resources to social infrastructure.

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CHAPTER 4

GEOMARKETING AS A TOOL FOR ENSURING THE COMPETITIVE DEVELOPMENT OF AGRICULTURAL ENTERPRISES

Hranovska V. H.

INTRODUCTION

The active phase of the fourth industrial revolution, the integration of agricultural enterprises into the global competitive environment requires the formation of new strategic approaches to managing their economic development and production and marketing activities. The managerial decision-making time, the economic feasibility of such decisions, adaptability to the conditions of the operating environment directly affect the competitive status of the entity in the market. The activities of agricultural establishments are gaining new productive-economic essence and requiring all participants in economic relations to be prepared for transformations, maximize adaptation to variability and resilience to global challenges. In such circumstances, the need to formulate a new paradigm for ensuring a competitive development of agrarian enterprise, aimed not only at activating innovative vectors, but also at creating a balanced model of their economic development, becomes essential. This business model should stimulate and provide increase of production capacities, diversification of production, search for the newest forms of organizational and economic alternatives and the newest approaches to the formation of economic mechanisms, including marketing ones.

Current trends in the development of environment, such as globalization of activities, integration into the global economic space, liberalization of trade conditions while increasing consumer demands and the degree of their influence on the activity of business structures, innovative challenges, affect not only technological but also managerial and organizational aspects functioning of organizational and legal agencies, causing the emergence of new forms of entrepreneurship and improvement of existing ones. Formation and strengthening of the competitive position, adaptability and flexibility of the economy of the enterprise becomes the result of strategic interaction of external market and internal production and management factors. At the same time, it is

important to use modern tools to ensure the competitive development of agricultural enterprises in the context of the need to promote their products to world markets quickly and maintain and expand the market segment.

4.1. The current state and features of forming a balanced model of competitive development of agricultural enterprises

The development of market relations at the present stage is performed when the combination of complex and contradictory processes of business globalization, limited resources, accelerated technological innovations, resulting in increased competition. The current business conditions of agricultural enterprises are characterized by aggravation of competition, as well as increasing uncertainty and high dynamics of transformation of the environment. An effective tool for managing the economic activity of agrarian enterprises, ensuring the realization of tasks and priorities of economic development in the conditions of changes of macroeconomic nature and market situation, is a competitive strategy. In the context of dynamic changes of the external and internal environment of functioning of agricultural enterprises, given the complexity of economic relations between the subjects of economic relations, it is important to manage the competitive development of business structures on the basis of the formation of competitive strategies. Ensuring a competitive development of business entities requires the improvement of the system of management of this phenomenon in the enterprise in order to ensure the most efficient distribution and use of production facilities and focus them on meeting the potential requirements of consumers in competitive products. Creating an effective enterprise competitive management system requires a clear, scientifically justified methodological apparatus, the core of which should be a competitive enterprise strategy, created on the basis of in-depth economic analysis and forecasting, with the obligatory construction of various behavior models of both the whole system and its individual subsystems.

The formation of a system of strategic management of agricultural companies, including through the implementation of models of ensuring their competitiveness in a globalized world, requires the development of an adaptive strategy for ensuring competitiveness, which would take into account the specificities and needs of agricultural enterprises and is a priority task in their management.

In competitive conditions, the dominant of their formation is the competitive strategy of the enterprise as a result of strategic management measures. Accordingly, the orientation of the agricultural enterprise and its economic behavior will be to respond to the changing conditions and challenges of the environment, adjusting the fulfillment of its tasks. Today, effective adaptation of an agricultural enterprise is a prerequisite for maintaining its competitiveness, a way of surviving in a changing market environment, and a form of achieving a certain strategic goal. The managerial and organizational structures of the enterprise are directly dependent on the rapidly changing environmental factors, the implementation of measures to respond to these changes, the use of adaptive competitiveness management for the internal environment and its components to adjust to external changes.

In the context of globalization, an important factor is the strengthening of competitiveness in all types of economic activity, which enables the enterprise to reorient itself in a timely manner and to correlate its strategic set in accordance with the new operating conditions. It is important to realize that there is a direct dependency and an inseparable relationship between the degree of adaptation of agricultural enterprises and competitiveness. Thus, the latter contributes to the rapid and efficient adaptation of agricultural establishments to changes in the environment and to the conditions of globalization, and the development of globalization processes allows to maintain a competitive level. Effective strategic management of the company helps to maximize the positive effect of business. In the conditions of competition the degree and intensity of managerial decisions influence on the final result of production activity increases, namely: financial and economic condition of the enterprise, financial stability, size of the market segment, degree of intensity of competition, resistance to change. One of the basic principles of competitive development and success of enterprises in the market is balance in the business system. The economic efficiency is achieved providing the systematic and successful combination of the following components: use of high-tech equipment, innovative technologies; increase of employees' readiness for training and acquisition of relevant competences, skills and working knowledge; improvement of the enterprise management system and effective sales policy. Today, the only resource strategies and improvement of the enterprise's production program do not fully ensure competitive development and economic growth. Therefore, the emphasis in the

management of agrarian enterprises is shifting towards improving the enterprise's marketing policies and marketing strategy.

The problems and the concept of sustainable socio-economic development and effective management have been considered by a number of scientists, among them there are N.V. Bahrov¹, O.H. Bilorus², Ye.M. Borshchuk³, I.M. Vakhovych⁴ and Z.V. Herasymchuk, B.M. Danylyshyn⁵, and others. However, there is a need to discuss the issue of effectively stimulating the management of agricultural enterprises based on the use of management innovations⁶. Geomarketing should be an effective tool in the circumstances of increased geoeconomic competition. Our study is devoted to clarifying the essence, features and tools of geomarketing as an approach to stimulating effective management of agricultural sector entities.

Marketing activities in the field of agricultural production due to some features related to the natural conditions of production, yield and intensity of use of agricultural land; the importance of the manufactured goods, which defines the special requirements for its production, storage and transportation; discrepancy between the time of production and its consumption; seasonal nature of production; a variety of forms of ownership in the agricultural sphere of production; the presence of various organizational and legal forms of management; duration of the cycle of production and consumption of agricultural products. The above adds complexity to making effective marketing decisions in competition, satisfying consumer requests for product quality. Agromarketing has a high sensitivity and percipiency to external changes compared to other marketing systems. The relatively low level of scientific development in the field of marketing of agricultural enterprises should also be noted.

¹ Bagrov N.V. (2002). Regionalnaya geopolitika ustoychivogo razvitiya [Regional geopolitics of sustainable development]. Kiev: Lyibid, 256 p.

² Bilorus O.H., Matseiko Yu.M. (2005). Hlobalna perspektyva i stalyi rozvytok: Systemni marketolohichni doslidzhennia [A global perspective and sustainable development: system market research]. Kyiv: MAUP, 492 p.

³ Borshchuk Ye.M. (2007). Osnovy teorii stiikoho rozvytku ekolooho-ekonomichnykh system: Monohrafiia [Fundamentals of the theory of sustainable development of ecological and economic systems: Monograph]. Lviv: Rastr -7, 435 p.

⁴ Herasymchuk Z.V., Vakhovych I.M. (2002). Orhanizatsiino-ekonomichniy mekhanizm formuvannia ta realizatsii stratehii rozvytku rehionu: Monohrafiia [Organizational and economic mechanism of formation and implementation of the regional development strategy: Monograph]. Lutsk: LDTU, 248 p.

⁵ Danylyshyn B. (2008). Formuvannia tsilisnoi natsionalnoi hospodarskoi systemy: sotsiolooho-ekonomichni aspekty [The formula of the cospialial national hospodar system: socio-economic aspects]. *Visnyk NAN Ukrainy*, no. 7, pp. 3–11.

⁶ Makhnusha S.M. Pidkhody do stymuliuvannia staloho rozvytku rehioniv na zasadakh heomenedzhmentu ta heomarketynhu [Approaches to stimulating sustainable development of regions based on geo-management and geomarketing]. URL: <http://zavantag.com/docs/427/index-2023587.html?page=18#977151>

At present, agrarian marketing is a management concept that provides market orientation of the production and marketing activities of the enterprise, and the basis of making the managerial decisions are not only the capabilities of the producer, but primarily the needs of the agro-industrial market, existing and potential needs of consumers and buyers of agricultural products. The modern concept of marketing is that all activities of the company are based on knowledge of consumer demand and its changes in the future. The marketing system makes the production of goods functionally conditional upon demand and requires the production of goods in the range and quantity that the consumer needs. That is why agrarian marketing, as a set of methods of studying the markets, is additionally still focusing its efforts on the creation of effective sales channels and carrying out complex demand formation.

4.2. Formation of marketing strategy by agricultural establishments taking into account the spatial component

The use of spatial data allows to quickly make up the objective need to manage spatially separated objects, to obtain information about the competitive environment, consumers and markets and infrastructure of the territories when implementing a marketing policy for agricultural enterprise. Thus, the importance of geomarketing as a key component in decision making in the management of agricultural enterprises is increasing.

The spatial component of making managerial decisions allows you to take into account geomarketing, which is a derivative of marketing, but has its own unique tools, functions and goals. Today, geomarketing researches are an integration of marketing and geographic tools to create a new economic tool for managing the enterprise's production and marketing activities to ensure its economic growth and enhance competitiveness. The use of geoinformation technologies allow the enterprise to effectively manage the infrastructure of the territories, to improve the logistics of sales and to use the spatially-distributed objects and resources as efficiently as possible.

The environment of geomarketing is characterized by the following: the contradictory nature of the Ukrainian reforms and their incompleteness; imperfection of market relations, when the basis of their formation is orientation to the end product, and not to the needs of the consumer in high-quality and ecologically safe, organic agricultural products; low level of training and lack of marketers who have the competencies and skills to work in the agricultural sector; non-regulation

of the legal framework on consumer protection⁷. It should be noted that the current state of the economy not only creates problems in the field of geomarketing, but also opens up new opportunities. Agrarian enterprises find new, non-standard approaches to addressing the needs of consumers⁸.

The experience of the countries with developed market economy shows that science, knowledge-intensive technologies, active innovation activity are the driving force of production development in all branches of economy, about 85% of the gross domestic product is obtained at the expense of new knowledge that has been transformed into knowledge-intensive technologies. According to the World Bank, the national wealth of developed countries is only 5% of natural resources, 18 % of material production capital, and 77% of knowledge and the ability to use them rationally⁹. The innovation component is a key component that ensures progress and competitive innovation. Therefore, the current realities of the market formation of the agricultural sector of the economy require improvement of the practical and methodological component of spatial management of economic activity. On this basis, the marketing strategy should be shaped taking into account both the economic and the spatial components. The vector of competitiveness of the enterprise significantly shifts towards innovative provision of organization of production and marketing activity, including economic space of the business entity.

In recent years, logistical research and obtaining information on the geographical structure of the market have been important in shaping the enterprise's marketing strategy¹⁰. At the same time, strengthening the intellectual and informational component of the strategy of development of agrarian enterprises will allow to qualitatively increase their marketing policy and to ensure competitive development. Another positive aspect of the application of the geoinformation component in an enterprise strategy is the creation of a unified information environment for the management of spatially distributed resources in order to ensure

⁷ Butenko N.V. Osnovy marketynhu: pidruchnyk [Marketing Basics: Tutorial]. URL: <http://books.efaculty.kiev.ua/mrk/3>

⁸ Iurchenko O.A. (2010). Perevahy vykorystannia marketynhu na pidprijemstvakh APK [Advantages of using marketing at agricultural enterprises]. *Marketynh v Ukraini*, no. 2, pp. 22–30.

⁹ Mazniev H.Ie. (2011). Heoinformatsiini tekhnolohii v ahrarnomu vyrobnytstvi [Geoinformation technologies in agricultural production]. *Ekonomika APK*, no. 4, pp. 130–136.

¹⁰ Nesi P. Geographical localization of web domains and organization addresses recognition by employing natural language processing, Pattern Matching and clustering. *Engineering Applications of Artificial Intelligence Mining the Humanities: Technologies and Applications*. Vol. 51, May 2016, pp. 202–211.

economic growth and competitive development. The current market transformations determine the level of agricultural enterprises development due to the achieved level of competitive potential, which is linked to the presence of sectors of the economy that have high technology, developed transport infrastructure, the availability of cheap labor and so on. Unlike other economic categories, the competitive potential of an enterprise has several features. Firstly, it can only be detected and evaluated in the presence of real or potential competitors. Secondly, the competitive potential of the enterprise depends on the productivity of the use of resources involved in the production process. Thirdly, the level of competitive potential of an enterprise depends on the level of competitiveness of its components, as well as on the overall competitiveness of the industry and the country. To obtain the results of assessing the level of competitive advantage, it is necessary to strengthen certain components of the enterprise's potential, which will be able to provide a real reflection of the situation in the macro and microenvironment. Many approaches are used to research the competitive potential of agricultural enterprises, but researchers are often limited to some of them, which characterize their individual aspects. At the same time, the use of geomarketing tools should become an integral part of the comprehensive use of methods and approaches that will identify the sources and factors of competitive development of agricultural sector enterprises as a subject of economy in the conditions of institutional transformation of the Ukrainian economy.

According to Wikipedia information resource, geomarketing is a part of marketing research, it is a technology of decision making with the use of spatial data in the process of planning and implementation of activities in the field of marketing of products, management of spatial and distributed objects: consumers, competitive position and infrastructure of the territories¹¹. Geomarketing research allows to diagnose external and internal geospatial indicators of agrarian enterprises, taking into account the dynamics and tendencies of development and to predict competitive behavior.

The author's interpretation of this category is as follows: geomarketing is a market-based concept of object management based on spatial research in order to improve the economic management of an enterprise to ensure its competitive development on the basis of an innovative component.

¹¹ URL: <https://ru.wikipedia.org/wiki/Геомаркетинг>

Geomarketing is characterized by specific features that is determined by its object of study. The problems of territorial marketing are addressed in their researches by leading foreign and domestic scientists (P. Kotler, C. Hyder, I. Rein, J. Bowen and others)¹². Thus, one of the most controversial issues in these studies is the development and definition of a set of geomarketing tools. P. Kotler indicates four key tools: product, price, promotion and marketing methods; R. Morris determines price, product, location, methods and people (this category includes manufacturers of products and their consumers).

According to Anderson, geographic marketing (geomarketing) is one of the most important components of geographic management that has its individual meaning. He divides the concept of geomarketing into three different concepts. Firstly, geomarketing can be understood as the geographical aspects of classic marketing, including the procedures for geographical segmentation of the market and the geographical positioning of goods. Secondly, geomarketing can be interpreted as location marketing and, in particular, region marketing. Thirdly, geomarketing can be seen as marketing of geographic knowledge and technology.

It is also worth noting the opinion of experts on the positioning of geomarketing as a general integrated concept, which should integrate all three above-mentioned approaches in order to establish synergistic links between the activities of geomarketing agents in the implementation of regional and local economic development of business entities, local authorities and the public. Such a comprehensive concept of geomarketing can be implemented through the organization of public-private partnerships at the regional and local levels.

Geomarketing is a technology of conducting market research for making strategic, conceptual and managerial decisions, based on the methods of geographical analysis of different spatial objects and phenomena. Such studies allow to identify the target audience in the right territorial unit, conduct a competitive analysis, determine the best location for a new store or pharmacy, forecast the turnover of commercial real estate, develop a concept for an existing or planned object, evaluate the best use of land and more.

Geomarketing is a technology for making strategic conceptual and managerial decisions regarding marketing researches, which are based on the use of methods of geographical analysis of spatially-distributed

¹² Tolstyakov R.R. (2015) Task and Instruments of Geomarketing. *Social and Economic phenomena and progress*, no. 12, pp. 82–86.

objects and phenomena. As a result, agricultural enterprises have a full range of information on the target consumer at the territorial unit, a complete analysis of the competitive position and information on segmentation of the market, the forecast of commercial efficiency and an assessment of the feasibility and prospects of their marketing policies. The experience of developed countries shows that there is a direct link between the competitiveness and the efficiency of the agro-marketing system. Thus, in the USA, for the qualitative and productive use of marketing tools, the state of infrastructure support, internal and external needs, their structure and volume, as well as the geolocation location of agrarian enterprise and its competitive position, are studied. The marketing strategy consists of managerial decisions, coordination of activities and internal policy of the economy, which is the most adaptable to the conditions of the functioning environment.

In the presence of a fairly blurred line between marketing and geomarketing, it is advisable to carry out the semantic characteristic of the concept of «geomarketing». The data in Table 1 give the possibility to establish a logical connection between the definitions, which is expressed in their consistent dependence, i.e. the latter is a derivative of the previous one.

Table 1

**Semantic characteristics of the concepts of «geomarketing»
and «marketing»**

Semantic characteristics	Categories	
	Marketing	Geomarketing
Methods	Analysis, surveys, observations	Cartographic comparative-geographical
Means	Product, price, methods of promotion and marketing promotion	Price, location, product, promotion, manufacturers and consumers
Practical value	Developing and implementting a marketing action strategy and improving the efficiency of the enterprise's marketing activities	Possibility of forecasting competitive development in the long term, taking into account all spheres of management
Areas of study	Integration into strategic and tactical management	Integration into the information system

Semantic characteristics	Categories	
	Marketing	Geomarketing
Manageable object	Market relations	Relations between consumers, suppliers, sellers, taking into account the spatial component
Subjects of relations	Consumers, manufacturers, competitors	Consumers, manufacturers, competitors, developers, executives
Information space	Business activity	Integrated data system
Purpose	an indication of resource efficiency in the current period and the achievement of strategic objectives	maximizing the economic impact and ensuring efficiency and competitiveness in resource management
The essence of the concept		
as a conception	The art and science of choosing a target market, attracting, retaining, and enhancing consumers through the formation of the consumer's idea of its high value for the enterprise.	A market-based concept of object management based on spatial research in order to improve the economic management of an enterprise to ensure its competitive development on the basis of an innovative component.
as a technology	The activity is aimed at achieving the goals of enterprises, institutions, organizations by generating demand and maximizing customer satisfaction.	The process of planning and decision-making regarding the pricing, image and marketing policy of the enterprise using geoinformation technologies.

With partial identity of marketing with geomarketing, it is advisable to analyze and evaluate the tools of geomarketing of agricultural enterprises represented at Figure 1.

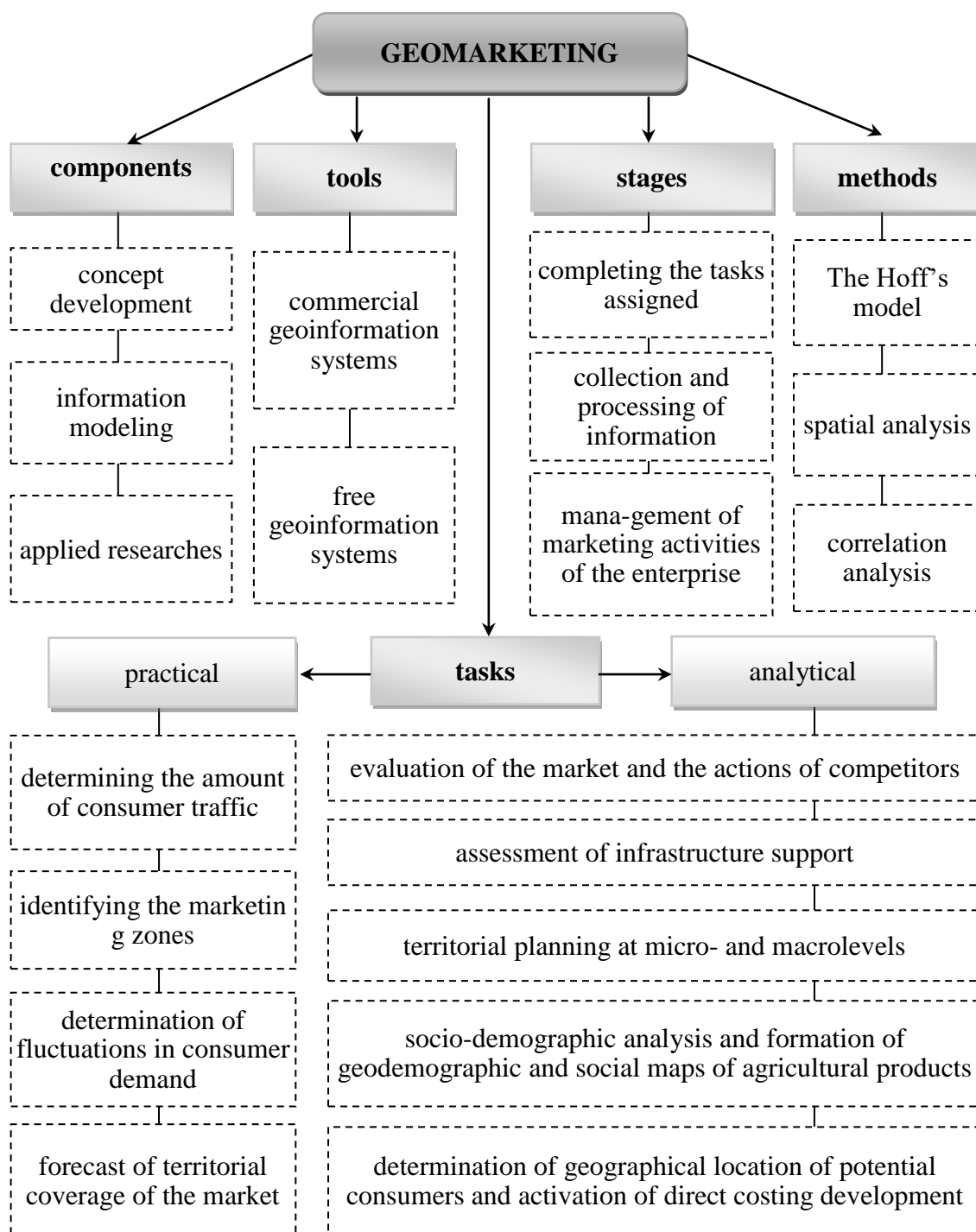


Figure 1. Geomarketing tools for agricultural enterprises

Methodological toolkit of geomarketing has its own unique specifics¹³. Thus, spatial analysis allows forecasting and offering such product marketing options to reach as many consumers as possible,

¹³ Tolstyakov R.R. (2015). Task and Instruments of Geomarketing. *Social and Economic phenomena and progress*. No. 12, pp. 82–86.

addresses the issue of reaching a given percentage of the total market share, taking into account competitors. Economic-statistical methods reveal correlation regression relationships and the degree and intensity of the influence of factors on the dependent variable. The Hoff's model allows to predict the estimated volume of consumer demand based on the geolocation of outlets or points of sale of products.

The main task of geomarketing is to establish optimal and most beneficial links between the manufacturer and consumers of products based on geolocation in order to maximize the positive effects. At the same time, geographical analysis of the environment can reduce economic costs, rationally allocate resources and make specific tactical managerial decisions. Taking into account spatial aspects reduces the number of mistakes that occur when conducting classic marketing research, avoiding mirroring and copying. It is inadmissible to directly transform the successful experience of other regions without taking into account the location of agrarian production, spatial component, etc. Thus, geomarketing as a synthesis of marketing and geography is a key component of ensuring competitive development and an element of generating competitive advantage at different levels. In addition, geoinformation technologies make it possible to visualize the spatially localized data obtained as a result of geomarketing research, which optimizes their work¹⁴.

Geomarketing complex is a set of geomarketing tools and methods used by an enterprise to achieve its market goals (Figure 2).

The information component is one of the most important tools for building a system of geoinformation activities in geomarketing of agricultural establishments, the basis for the formation of a favorable socially significant image of agricultural enterprises and their products. The main purpose of the geoinformation component is to comprehensively bring to the consumers of products information about the products of the enterprise, its environmental friendliness, safety and organic nature and the expediency of their acquisition. This is the guiding principle of informational and environmental activity in geomarketing. Environmental and organic trademarks and eco-certificates that can be awarded to businesses, products, and even terrain, are an effective tool for this.

¹⁴ Andrianov V., Leonov A., Brekdyuk K. (2010). Geomarketing: na styike marketinga i geografi [Geomarketing: at the intersection of marketing and geography]. *Marketing. Menedzhmen*, no. 7–8.

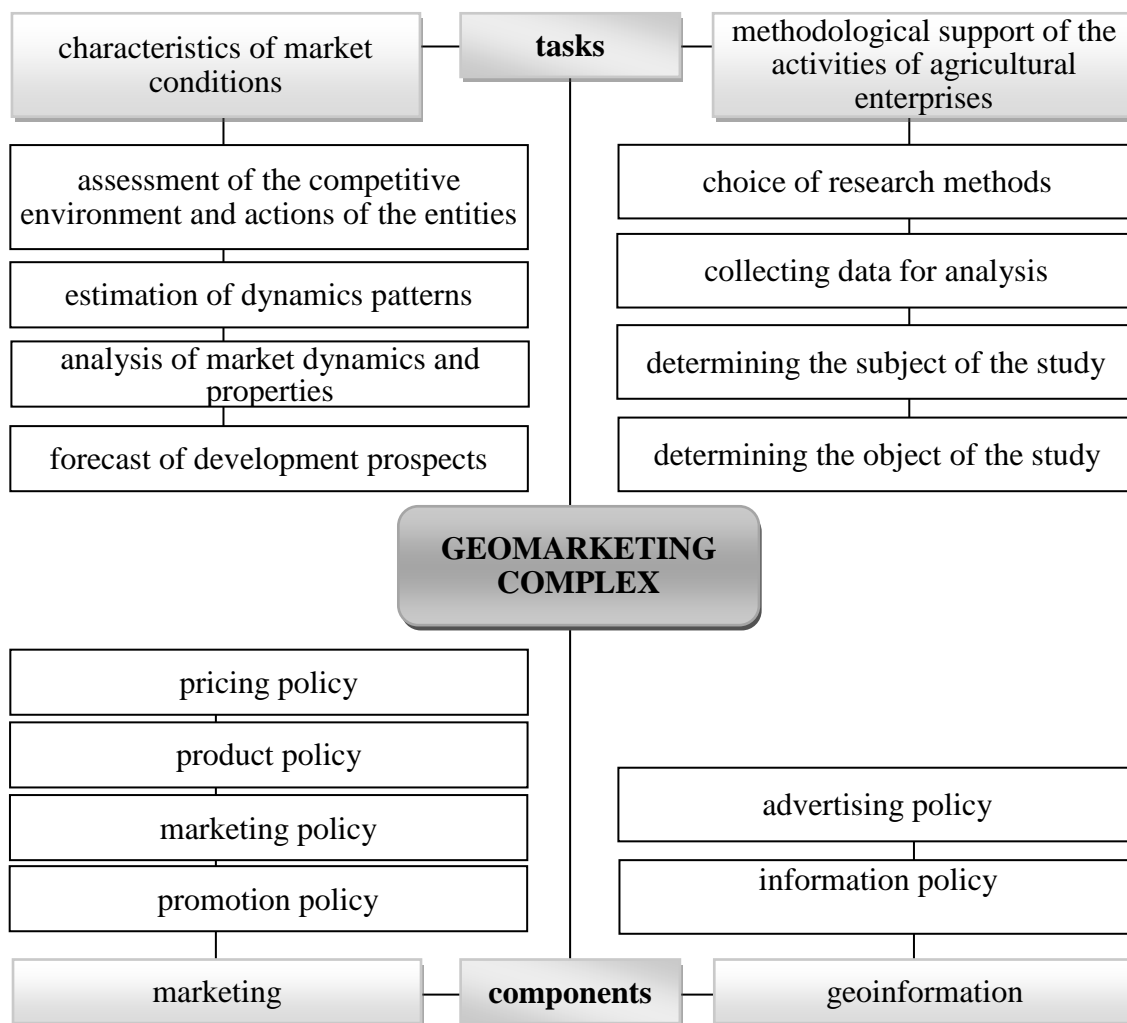


Figure 2. Geomarketing complex of agricultural enterprises

With the development of information technology, the improvement of the relevant infrastructure, the results of geomarketing research are becoming more accessible to end users, who are leaders at all levels and fields of activity. The use of a geomarketing approach is a guarantee for effective management of agricultural enterprises. Geomarketing as a powerful integrated tool is not effective at solving small specific problems. In these cases, it is more appropriate to use conventional marketing methods¹⁵.

It is possible to increase territory marketing efficiency by means of geomarketing methods, first of all, using geoinformation technologies, both at the stage of primary data collection and at the stage of forming a complex of marketing activities. Thus, it is possible to form such a new

¹⁵ Gorbunov I.N., Tolstyakov R.R. (2015). Informatsionnye sistemy geomarketinga [Information systems of geomarketing]. *Vestnik nauchnykh konferentsij*, no 1-7 (1), pp. 89–94.

concept as «geomarketing of the territory», which should underlie the management of the development of the territory¹⁶.

When conducting geomarketing research, it is advisable for agricultural enterprises to use methods of construction of buffer zones, which allow to identify possible areas of market promotion, market coverage and its strength, to set priority directions of delivery and transportation of products. It is also advisable to use routing methods, accessibility analysis, and spatial statistics to ensure the latter. This group of methods informs on the distribution of consumers, outlets, logistics centers, sales concentration, networking methods to reflect the relationships between manufacturers, resellers, sellers and buyers, identifying critical points and assessing the possibility of reducing non-critical paths and eliminating indirect links. A feature of geomarketing researches is their targeted use in managing the development of rural areas and intensifying the processes of their decentralization. The territorial community and the agricultural establishments, which are an element of its infrastructure, can carry out operational and strategic planning, project the development of the territories and adapt their infrastructures to the needs of the community and market environment, which is significant here. At the same time, the main goal of geomarketing research is to reduce the cost of product promotion and expansion of the internal and external market segment, as well as its maximum functionality (location/allocation). A feature of geomarketing is its adaptability to any enterprise management system and integration into its mechanisms. Classic marketing technology is based on the concept of four «P's»: Product, Price, Place, Promotion, geomarketing strategy's focus is on Place and Market Outlet. Thus, in view of the existing interaction of the four factors, the location criterion has additional weight at the expense of the spatial component. This is important based on a number of circumstances: firstly, the heterogeneity of the structure of demand in space and, consequently, fluctuations in the volume of revenue, the number of economic relations and the structure of costs, secondly, the supply is also heterogeneous, that is there is a fluctuation in price with a standardized product, fragmentation of markets and other market fluctuations, thirdly, there is a certain mismatch of supply and demand and breaks in the logistics supply chain.

¹⁶ Saulidi I.Yu. (2015). Geomarketing i marketing territorii: sootnoshenie ponyatiy [Geomarketing and territory marketing: a correlation of concepts]. *Aktualnyie problemyi gumanitarnyih i estestvennyih nauk*, no. 2, pp. 37–39.

Spatial development is not possible without the experience of the leading European countries. Geomarketing in the developed European countries in the agrarian sector of the economy has its characteristic features in the operating a product, price, marketing and communication policy. The most important and effective tool for engaging with consumers is the so-called regional trademark or brand. Its functional purpose is to support the positive image of the enterprise in the region, to create regional economic flows and value creation, to increase the «recognition» of products and to guarantee the quality of products, to increase the attractiveness for the consumer¹⁷. This experience is acceptable and can be adapted to agrarian enterprises in agrarian regions with high infrastructural potential and to the prospects of creating agro-ecological regions. The development and implementation of an agrarian regional trademark by enterprises as a result of a comprehensive geomarketing strategy will have a positive comprehensive effect. Firstly, it has a social, environmental and economic impact on the development of rural areas and agrarian entities, in particular. Secondly, it will help to stimulate the intensification and concentration of production in the agricultural sector, preserve jobs, partially overcome the effect of seasonality, increase economic turnover. Thirdly, it will improve the agricultural resource management system, improve the marketing of agricultural products, promote environmental management and regional self-identification.

CONCLUSIONS

The current state of enterprises of the agrarian sector of the economy of Ukraine is characterized by instability, stagnation, lack of effective management mechanisms, which necessitates the study of a number of issues related to the formation of an effective system of strategic management to ensure competitiveness in the global market environment. In the business practice, there is a relationship between the effectiveness of marketing activities of agricultural enterprises and increasing their competitiveness. The overwhelming majority of agricultural companies apply for only some marketing positions, without adapting leading foreign experience and achievements of leading domestic agricultural entities in the production activity. Given the conditions of doing business in a market environment, the essence of a

¹⁷ Ivashov D.N. (2004). Ispolzovanie opyita regionalnogo marketinga v Evropeyskom Soyuze dlya ustoychivogo razvitiya selskih territoriy. URL: <http://www.dissercat.com/content/ispolzovanie-opyta-regionalnogo-marketinga-v-evropeiskom-soyuze-dlya-ustoichivogo-razvitiya-#ixzz4OJC7PmUh>

marketing strategy can now be interpreted as defining the goals and objectives of the business entity-producer and exporter for each market segment and for each product line in accordance with the planned output. The company forms a marketing strategy on the basis of the study and analysis of the market situation, which is interesting for the manufacturer, its competitors, consumer requests. Defining a marketing strategy is to consider it as a process of activity based on key functions: formulating a mission, defining goals and familiarizing them with management and staff.

Geomarketing in the management of agricultural enterprises solves the following main tasks: determination of priority zones of development and sale of products; determination of the amount of consumer traffic and possible reasons for its fluctuations; to predict the extent of territorial coverage of the sales market and prevent it from overlapping with shopping areas. As a result, the main goal is achieved, namely: to increase economic efficiency based on space-time study of different starting conditions; monitoring, forecasting, management of agricultural establishments based on the detection of implicit patterns of consumer behavior in a dynamically changing environment. Geomarketing research tools allow investors and managers to get up-to-date information to formulate development strategies, make tactical managerial decisions, substantiate concepts of diversification of production and marketing activities.

The advantages of microlevel geomarketing include: the ability to clearly illustrate the possibility of forming a stable infrastructure or trading network; selection of the optimal and efficient location of production and evaluation of its territorial expansion and diversification; evaluation of competitors in terms of determining the strength of connection and the intensity of competition; market valuation of the business and determining its future value, taking into account the geographical component. The advantages of the macrolevel are to ensure the balance of resource consumption, the optimal ratio between the number of points of sale and the volume of consumption and maximize the effect of «optimal location». It should be noted that limited access to source spatial, demographic and statistical data is a major obstacle to the application of a geomarketing strategy by agricultural establishments. Modern geomarketing makes it possible to carry out comprehensive studies of global and local economic processes, which is very important for the spatial economy.

Therefore, geomarketing is an innovative tool for analysis and management, resulting in an information resource, which is the basis for managerial decision-making. Geomarketing uses: geodata, which is a system information resource that allows to apply methods of system analysis effectively; spatial relationships that take into account spatial factors of economic characteristics; innovations in the management of agricultural enterprises.

SUMMARY

The role and place of geomarketing in the management system of agrarian enterprises are determined, on the basis of generalization of scientific approaches to concepts the essence and features of geomarketing, its tools, components and tasks are determined. The necessity of forming an effective system of strategic management of agricultural establishments, including an adaptive strategy of ensuring competitiveness, which would take into account the specificity and needs of agricultural sector enterprises and is a priority task in their management is proved. The necessity to consider the spatial component in the implementation of the marketing strategy is determined. The need to create a unified information environment for the management of spatially distributed resources in order to ensure economic growth and competitive development is also disclosed. As a result, the theoretical approaches were generalized, the geomarketing tools were systematized and formed, the semantic characteristics of the definitions of «marketing» and «geomarketing» were conducted, the priority tasks of geomarketing were determined and the possibilities of its application in the management system of agricultural enterprises were evaluated.

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CHAPTER 5

THE BANK'S INVESTMENT SYSTEM

Gutkevych S. O.

INTRODUCTION

The financial system emerges with the emergence of the state and develops with it improving its legal norms. Financial stability is important to ensure the efficient operation of the state's financial system.

From an economic point of view, the financial system represents a set of different spheres of financial relations related to the formation and use of centralized and decentralized funds of monetary resources; from an institutional point of view, it is the totality of the country's financial institutions.

The financial system of the state is a set of interacting elements that make up a coherent formation. It includes directions or elements that have its own functional purpose. These are:

- state finances (budgets of all levels and extrabudgetary funds);
- finance of business entities – enterprises;
- non-productive finance;
- population finances;
- internal and external financial obligations;
- financial infrastructure.

These elements of finance can properly affect the economy of the country only in a complex single system. The finances of economic entities are of crucial significance in this system.

The financial resources of an entity's economic activities are cash available to the entity. The finances of the entities reflect the turnover or cash flow. They are invested in the development of production facilities of non-productive sphere, consumption, may remain in the reserve of the enterprise.

The development of the banking system is a factor that influences primarily the attraction and inflow of foreign investments, as they characterize the level of intensification of investment activity in the country.

The functioning of the economy is impossible without the functioning of the banking system, which is a dynamic system, and especially in the market conditions cannot be in a static state. It

represents a single system that includes various banking institutions. The main task of the banking system at the present stage is to ensure its stability and effective performance of its functions.

5.1. Banking system in Ukraine

There are two main types of banking practice in the world systems:

- distribution, or centralized, banking system in which the state is sole monopoly owner of banks;
- a market banking system that assumes a variety of forms of ownership of banks, in the absence of a state monopoly.

A market economy involves the functioning of a two-tier banking system:

Level I – National Bank;

Level II – Commercial banks of private and public ownership.

Elements of the banking system are its constituent parts, form the unity, while expressing the specificity of the system, are carriers of its properties.

The elements of the banking system are: banks; some special ones: financial institutions perform banking operations but do not have bank status; institutions that form the banking infrastructure and ensure the viability of credit institutions.

The banking system is a system where the banks are main constituent or central element.

Central Bank performs the monetary functions and directly or indirectly regulates the size and price of credit nationwide.

The banking system is the basis of the market economic infrastructure. The normal functioning of the economy is influenced by the investment activity of banks. The level of banking system development is an important factor for the investment process, as the banks are the mediate between the investor and the investee. The bank is a special category of enterprises, monetary institute that does not participate directly in the production sphere but regulates money circulation¹.

Investments are important in the ensure of the balanced circulation of the money market.

In the banking system, investments are the funds of banks invested in these securities of enterprises, organizations and institutions of

¹Gukevych S. (2012). Investment: Theory and Practice. Poland, Volumina. PL Daniel Krzanowski. 193 p.

different ownership over a long period of time. Credit is a form of loan capital movement or an agreement with economic partners that acquires a form of loan, that is, granting property or money to another person for ownership on terms that are signs of a loan:

- urgency,
- reversibility,
- payments.

The lender gives the loan while the borrower gets the loan.

For any business, the benefit of bank loans is related to the size of the interest rate. With the rise in the nominal interest rate, the proportion of borrowers is falling.

Investments have qualities or characteristics that differentiate them from the economic category of “loan” (Table 1).

Table 1

Characteristics of features of bank investments and loans

Features	Investmnets	Loans
By terms of use	Short term Long-term	Short-term ones predominate
Bank as an investor	One of many investors	One of some lenders
Initiator of lending	Bank	The borrower
The purpose of investment	profit	Repayment of loan interest

Commercial banking includes the loan and investment operations that allow credit institutions to profit from the circulation of their resources. Such transactions are the most profitable in the banking business and occupy a fairly large share in the assets of a commercial bank.

Unlike a loan that is provided for a relatively short period of time with a condition of repayment in excess of the original one by a loan, investing is, as already noted, the use of money for a long period of time. As an investor, the bank decides on its own investing in securities for profit. With the development of the securities market, the share of investments increases.

One of the main tasks of banks is the need to maintain the optimal structure of their assets, taking into account the economic situation.

Banks must respond to the economic and political relations both within and outside the country. In a conditions of crisis, long-term investments and credit terms are reduced. The banking system in the conditions of state stability, ie risk minimization, intensifies its activity by regularly earning the interest income.

The main function of banks is the financial services to provide loans, first and foremost long-term. Borrowings are used by borrowers for consumer and investment purposes. At the regional level, investments make it possible to create jobs and provide a working population with employment, expanding the potential of enterprise investment resources in the future. The loan facilitates the concentration and efficient use of both cash and material resources available to enterprises.

Loan, credit are the most risky banking transactions as they tend to default. One of the negative factors that raised the desire to not repay was the existence of a planned economy. In times of planned economy debt was often written off, there was no clear control by the government over credit relations. This situation negatively affected the reproduction process in many. economic development, especially in agriculture. The development of a market economy involves the widespread use of bank loans in all sectors of economy on the basis of the high probability of their repayment i. Credit ceases to be a loan if it does not return.

Investor banks should provide savings based on the choice of: security of investments, profitability of bank investments, their liquidity and growth.

There is the scheme of the investment operations of the bank at the figure 1².

A bank's investment operations are a complex process that involves a complete set of bank investment instruments. Each financial instrument has different characteristics in terms of risk, sensitivity to inflation, and changes in government policy and economic conditions. The number of financial instruments of the bank's investment portfolio is large enough. It is a collection of securities acquired by a bank in the course of active transactions, stocks, bonds, promissory notes and so on. In analyzing the Bank's investment instruments, they consider, first of all, money market instruments with a maturity of up to one year, low risk and high level of liquidity and then – capital market instruments long-term and high-yield.

²Model' rozvytku haluzey ekonomiky Ukrainy (2011). Under edition of. S. Gutkevych. Kyiv: NUTU «KPI», pp. 68–71.

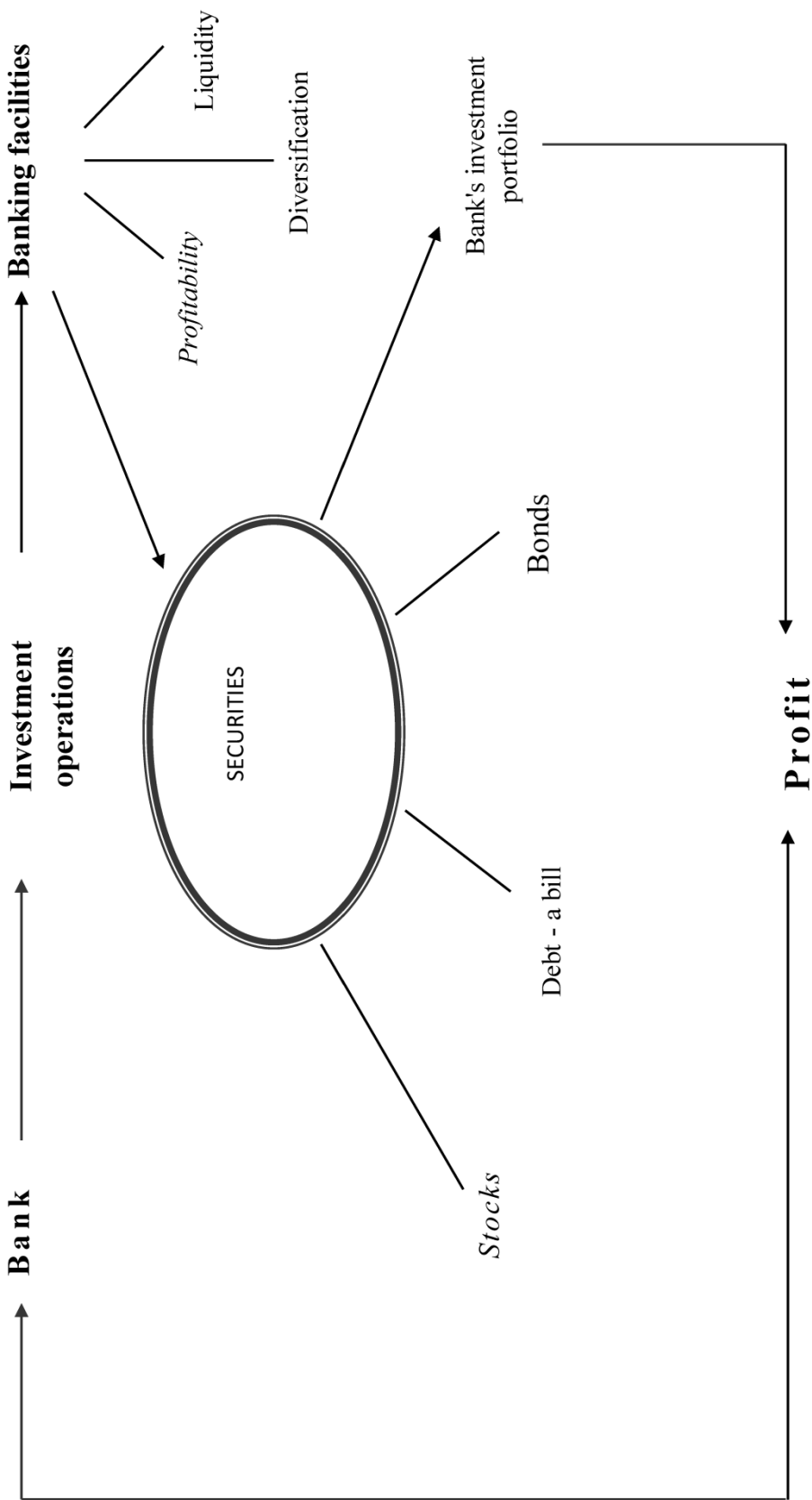


Figure 1. Scheme of the investment operations of the bank

Securities can be the object of a bank investment if they are traded on the securities market and serve debt. The Law of Ukraine «On Securities and Stock Exchange» stipulates that the main securities are stocks and bonds, others – derived from them.

Commercial banks may perform securities brokering. The bank's participation in the capital of a joint stock company makes it a co-owner of the company.

The Bank may purchase shares of commodity and stock exchanges created in the form of a joint stock company.

Banks are the founders of an insurance joint-stock company that conducts insurance for the activities of clients of these banks, thereby enhancing the loan repayment guarantee. Banks have the right to set up subsidiaries and to transfer to them part of the functions of banks. For example, some banks outsource their equipment leasing operations to subsidiaries.

A bond is a type of fixed income securities issued by an enterprise or a state, joint stock companies, funds, as a debt, under which the issuer undertakes to pay the holder a fixed amount of money within a specified period. Bond investments are considered less risky than equity investments.

At the world stock market the developed-country sovereign debts are the most reliable. Unfortunately, at this time in Ukraine, due to economic instability and the state budget deficit, the liquidity of government loans is not fully guaranteed.

The resolution of the Verkhovna Rada of 17.06.92 “On the application of promissory notes 3 to the economic turnover of Ukraine” introduced a promissory note. Further development of the application of bills was acquired with the adoption of the Law of Ukraine “On bills circulation in Ukraine”. Bill is one of the types of securities. Written debt of a clearly defined form, which gives its holder (the bill holder) the undisputed right after the expiration of the term to demand from the debtor the payment of the specified amount of money.

Commercial banks accept liquid bills at a discount price of discounted bills. The holder of the bill, in turn, has the opportunity to defend his rights. This is facilitated by normative legislative acts, including the the Bankruptcy Law of Ukraine.

The investment activity of a commercial bank is carried out by employees of the investment department, who perform the functions of analysis and reporting on investment activities. The ability of a bank to make investments is determined on the basis of: qualified supervision

and study of the securities market, taking into account the risk of the purchased securities, and carrying out an assessment of the quality of these securities.

The bank's management should take into account a number of significant factors (Figure 2) that determine a bank's investment choices include: expected rate of return; tax characteristics; mortgage requirements; risks.

Banking investment choice is influenced by many factors, including the risk factor. Consider the risk factors involved in the likelihood of an event related to potential financial costs or other negative consequences.

These are:

- credit risk associated with securities and caused by the deterioration of the economic position of the issuers of these securities that cannot fully bear responsibility for their financial obligations;

- market risk is possible due to unforeseen and serious disturbances both in the stock market and in the economy as a whole. The market quotation of some securities may fall to their par value and even lower;

- interest rate risk – change of interest rates – depends on the fluctuations in the market rates of debt, for which the percentage is agreed in the contractual order from the moment of their issue. Rate is an important instrument of banking policy, competition, its level largely depends on the efficiency of the banking system.

Banking investments in securities are carefully regulated due to the credit risk inherent in most securities, especially those issued by private corporations and individual local governments. The business risk of banks is reflected in the loan portfolio and is related to the changing economic situation in the country, falling sales, rising bankruptcy, unemployment, non-repayment of loans. Due to the risk of unbalanced liquidity, banks foresee the sale of investment securities before their maturity...

The risk of early withdrawal is reduced by banks through the purchase of bonds whose issuers cannot make their withdrawal for several years or do not purchase withdrawable securities. Inflation risk may impair the value of shareholders' investments in the bank, so the bank provides short-term loans and securities with a limited, non-prolonged, floating interest rate term.

Banks, while conducting investment transactions, monitor their level of profitability, since the return on invested funds should be proportional to the risk of investments.

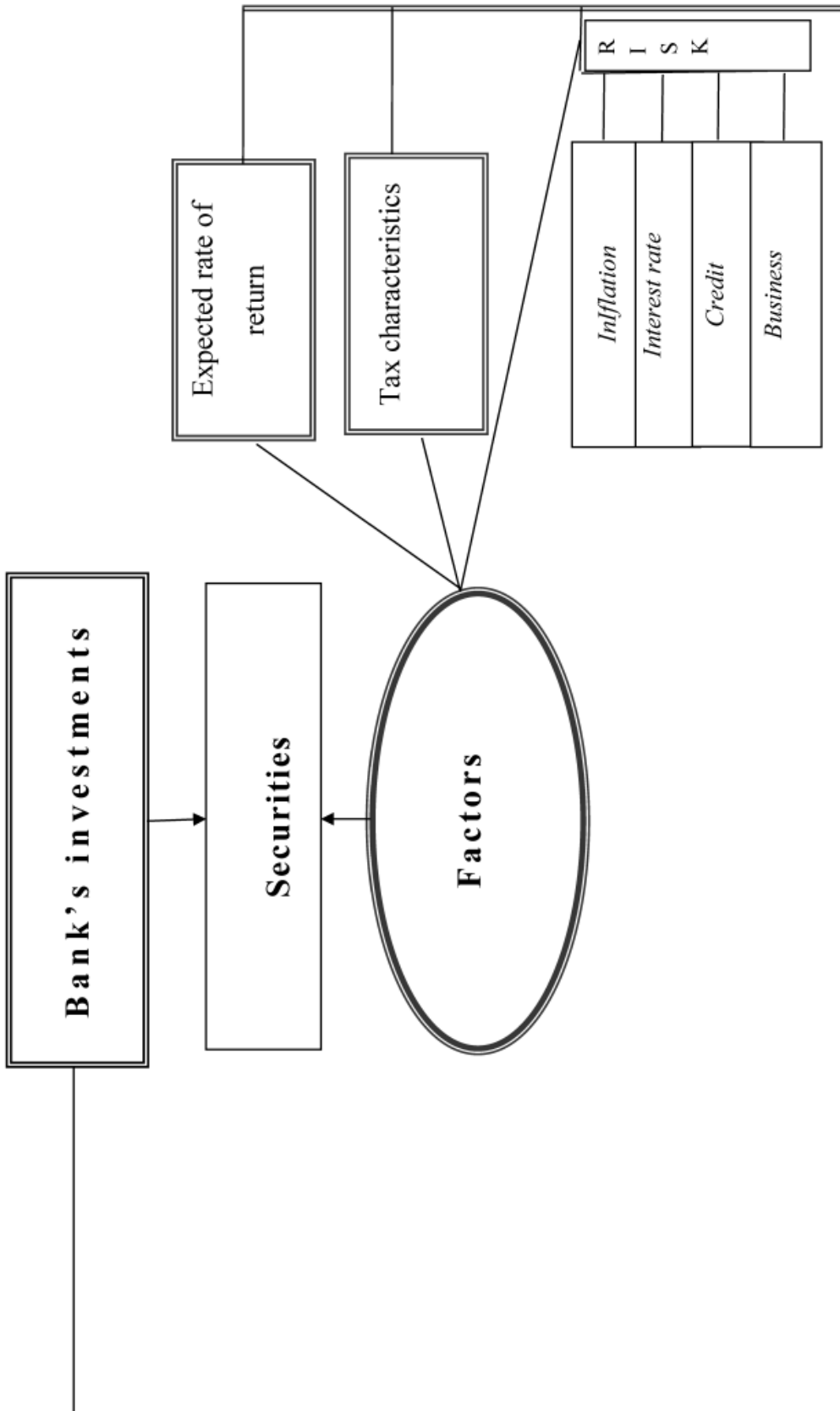


Figure2. Factors that determine a bank's investment choices

As the analysis of the activity showed, today banks, like other business entities, do not have sufficiently effective mechanisms for collecting overdue receivables, including the bankruptcy procedure of the defaulter. Based on this, as well as on the general accounts payable, the risk of insolvency or non-repayment of loans is repeatedly increasing and is shared among all other enterprises. That is why commercial banks are forced to raise lending rates and therefore reduce lending volumes.

In the investment field, banking institutions perform such functions:

- credit and settlement;
- cash services;
- deposit operations;
- servicing of business entities;
- analysis of the investment market;
- information and advisory services on effective investment.

Considering the above functions, banks can use their customers' resources more efficiently and influence their profitability. The National Bank of Ukraine controls the commercial banks activities. Banking infrastructure is an important element of the banking system. It includes enterprises, agencies, services that support the activities of banks, such as information, methodological, scientific, human resources, communications, communications and more. Banking infrastructure provides guarantees against insolvency and damages.

According to the international treaties of Ukraine, projects for the development of its economy are supported by international financial organizations: the International Bank for Reconstruction and Development, the European Bank for Reconstruction and Development, the European Union, the International Monetary Fund. According to the legislation of most countries on national banking markets are allowed to operate foreign banks. In some countries (such as France) the activity of foreign banks is not restricted. In Russia, Canada and other countries, a certain corridor has been introduced, within which they can conduct their operations quantitatively.

5.2. Cooperation with international financial organizations

The International Bank for Reconstruction and Development and the World Bank play the significant role in the investment activity of Ukrainian banks. For several years, the World Bank has been conducting monitoring studies of the country's economic condition and providing financial assistance to the government in carrying out market

transformations. Ukraine cooperates with the World Bank in the following areas:

- macroeconomic stabilization and structural adjustment;
- economic downturn and post-privatization development of enterprises;
- reforms in the financial sphere and formation of the institutional basis of market relations;
- improvement of the system of social protection of the population and development of infrastructure;
- rehabilitation and support of agriculture;
- reformation of the public sector of the economy;
- creation of a legal basis for a market economy, a project in energy and economic sectors;
- attractation of the foreign investors.

The key objective of World Bank's activity is providing the assistance to the countries-participants.

The World Bank provides the Government of Ukraine with annual financial support for comprehensive reforms. These funds are usually provided in the form of loans, ie on the basis of the obligatory security of the repayment of interest.

Investing in education, health care, the food industry or the human resources are most likely to achieve high economic performance. This is because it has to do with intellectual and physical performance.

For example, Ukraine's agriculture is ranked fourth in projects financed by the World Bank after:

- I – macroeconomics;
- II – financial sector reform and enterprise development;
- III – energy.

Each project determines its total cost, amount of funding, date of implementation, allocation of financial resources, location of project implementation and utilization of funds. The value of projects, their priority may change, and this is reflected in the financing depending on the investment banking policy.

The World Bank, together with the Ukrainian government, is working to attract foreign investments into the country. To this end, the Bank's specialists develop investment projects and conduct training on the involvement and cooperation of foreign partners.

The European Bank for Reconstruction and Development is an international financial institution established in 1991 to financially support projects to assist Central and Eastern European countries in their

transition to a market economy. The EBRD is based on an agreement signed in 1990 and is based in London. In 1994, the EBRD had 60 shareholders, 58 countries, the European Union and the European Investment Bank. The institution acts as both a business and an investment bank. According to the charter, at least 60% of its obligations must be related to private sector financing. The Bank provides loans (up to a maximum of 10 years for businesses and 15 years for infrastructure development projects) at market rates. It also acquires participating shares, provides loan guarantees and subscriptions for bonds and equities, and participates in joint operations with other private and public financial institutions³.

The European Investment Bank is an institution set up by the European Economic Community to promote development, integration and cooperation through the provision of investment loans.

In the economic sphere, the European Union develops towards the creation of a single internal market, a single banking system and a common currency.

The cooperation of Ukraine with international financial organizations is carried out in accordance with the statutory documents of these organizations, international treaties of Ukraine, in accordance with the legislation in order to obtain external financial resources for the implementation of systemic and investment projects. Thus, the International Finance Corporation provides advisory and technical assistance to Ukraine in its investment activities. IFC implements such technical support projects as: privatization of property of non-state agricultural enterprises and land, development of private enterprise, reform of agricultural enterprises. At the macroeconomic level, systematic projects aimed at conducting economic reforms in Ukraine are being implemented.

Investment projects aimed at the development of individual industries, sectors of the economy, production are carried out on the principles of financing under conditions of self-payment and obligatory internal self-financing.

At the level of individual countries, the export (import) of private and public capital is distinguished. In the system of international capital movement. In the system of international movement of capital in various forms (loans, investments, assistance), the capital of international

³Gutkevych S.O., Korin'ko M.D. (2003). Veksel' u systemi tsinnykh paperiv: problemy stanovlennya ta rozvytku: Navch. posibn. K: Vyd-vo Yevrop. un-tu. Pp.27-28

organizations and funds and mixed capital (private, state, international organizations) also function.

The basis of entrepreneurial capital as a form of international capital movement is foreign direct and portfolio investment.

5.3. Investments and financial institutions

Institutional principles of regulation of investment activity are carried out both through the public sector of the economy and through state institutions. The institutional role of the state in carrying out the functions of state regulation as a subject of investment activity is determined through regulation of financial investments, system of taxes, carrying out of depreciation policy, investing outside Ukraine, allocation of subsidies, subsidies, subsidies.

One of the forms that determine public investment policy is the investment activity of financial institutions.

Financial investments are investments in various financial instruments (assets). Financial investments are called portfolio investments. Investments include investments in the development of projects, in the purchase of shares, bonds and other securities issued by the state or private legal entities, targeted cash deposits, costs for the acquisition of securities and bank deposits. Investments are made during the sale and purchase of securities in the stock market.

Direct investment is a capital investment driven by long-term economic interest and provides investor control over an investment object in order to generate entrepreneurial profit (income). Direct investment is both initial investment and reinvestment (the share of the investment entity's profit that is neither distributed nor made to the direct investor). In addition, direct investment includes all intra-corporate transfers of capital in the form of loans and loans between the direct investor and the affiliates, subsidiaries and associates. In world economic practice, a subsidiary is a wholly-owned subsidiary. In a subsidiary, a non-resident direct investor holds more than 50% of the capital and in an associate less than 50%⁴.

Portfolio investments is the investing in securities for profit (dividends). Such investments do not provide real control of the investor on the investment object.

The quantitative criterion for the distinction between direct and portfolio investment in a developed market economy is considered to

⁴Investment: Theory and Practice. Poland, VOLUMINA.PL Daniel Krzanowski, 2012. 193 p.

be 10% of the investment object. However, an investment may be a direct investment with a smaller participation rate, but it has a real impact on the decision making of the investee. Conversely, if the investor's share is more than 10%, but he has no real control over the object, then the corresponding investment is not recognized as direct.

An investment portfolio is a purposefully formed set of financial and real-estate investment assets that are designated to implement a pre-developed strategy in accordance with the investment objectives defined in that strategy.

The implementation of the investment strategy in accordance with the objectives is achieved by selecting the most effective and secure financial instruments in the portfolio. Basically, their theory is based on investing in financial instruments such as securities. However, under the present circumstances, a portfolio can be formed either as a combination of a certain amount of real or financial investment, or at the expense of a certain type of financial instruments. That is, the subjects of investment activity are conditioned to be able to form investment portfolios of a certain type (types)⁵.

In the world practice of commercial banks, credit (loan) and securities portfolios have much in common. First of all, these are the most important types of banking activities aimed at launching own resources for profit. The main criterion in the formation and further functioning of both types of portfolios is their profitability, and since lending and investment transactions are the most profitable in banking, they have the highest share in the assets of a commercial bank. However, the ownership of these assets to different portfolios is explained by their significant differences.

Loan is an investment for a relatively short period of time, subject to their repayment or equivalent, in excess of the original amount of interest on the loan. Investing, unlike a loan, is the use of money to make a profit over a long period of time, until the time when the investment is returned to the bank.

The portfolio of real investments can be considered as a certain type of investment portfolio, which can be formed by separate entities of investment activity: corporations, investment funds and companies.

The principle of compliance of the portfolio with the investment strategies of the company involves involvement in the portfolio of

⁵Sharpe W.(1999). Investments: 6th (sixth) Edition Paperback, 962 p.

such projects, which should ensure the investor realizes its strategic goals.

The portfolio of real projects is formed, in the vast majority, by medium- and long-term investments. In some cases, the portfolio may include short-term projects – the acquisition of businesses and industries, equipment that does not require installation, unfinished objects, other real estate. Short-term real investments include enterprises with a maturity of less than one year.

In accordance with the objectives of investing in the portfolio include equity instruments, investing in which has a different purpose and the formation of which is influenced by many both subjective and objective factors, in particular:

- investor's financial capabilities (internal source of financing);
- opportunities for attracting external sources of financing for investment purposes (domestic or foreign);
- investment climate in the country;
- investment market conditions;
- personal qualities of the investor (aggressiveness of economic strategy, tendency of the investor to take risks, ability to effectively manage the portfolio, ability to react instantly to changes and make appropriate decisions, etc.).

The motivation behind international portfolio investment is generally close to that of direct investment. However, despite the much higher liquidity of portfolio investments compared to direct ones, the main goal of an investor in portfolio investing is to seek to maximize profit at an acceptable level of risk (to place capital in certain countries and in certain securities).

International portfolio investment requires its participants to carry out numerous securities transactions that are not limited to sale and purchase of assets. It is necessary to carry out the whole spectrum of operations. Here are the main ones: purchase of securities at your own expense; purchase of securities on behalf and at the expense of the customer; sale of own securities; sale by proxy; information, analytical and advisory services, including analysis of the securities market and the portfolio of financial assets; organizational activities accompanying securities transactions (eg, issue registration, stock exchange approval, etc.); mediation in the organization of issue and initial placement of securities (development of documentation and terms of issue, preliminary evaluation of securities, advertising, selection of investors, etc.); securities purchase and sale calculations;

registration of securities owners during the sale and purchase operation; security, storage and transfer of securities; in case of withdrawal of the bonds by the issuer of the bonds by the maturity date, the withdrawn bonds shall be returned; repayment of securities with maturity; payment of stock dividends and coupon payments on bonds; convertible preference shares and debentures into shares; delegation of voting power to the trustee; guaranteed placement of securities (underwriting); reinvestment of securities dividends and income from market value gains; placement of securities as collateral; managing the securities portfolio; granting and obtaining securities loans; currency risk insurance.

International investment activity is a set of practical actions of entities to invest abroad. It redistributes in space and time the resources between individual entities that make the decision to invest their own, borrowed or attracted property or intellectual property in the investment objects, is an investor. There are individual and institutional investors. The differences between them lie in the scale of the resources they manage, the nature and methods of decision-making.

An individual investor is a legal or natural person who independently (without intermediaries) carries out investment activities.

An institutional investor is a financial intermediary that accumulates the funds of individual investors and conducts specialized investment activities, as a rule, in securities transactions. Institutional investors include investment funds and companies, pension funds, insurance companies, mutual funds, and banks. Corporate investors and the government are distinguished as separate entities.

By defining the goals, directions and volumes of investments, the investor may, on a contractual basis, involve any participants in international investment activity,

Investor resources consist of resources obtained from all available sources of investment resources – internal, attracted and borrowed. Different investment entities have different sources of attracting resources (see Table 2).

In modern conditions, the investor has access to both national and international investment resources, which are accumulated and redistributed mainly through international (world) markets.

National and international investment resources together are a global investment asset that has financial and material components.

Financial wealth is accumulated in the form of securities and cash, and material wealth in real estate and metals.

Table 2

Investors' resources

Investors	Resources (sources)	
	Own	Borrowed
Physical individuals	Savings, unused portion of individual income	Loans
Corporations (organizations)	Company stocks, retained earnings, depreciation and other funds, know-how, non-operating income, etc.	Funds raised through the sale of stocks, bonds, other securities, long-term loans and loans
State	Profit of state-owned enterprises, tax receipts, contributions to state funds, state reserves, credit and monetary issues, privatization funds	Internal and external loans

CONCLUSIONS

In the conditions of increasing the independence of enterprises and their transition to self-financing, there was a need to create a financial market. The economic basis and market for which the enterprise needs is additional financial resources. Shortage of working capital impedes the development of production and attraction of material resources. This largely explains the shortcomings in the work of attracting financial resources of enterprises. Becoming a financial market is possible only with the elimination of imbalance between financial and material resources.

There are many factors influencing the motivation, volume and direction of international investment. At the level of the relationship “basic country –country receiving”, the following factors are crucial:

- political and economic: political stability; degree of government intervention in the economy: relation to foreign and foreign investments; adherence to bilateral and multilateral agreements;
- resources:geographical location; availability of natural resources; demographic situation;

– general economic: the rate of economic growth; ratio of consumption and savings; loan interest rate; the rate of net profit; the level and dynamics of inflation; balance of payments status.

In a broader context, international investment processes are influenced by: the state of development of the world economy, international factor and investment markets; stability of the world monetary system; development of international investment infrastructure and the like. In the context of globalization, international investment is influenced by the interacting processes of trans nationalization and regional economic integration. The effects of global economic factors, on the one hand, offset some of the differences between countries, and on the other, it creates a macro environment for large-scale activity of international entities and investment institutions.

SUMMARY

The article considers the investment system that is determined by the investment activity of financial institutions. The banking system is a dynamic system, the basis of the economic infrastructure of the market. The bank's investment operations are a complex process because the bank can be both an object and an investor. The bank's investment choices are influenced by the following major factors: expected rate of return, tax characteristics, mortgage requirements, risks. The stability of the banking system depends on the general equilibrium conditions between accumulation and investment demand. The state of the banking system affects investment. The structure of the modern banking system in Ukraine is in line with Western counterparts, and the domestic legal framework in the banking sector is perfect enough to regulate banking processes and ensure the stability of the banking sector.

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CHAPTER 6
INFORMATION AND METHODOLOGICAL PROVISION
OF THE PROCESS OF MANAGEMENT
OF SOCIO-ECONOMIC DEVELOPMENT
OF THE REGION IN CONDITIONS
OF DECENTRALIZATION OF POWER

Kakhovska O. V.

INTRODUCTION

The reality of the modern world is the undeniable recognition by the world community of the social purpose of the state. This orientation requires a corresponding transformation of the political, economic and social systems of any country and objectively necessitates the formation of a modern model of social development management. Ukraine, which has constitutionally declared itself a social state and seeks to build this public institute on the models of developed countries, has not overlooked this problem.

The theory and practice of building socially oriented societies has proved the need for an impartial choice for each country of its own doctrine of ensuring sufficient socialization and scientific and practical foundations of its achievement due to the time factor. The peculiarity of the transformation processes in Ukraine is the sharp transition from fairly widespread paternalism to the development of a market economy. Harshly replaced the mechanisms of social state building on its territory, actualizing the issue of coordination of actions of economic entities of different forms of ownership towards the achievement of the national goal and timely response to changes in the market situation.

The accumulation of national problems of socio-economic dynamics is manifested in the most obvious and understandable form through the lens of regions. This is due to the similarity of the region's economy with the national economy and the possibilities of applying macroeconomic theories to it, and in particular those that place the focus on the formation of civilizational standards of living. Naturally, for a long time, the attention of scientists and practitioners has focused precisely on the problem of managing the region's economy in a diverse range of aspects.

In the second half of the twentieth century significantly expanded the theory and practice of regional economics M. Adler, O. Bergson, G. Becker, L. James, E. Denison, K. Gori, L. Ehrhardt, I. Clark, J. Cornay, M. Kating, G. Marcuse, E. Marcusen, J. Martin, L. Mises, F. Mitterrand, A. Müller-Armak, A. Know, V. Oiken, K. Popper, F. Perru, V. Röpke, A. Sen, R. Titmas, K. Flexner, M. Forster, I. Fisher, F. Hayek, D. Hayes, J. Schumpeter, H. Zimmerman and others.

With the beginning of market-transformations in the post-Soviet countries, and in particular, in Ukraine, the problem of regional dynamics was studied the scientific works of such national scientists as O. Alimov, O. Amosha, O. Asaul, V. Besedin, D. Bogin, B. Burkinsky, Z. Varnaliy, A. Galchynsky, V. Geyets, M. Gerasymchuk, V. Grishkin, V. Golikov, G. Gubernaya, B. Danylyshyn, M. Dolishnyi, S. Doroguntsov, N. Deyeva, A. Epifanov, L. Zaitseva, B. Kvasnyuk, S. Kireev, A. Melnyk, V. Miklovda, E. Libanova, I. Lukinov, O. Novikov, V. Onikienko, M. Pavlovsky, Y. Pakhomov, V. Pila, S. PyrozHKov, V. Popovkin, V. Rybak, M. Sokolik, V. Symonenko, L. Tymoshenko, V. Tarasevich, M. Khvesik, L. Chervova, M. Chumachenko, V. Shvets, V. Yanukovych, A. Utkin and many others.

Despite having a strong theoretical legacy, the realities of social reformatting of the regional economy point to manifestations of destructions that remain beyond the control of the current instrumental framework of the governance system. As a consequence, with sufficient mutual understanding of the presence of the state and regulatory actions at the level of its administrative-territorial units in the market economy, spatial and settlement differentiation intensified. And right now, under decentralization conditions, there are two ways of development: either maintaining and further enhancing the differentiation of settlement and settlement, or fundamentally changing the role of the region in ensuring socialization processes. Currently, thanks to decentralization, there are a number of new requirements for the formation of management decisions to ensure managed regional development.

First of all, there is a need to take into account changes in the balance and proportions in the region's economy due to the flow of financial security redistribution processes and changes in the level of taxability both at the level of newly formed united territorial communities and at the level of the region itself. Secondly, the toolkit for diagnosis of management results should be based on the fact that the socio-economic system of the region is mainly in a non-equilibrium state and the need for constant detection of oscillators provoking its

imbalance. There are also other challenges related to the passage of cyclical processes in the economy of the region, the consideration of which in management practice is possible on the basis of understanding of the laws of economic dynamics.

The combination of these circumstances, which determine the gaps in the theory and methodology of regional development management, and the urgent need to ensure the positive socio-economic dynamics of the regional economy have made the choice of relevance of the study.

6.1. The region as a leading link in ensuring the socialization of the economy in the context of decentralization

With Ukraine's gaining of independence, socio-economic processes aimed at building a social state became quite widespread¹, which in the model of developed countries should strive to or minimize unjustified social stratification of society².

A breakthrough in the Ukrainian future that will meet the general civilizational parameters can be made if all the components and potentials of the management system at all its levels are tuned to this process. The major conceptual flaw in the doctrine of governance implemented in the national territory lies in the uncertainty and incomplete involvement of those social entities that are genuinely interested in carrying out social and transformational change and capable of delivering it with acceptable results.

In social transformation, everything begins and ends with the territory in which the population lives. Naturally, each territorial settlement has its own specific features. They are determined by natural-geographical factors, availability of resources, production and transport infrastructure. Together, they form significant differences between the territories. And so significant that the ways of solving both current and strategic problems of their provision are in different but intertwined planes and are not typed and generalized. In the best case, we can refer to clusters, that is, combinations whose main characteristics differ with a small scale³. It is clear that in most cases approaches to solving specific problems need to be determined locally.

¹ Konstytutsiia Ukrainy: pryiniata na piatii sesii Verkhovnoi Rady Ukrainy 28 cherv. 1996 r. №254k/96-VR. URL: <https://zakon.rada.gov.ua/laws/show/254k/96-вр> (accessed 15.01.2020).

² Strashun B.A. (1996). Konstitutsionnoe (gosudarstvennoe) pravo zarubezhnykh stran: uchebnyk v 4 t. [Constitutional (state) law of foreign countries: a textbook in 4 vols.]. T. 1–2. Moskva: BEK, 778 p.

³ Lopatnikov L.I. (1987). Ekonomiko-matematicheskii slovar. Otv. red. A. P. Fedorenko [Economic and mathematical dictionary]. Moskva: Nauka, 509 p.

According to the global trend, territorial entities are localized in the context of a complex administrative and territorial structure, which is established by the Basic Law of the country. The territorial structure of Ukraine, which is a unitary state, under Articles 132 and 133 of the Constitution is based on the principles of unity and integrity of the state territory, a combination of centralization in the exercise of state power, balance of socio-economic development, taking into account their historical, economic ecological, geographical and demographic features ethnic and cultural traditions.

In accordance with the principle of complementarity, which presupposes the prevention of legitimate power throughout the country, world civilization has formulated two such strategies as government and local self-government.

Each of the administrative-territorial units implements one of the possible variants of state or self-government, which assigns to each such territorial entity its own range of powers.

Public administration concentrates, above all, on the central and intermediate levels, ensuring the integrity of the state and its reproduction. Moreover, the state, in the context of all territorial entities, through the authorized state institutions, protects its rights at the local level and the overall coordination of actions of local authorities in addressing pressing issues of economic and social nature.

Local self-government in Ukraine is a state-guaranteed right and a real capacity for residents united by permanent residence within a village, settlement, city, which is an independent administrative-territorial unit, or voluntary association of residents of several villages, with a single administrative center of the settlement, cities independently or under the responsibility of bodies and officials of local self-government to resolve issues of local importance within the framework of the Constitution and other laws of Ukraine⁴. Local self-government is exercised by territorial communities of villages, settlements, cities both directly and through rural, settlement, city councils and their executive bodies, as well as through district and regional councils, which represent the common interests of territorial communities of villages, towns and cities.

Talking about the linkages between executive and local government, one should highlight one. There is no direct subordination between councils at different levels. Moreover, such subordination does

⁴ Pro mistseve samovriaduvannia v Ukraini: zakon Ukrainy vid 21.05.1997 r. № 280/97-VR. URL: <https://zakon.rada.gov.ua/laws/card/280/97-bp> (accessed 15.01.2020).

not exist between councils and state administrations in the sphere of exercising their powers. Local self-government bodies may be vested with separate powers of executive authorities. In such a case, it is on these issues that local governments are under the control of the respective executive authorities. Self-governing entities are to some extent under pressure from public authorities over the financing of delegated powers and the lack of funds provided by their own powers, even in the face of decentralization processes. In addition, they feel the influence of production and economic structures operating on the territory and of the population.

While the activities of governing bodies on market-transformational changes in Ukraine focused on issues related to macroeconomic stabilization, as well as key attributes of the state, a position was gradually formed on the obligatory “top-down vector” of the “bottom-up vector”. This awareness was reflected in a certain reorientation of the focus on the process of transformation in the national economic space to such issues of micropolicy as ensuring the socio-economic development of territories under the existing administrative division.

The consistent concentration of development efforts not at the national level was intended to ensure real self-reproduction of the economic system as a whole. Such an installation was and remains aimed at creating each link of such a mechanism of management that would ensure the development of a particular population in accordance with the dynamics of its conditions of operation.

But the practice is faced with a rather complex combination of normative installations in different variations of providing socio-economic development of different-scale territories.

The development of a community of a suitable settlement is the conscious desire of its members to work together to determine their future through the implementation of a set of measures that will contribute to socio-economic progress. But community development should not be a challenge or counterbalance to central government and other communities. It can only be about leveraging the territory's internal potential to exercise self-governing rights.

In order to implement the development of a territory with the national concept, it must be assumed that it is part of the program of socio-economic progress of the country, that is, to reproduce the realization of interests in local communities and their internal interests. Assuming that socio-economic development is cross-cutting, the

management entity must provide a unified approach to defining its essence as the basis of goal-setting.

Based on the statement of the eminent philosopher M. Berdyaev, according to which “the state and social institutions have always been created for the mass, for ... man”⁵, then, one must really agree that ensuring a high standard of living for citizens is the main goal of the state. And the very phrase “socio-economic development” begins with the word “social”, which means its dominance. However, another component of the adjective testifies not only to the relationship between social and economic, but to its interconnection and interplay. They are correlated with each other as a goal and a means of achieving it. At the same time, as it derives from the phrase “socio-economic” the social aspect is connected with the purpose, and the economic side of development is the means of its achievement. Opportunities to meet the diverse needs of the population are limited by the achieved economic potential of the society and the level of its use.

More complex is the question of the scale of the settlement, in which it is actually possible to implement the concept of welfare growth.

A community in any settlement, in principle, under the influence of management or self-organizing, can potentially solve the issue of life support. However, the practice of local self-government in Ukraine faces the problem of financing even in the provision of services at the level of minimum national standards. Not all settlements have economic entities capable of producing the required set of goods and services of sufficient volume. In most cases, rural, urban and urban management focus on one type of economic activity with a limited number of jobs at the concentration of the manufacturing sector. Relatively sufficient for the formation of habitats of an acceptable standard of living, the population is interspersed with the poor and the socially disabled. The fragmented development of individual territories needs to be balanced by means of integration.

What kind of administrative-territorial entity is potentially capable of organizing a system-ordered set from a set of subordinate control objects?

In this regard, E. Marcusen emphasized that “the most useful groups are those that correspond to the limits of administrative jurisdiction”⁶.

⁵ Berdyaev N.A. (2003). *Duh i realnost* [Spirit and reality]. Moskva: OOO AST, 679 p.

⁶ Marcusen, Ann. *Regions. The Economics and Politics of Territory*. Totowa, New Gersej: Rowman and Littlefield, 1987. P. 17.

Famous Ukrainian economist V. Popovkin considers such a coherent territorial formation a region, enterprises, institutions, organizations and populations of which are closely interconnected. According to him, “regional integrity means objective indivisibility, not disunity, the trinity of the natural human-created social environment; it assumes that the interconnections within each region are closer and more permanent than with the elements of the environment”⁷.

In recent years, more and more insistently, in the minds of scientists and practitioners, there is an understanding that it is in the region that the traits of community together are formed, their socio-economic integrity, the interests of economic entities with different ownership of fixed assets are combined. This is due to the similarity of the region's economy with the national economy and the possibilities of applying macroeconomic theories to it, and in particular those that place the focus on the formation of civilizational standards of living.

The changes that have taken place to some extent and continue to take place in the territory of the state, related to the transition of the economy and all social life to fundamentally other tracks of social and economic development.

According to the well-known Ukrainian scientist M. Chumachenko, “in the developed countries there are five authorities, namely: the legislative, the executive, the judiciary, the media and the authorities of the regions”⁸. Then it must be about regional socio-economic development.

Some scientists understand the socio-economic development of the region “the dynamics of quantitative and qualitative socio-economic changes in the territorial social system”⁹.

V. Yu. Keretzman stands on the position that “regional development means such a mode of functioning of the regional system that provides a positive dynamics of the parameters of the level and quality of life of the population living in this territory”¹⁰.

Approximately in the same idea of the socio-economic development of the region may be found in the professionally-trained

⁷ Popovkin V.A., Kalytenko A.P., Rozyuka V.O. (1994). Rivni sotsialno-ekonomichnoho rozvytku rehioniv Ukrainy [Levels of socio-economic development of Ukrainian regions]. Kyiv: NISD NAN Ukrainy, pp. 50–52.

⁸ Chumachenko N.H. (1990). Rehyonalnoe upravlenye y NTP [Regional management and scientific and technical progress]. Kyiv: Naukova dumka, p. 27.

⁹ Transformatsiini protsesy ekonomiky Ukrainy v rehionalnomu vymiri : monohrafiia; za red. prof. Shkoly I. Chernivtsi: Knyhy XX, 2004. 360 p.

¹⁰ Keretsman V.Iu. (2002). Derzhavne rehuliuвання rehionalnoho rozvytku: teoretychni aspekty : monohrafiia [State regulation of regional development: theoretical aspects: monograph]. Kyiv: UADU, 188 p.

textbook about consistent and sustainable improvement of the standard of living and quality of life, including population and labor, education, health care, culture, environment, etc.¹¹.

We did not give other formulas, since they repeat those given¹². On the whole, the existing and generally available approaches to determining the essence of socio-economic development of a region almost repeat the interpretation of socio-economic development at the country level. The only discrepancy with this generalized formula is the introduction to determining the characteristics of the population living in the territory that outlines the content of development.

The socio-economic development of the region is dichotomous. One stream of development is provided by the state directly and the other by local self-government. The regional policy of the state is nothing more than the actions of the state aimed at leveling the conditions and results of activities of the regions, creating conditions for increasing the efficiency of use of regional resources and consequences of their involvement in socio-economic processes, creating and maintaining a single economic space, ensuring uniform minimum social standards, equal social protection, guarantee of social rights of citizens established by the Constitution of Ukraine regardless of the economic opportunities of regions, priorities the development of regions of particular strategic importance, the provision of local government guarantees, and the like.

The internal policy of the regions, unlike the state economic policy, is the reproduction of autonomous actions of the governing bodies of the regions aimed exclusively at the efficient use of natural, labor, technical, investment and information resources, real improvement of the welfare of the population, improvement of the structure of production, improvement of the state of the environment, development of socialization, infrastructure promotion of business development, provision of organizational and technical and other measures and actions of economic and social the dynamics of the region.

In our view, the most objective and reproducible national realities in determining the content of socio-economic development would be to give it the characteristics of a change in the social and economic indicators of local territorial settlements and the region as a whole in

¹¹ Myronova T.L. (2006). *Upravlinnia rozvytkom rehionu: navch. posibnyk* [Regional development management: educ. manual]. Kyiv: Tsentr navchalnoi literatury, 328 p.

¹² Koval Ya.V. (2005). *Rehionalna ekonomika : navch. posib* [Regional Economics: Educ. tool]. Kyiv: Profesional, 272 p.

relation to ensuring the harmony of national and regional interests in the implementation of the concept of the welfare state. Then it is logical to qualify the management of socio-economic development of the region as a process of formation of sound management decisions at the local and national level appropriate for the progressive social and economic dynamics of local settlements and territories of co-existence and effective management influences in order to achieve regional balance.

Formally, the socio-economic development of the region is a management object. The subject of governance as a collective mind influences the relevant subjects of economic and social structures as well as a team of specialists in order to obtain the results envisaged by the development programs. The actual development strategy is to capture the powerful and purposeful impacts of various activities on the territory.

The basis of the system for managing the socio-economic development of the region is subject-object relations, which act as managerial influences and create stable structures and mechanisms of governance at the appropriate levels of local self-government, taking into account delegation of powers from the bottom up and vice versa, and local state administrations.

The Center defines the concept of a predominantly state order, which most closely corresponds to the historical tendencies of the development of statehood, social relations and national economy, the mentality of the peoples of the country, the economic-geographical and geopolitical state of the country.

The adopted concept becomes the source of the strategic goals of the country's development and, in particular, the strategic goals of the national economy. For the realization of strategic goals at the state level, the executive and legislative branches of the government form a system of legislative acts that regulate the principles of economic activity in the country, as well as the legal mechanisms for their implementation.

The executive authorities develop indicative strategic plans for the development of the national economy of the country, as well as a legislatively established system of preferences for regions, industries (types of economic activity), enterprises that provide competitive advantages of the national economy in international markets for goods, services and capital.

At the level of the regions of the structure of power, taking into account the peculiarities of its geopolitical and economic-geographical status, the nature-resource potential determines the strategic goals of

development of the socio-economic sphere of the territorial community and the level of socialization of the economy.

The executive and representative authorities of the region are developing packages of legal mechanisms of regional importance that regulate the foundations of economic policy in the region in the context of creating favorable preconditions for achieving the strategic goals of regional development. When developing indicative regional plans for socio-economic development, they take into account, of course, the interests of the state level, determined by global strategic goals, as well as the interests of the territory and foreign organizations with which the region carries out mutually beneficial partnership relations. Harmonization of these interests in the indicative strategic plan of the region is achieved by including in it a spectrum of relevant internal and external strategic economic zones.

The lower level of “vertical of interest” is represented by economic entities (enterprises) operating in the territory of a particular region. The interests of these entities are naturally embodied in their strategic and operational plans as determined by their mission. The main objective of such strategic and operational plans is to create, sustain in the long run, sustainable competitive advantages in the domestic and foreign markets for goods and services relevant to the mission of these enterprises. Achieving this goal is only possible with the most efficient use of resources (capabilities) owned by a particular company. The set of such opportunities is embodied in the strategic potential of enterprises, which is a system of interconnected elements (skills, opportunities, skills) that can ensure the achievement of local strategic goals.

The harmonization of the interests of the region and the interests of the enterprise comes when the set of strategic zones of management chosen by the producer corresponds with their regional spectrum involved in the indicative strategic plan of development of the complex of socialization of the region.

It is about defining common mutually acceptable goals and criteria for managing regional development.

Regardless of whether there is a separate state, whether a regional body, whose mission is to implement, or support the social purpose of the state at a certain level of government, or a similar line of activity that is unique to all governing bodies, regardless of the level of government, the result of the functioning of the state as a whole, or region, in particular, is the fulfillment within a certain time and space of a full range of tactical and partly strategic tasks related to one common social

purpose: ensuring the well-being of the population or then the households of the country as a whole by civilization standards.

Certainly, the breadth and scale of the goal of reorienting all sectors of the economy to meet the needs of people determines the number and variety of means to achieve it.

6.2. Information and methodological support of regional development

All this instruments for achievement the public goals both at the state level and local settlements is identified with state and quite logically regional policy. Economic, tax, budgetary, financial, price, investment, social, demographic, structural and foreign economic policies are their components. Naturally, each policy is planned and determined by specific indicators. However, in practice, all of them can be reduced to economic and social. Then the result of managing the socio-economic development of the territory can be reduced to social achievements and economic. Among the indicators used in the development of programs of economic and social development of the country and the region are both quantitative and qualitative.

If the formation of programs of socio-economic development of the regions and the results of their implementation are described by the given system of indicators, then it is possible to state with some confidence about the possibility of normalization of the process of production of management decisions and contouring of the management results. But this is only a visible part of the management process. The one who is hidden and reproduces managerial influences can be said with less confidence. They take effect by the time of the final determination of the content and focus of management decisions, correct them in the implementation process and ensure the achievement of management results more or less acceptable according to forecasts and programs.

The content of managerial influences can be explained based on actions taken by local governments and related to “development”, “review”, “approval”, “monitoring”, “correction”, “diagnostics”, etc. In our firm belief, they reproduce the content of the process they identify with the evaluation. We did not aim to provide an interpretation of this category, but focused on its professional definition, according to which “evaluation is the systematic evaluation of the operations and / or results

of a program or policy in comparison with a set of existing and implicit standards in order to improve them”¹³.

It turns out that the evaluation procedure is analytical, that is, in order to evaluate something, we must first of all measure it. The measurement itself is in comparison to the actual achieved indicators at a certain stage of program implementation with a certain set of expected results.

Assuming that the socio-economic development programs of both the country and the region represent the achievements both at the design stage and at the stage of full implementation through the system of economic and social indicators, then their changes and should be a consequence and subject of managerial influence.

$$\left. \begin{aligned} \pm \Delta Fs &= Fs(t_2) - Fs(t_1) \\ \pm \Delta Fe &= Fe(t_2) - Fe(t_1) \end{aligned} \right\} \quad (1)$$

where $Fs(t_2), Fs(t_1)$ – social indicators over time t_2 and t_1 ($t_2 > t_1$);

$Fe(t_2), Fe(t_1)$ – economical indicators over time t_2 and t_1 ;

$\Delta Fs, \Delta Fe$ – change of values of indicators of social and economic character;

Indeed, changes in various spheres of economic activity, the state of social infrastructure, demographic situation, etc. are constantly underway in the socio-economic system of the region. And, even before they are fully deployed in the system, the manifestation of appropriate symptoms and tendencies. The larger the time gap, $\Delta t = t_2 - t_1$ between changes $\pm \Delta Fs$, $\pm \Delta Fe$ and their awareness, the greater the threat of loss of control, that is, the possibility of directional influence.

It is the untimely decision-making that is the most likely deterioration in the exercise of management capacity by the entity. The presence of miscalculations is hidden in the basic leaks of the management system itself, and in particular in its modern information support.

Today, they pay little attention to the collection and processing of information beyond the scope of socio-economic development programs. We do not deny that its set, which is included in the program and reproduced in official statistics is quite capacious.

¹³ Vais, Kerol H. (2000). Otsiniuvannia: metody doslidzhennia prohran ta polityky: per. z anhli.; nauk. red. O. Kiliievych. Kyiv: Osnovy, 673 p.

According to the statistics bodies, 106,645 social indicators are contained in the forms of national statistical reporting. It is estimated that this is approximately half of all available indicators in these forms¹⁴. Of course, it is quite problematic to estimate changes in the socio-economic development of the regions in such numbers. And how to interpret these changes as a whole, rather than by individual sectors and types of economic activity.

In our opinion, the means and ways of solving the problem of progressive socio-economic development in the region and its administrative-territorial units should be more in line with the complexities of modern life, be oriented to use in conditions of high uncertainty and dynamism. The current socio-economic reality requires fundamentally different methods of cognition and transformation. In most cases, the situation with increasing number of problems in managing regional development is explained not by the inability to process the increasing amount of information and by the inability to transform its generalizing quintessence into effective management decisions, but by the lack of tools for diagnosing changes and, as a consequence, inappropriate management¹⁵.

The multifarious ways and ways of ensuring the socio-economic development of the region puts forward a whole range of methodological tasks related to the qualification of change by one summarizing indicator $\Delta\bar{\Pi}$

$$\pm \Delta F_s = f(\pm \Delta F_e^i; \pm \Delta F_s^j) \quad (2)$$

$$\overline{i = 1, n}; \quad \overline{j = 1, k}$$

ΔF_e^i – a set of changes in economic indicators;

ΔF_s^j – a set of changes in social indicators;

n – the number of economic indicators on which changes are being investigated;

k – the number of social indicators on which changes are being investigated;

In order to respond to the needs of the local community, local self-government bodies, whose function is both the direct preparation and implementation of socio-economic development programs and

¹⁴ Udotova L.F. (2002). Sotsialna statystyka: pidruchnyk [Social statistics: a textbook]. Kyiv: KNEU, 376 p.

¹⁵ Buzgalin A.V. (1994). Perehodnaya ekonomika: kurs lektsiy po politicheskoy ekonomii [Transitional economics: a course of lectures on political economy]. Moskva: Taurus, Prosperus, 472 p.

their diagnostics by virtue of the delegation of development and implementation powers, should have, as a result of analytical actions, a generic indicator that integrates segments of social and economic development. economic base, as the ability to provide progressive dynamics and the results of its use in a specific territory:

$$\Delta F = f(\pm \Delta F_e^{Bi}; \pm \Delta F_s^{Bj}; \pm \Delta F_e^{Ui}; \pm \Delta F_s^{Uj}) \quad (3)$$

$$i = \overline{1, n}; \quad j = \overline{1, k}$$

де $\pm \Delta F_e^{Bi}; \pm \Delta F_s^{Bj}$ – changes in economic and social indicators in terms of production and infrastructure base;

$\pm \Delta F_e^{Ui}; \pm \Delta F_s^{Uj}$ – changes in the complex of economic and social indicators regarding the use of production and infrastructure base;

The presence of such dynamics is also emphasized by the expert in the field of evaluation

KG Weiss, who states that “... progress is possible only when it is carried out step by step, through gradual changes for the better”¹⁶.

The desire of direct or indirect governing bodies to incorporate changes in indicators in the complexes into the programs of socio-economic development and real achievement of the consequences of their implementation would refute the myth of the incompatibility of social justice and economic efficiency in market conditions¹⁷. Effective governance, which leads both to enhancing the potential of the region's socio-economic base and to its effective utilization, will ultimately help to meet diverse needs in greater volumes and to a greater extent a comparatively fair result.

But there is another information-tool cut in ensuring dynamic socio-economic development at the local level.

Socio-economic processes of functioning of social institutions, socialization of the person, differentiation of different needs, interests, values, incentives is carried out not only in the coordinates of «social and economic», but also of time,

$$\Delta \bar{F}(t_1) \leq \Delta \bar{F}(t_2) \leq \Delta \bar{F}(t_3) \dots \leq \Delta F(t_l). \quad (4)$$

where $t_1 < t_2 < t_3 < \dots < t_l$

¹⁶ Vais, Kerol H. (2000). Otsiniuvannia: metody doslidzhennia proham ta polityky: per. z anhl.; nauk. red. O. Kiliievych. Kyiv: Osnovy, 673 p.

¹⁷ Hium D. (2003). Traktat pro liudsku pryrodu: sproba zaprovadzhennia eksperymentalnoho metodu mirkuvan pro obiekty morali; per. z anhl. P. Nasada ; za red. ta z peredm. E.K. Liussnera. Kyiv: Vsesvit, 552 p.

The component of time that gives the socio-economic development dynamic character and requires the management system to achieve a positive value of the total result of changes.

$$\Delta\bar{F}(t_i) = \pm\Delta F_e^{B_i}(t) \pm \Delta F_e^{U_i}(t) \pm \Delta F_s^{B_j}(t) \pm \Delta F_s^{U_j}(t) \quad (5)$$

Moreover, as a component that determines the time of exit of the region by the level of socio-economic development on the civilizational parameters of social arrangement of its citizens, meeting their social needs not only in the sphere of production, but also in the associated distribution of material and spiritual goods, in a decent way of life, etc. , determines the socio-economic space into phases (stages) and thus streamlines management actions by the intensity, pace and duration of impacts.

Consequently, socio-economic development as an object of management of the system of state bodies and local self-government finds a certain reproduction in the information content that is formed and used by them in the process of production of managerial decisions, managerial influences and managerial result. But in this reproduction the quality of contouring of the parameters of determination of the process of development is problematic because, some of the conglomerate of their aggregate cause it, others cause, others affect the efficiency, and the fourth – on the duration, etc. Therefore, it is important that the governing bodies in terms of powers to ensure the effectiveness of socio-economic development are endowed with informative support and tools to develop it, capable of guaranteeing control both for the purposes of the region and for localized administrative and territorial units.

During the years of independent management in the actions of power structures at different levels of government in the process of executing their managerial functions, the processes of planning and forecasting economic and social development became basic.

As national achievements are shaped in the regions of the country, and Ukraine's current domestic policy is increasingly giving them the edge in solving pressing development problems, the question arises about establishing the quality of information and instrumental support for these processes.

At one time, the English philosopher D. Hume emphasized that “there is nothing that is not the subject of controversy and that people

of science do not hold the opposite view”¹⁸. The researchers asked questions about narrowing all known directions of development and, moreover, indicators, both their numerical characteristics and their reduction to a complex one.

Discussions on this *emznic* revealed two areas, one of which crystallized in search of one comprehensive metric from reproduced in statistical reporting and the other in the creation of an artificial conglomerate known.

The region is a large and complex system whose program of socio-market functioning, as an information model of development, is a real and complex information formation in a real dimension. To evaluate the effectiveness of the management system and to determine the real growth of socio-economic development of the region, it is sufficient to cover with tools no more than 7-11 criteria. The object of information optimization should be the socio-economic space of the region, with the advantage of social aspects.

As a result of Delphic procedures, a set of 12 economic factors and the same number of social factors were formed. Separate and generalized factor sets are presented in table 1.

Table 1

**Sets of factors influencing
on the socio-economic development of the region***

Vector of factors influencing					
Social			Economic		
№	Item and content of the factor	denota tion	№	Item and content of the factor	denotati on
1.	Correspondance of money and labor cost	x_1	1.	Fixed capital investment	y_1
2.	Investment in human capital	x_2	2.	Share of tax revenues in the local budget	y_2
3.	Household expenditure structure	x_3	3.	Foreign economic activity	y_3
4.	Provision of housing and infrastructure for its population	x_4	4.	The result of the territory activity	y_4
5.	Health status of the population	x_5	5.	Use of production resources	y_5

¹⁸ Chumachenko N.H. (1990). Rehyonalnoe upravlenye y NTP [Regional management and scientific and technical progress]. Kyiv: Naukova dumka, p. 27.

Vector of factors influencing					
Social			Economic		
6.	Level of social security and social assistance	x_6	6.	Local budget own revenues	y_6
7.	Employment rate of the population	x_7	7.	Demographic load incapacitated	y_7
8.	Emissions of harmful substances	x_8	8.	The level of depreciation of fixed assets	y_8
9.	Natural population growth	x_9	9.	Structure of the economic complex	y_9
10.	Crime status	x_{10}	10.	Number of registered entities	y_{10}
11.	Retirement benefits	x_{11}	11.	Number of jobs created	y_{11}
12.	Aggregate resources of families in relation to the standard of average wealth	x_{12}	12.	The level of industrial development	y_{12}

In general, the information and instrumental support of the system of management of regional socio-economic development was not subordinated to the tasks that were put to the solution in this context before it.

In an effort to fill the niche of information and methodological support for development management needs at the regional level by stages of the management cycle, we made an attempt to critically review the instrumental arsenal for involvement in the processes of drafting, reviewing, implementing, monitoring, adjusting and approving the report on economic and social programs regional development.

The objectively existing asymmetry in the perception of the factors of influence on regional development at the same time intervals make the only possible selection of the most important ones because of the clash of opinions. Only in this approach can conflicting perceptions be put at the height of the process of managing socio-economic development (Fig. 1)¹⁹.

¹⁹ Бузгалин А. В. Переходная экономика: курс лекций по политической экономии. М.: Таурус, Просперус, 1994. 472 с.

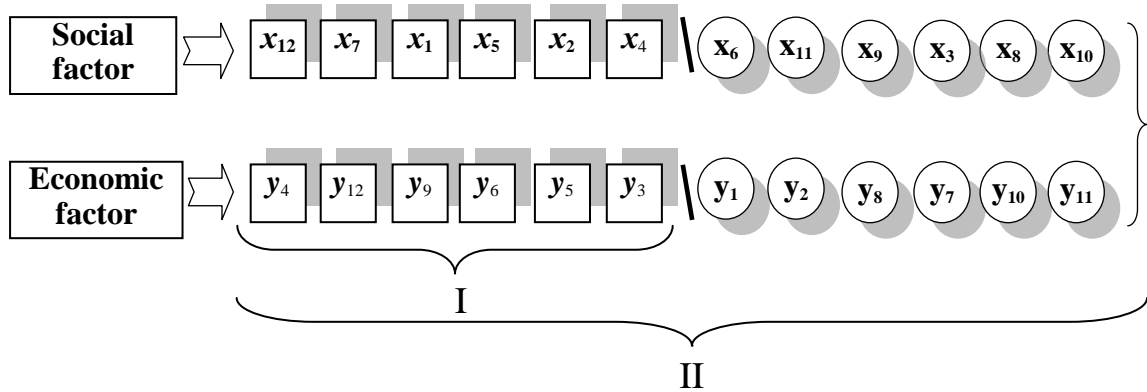


Figure 1. The distribution of factors by force of influence on the socio-economic development of the region (administrative-territorial units)

Not claiming to exhaustively fill the information niche regarding the factors influencing the socio-economic development of the region, according to the results of the expert opinion, we still believe that for the next five years all planning and analytical calculations should be made according to their distribution (Fig. 2):

I. group of factors of prompt response (evaluation of development results, adaptation to changes, etc.), formation of short-term forecasts.

II. a group of factors for medium-term forecasts and programming.

The given toolbox stands out as the starting point and constant methodological possibility of optimal combination of economic and social aspects of regional dynamics, which, despite all their contradictions, can be relatively balanced management actions at all levels of the regional hierarchy, even in market conditions.

The above methodological prerequisites are basic in the construction of rigorous mathematical formulas and formulations and allow, with the help of certain postulates and some empirical regularities, to achieve effective changes through the controlled dynamics of economic and social parameters.

Taking this approach into account, the socio-economic dynamics of the j -th region should be estimated using the formula

$$I_j = \sqrt{\left(I_{ei}^j\right)^2 + \left(I_{cp}^j\right)^2} \quad (6)$$

where I_{ei}^j – comprehensive indicator of economic growth in the j -th region;

I_{cp}^j – a comprehensive indicator of the reproduction of the state of social development in the j -th region.

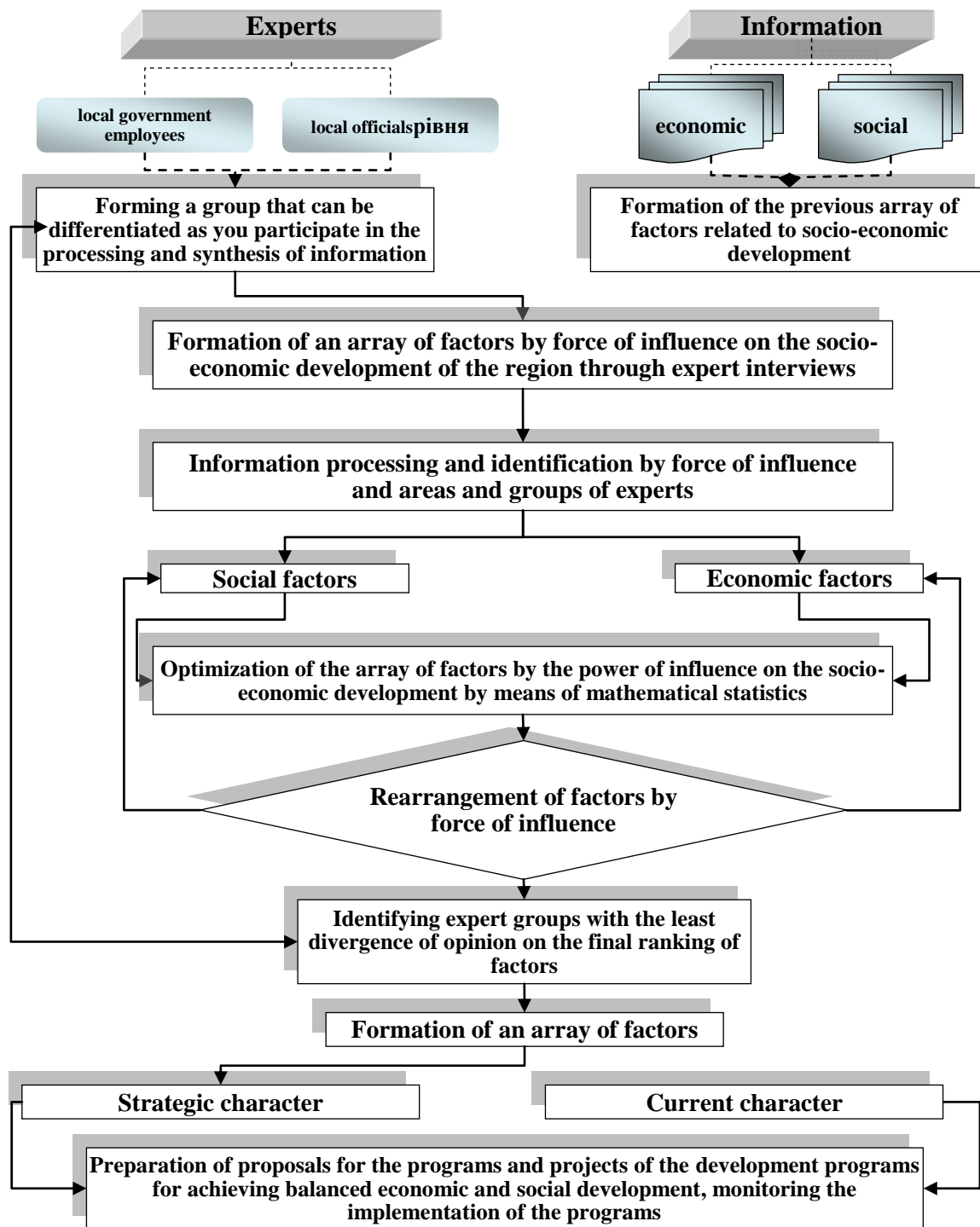


Figure 2. The algorithm of differentiation of factors by the force of influence on the socio-economic development of the region and groups of experts promptly respond to its changes

Complex indicators of the direction of socio-economic dynamics are also determined on the principle of arithmetic, taking into account the nature of the impact.

A comprehensive indicator of economic growth should be calculated by the formula:

$$I_{ei}^j = \frac{\sum_{i=1}^l \overline{y}_i}{l} \quad l = \overline{1, n} \quad (7)$$

where \overline{y}_i – standardized dimensionless i-th indicator adopted to reproduce specific economic changes;

l – the number of indicators adopted to diagnose changes in economic nature ($l \leq n$), где n – total accounting metrics).

Similarly to formula (7) a complex indicator of social development of a region is calculated:

$$I_{cp}^j = \frac{\sum_{p=1}^q \overline{x}_p}{l} \quad p = \overline{1, k} \quad (8)$$

where \overline{x}_p – a standardized dimensionless rth indicator adopted to reproduce specific social changes;

q – the number of indicators adopted to diagnose social change ($q \leq k$), where k – total number of social metrics.

Standardised indicators \overline{y}_i and \overline{x}_p are determined by the formulas:

$$\overline{y}_i = \frac{y_i^\Phi}{y_i(E)} \quad (9)$$

$$\overline{x}_p = \frac{x_p^\Phi}{x_p(E)} \quad (10)$$

where y_i^Φ , x_p^Φ – the fact values of specific economic and social indicators that have been reached over a period of time;

$y_i(E)$, $x_p(E)$ – reference values for specific economic and social indicators adopted in regional programs as a goal of achievement.

However, to determine the nature and tendencies of social and economic dynamics, assuming the absence of a systematic perception of the regional economy in each particular time and its gradual formation in the eyes of the researcher ab ovo (from zero) would be quite restrictive diagnosis and management decisions action.

The functioning of social institutions in the region is carried out in the coordinates of socialization and economy. And in this socio-economic space social and economic parameters should be combined

and implemented in accordance with the consequences of managerial actions, which would eventually create the most favorable living conditions for living Ukrainians today.

As socio-historical development proceeds over time, there will be many such states regarding the combination of the results of social and economic dynamics. Moreover, the fixation of manifestations of heterogeneous socio-economic combination as a certain phase of implementation of the program of socio-economic development of a region will characterize its quality and a measure of distance from its initial and final value.

CONCLUSION

The methodology for assessing the results of management actions should proceed from the functioning of the region in the context of such interaction of economic and social factors, which implies a situational manifestation of their equilibrium and non-equilibrium combinations in management results. The equilibrium state of the region's economy can be interpreted as a combination of its economic and social components, which is characterized by the absence of the desire of its subjects to change their behavior while maintaining a balance between the processes of socialization and economy in the space of society. Structurally balanced involves the involvement in the processes of modeling the same number of factors and indicators of their reproducing the economic and social trends of regional dynamics. But such a situation is possible in the region as an exception. The system only strives for it. The combination of social and economic action as external factors is constantly changing. Moreover, the factors of influence change as well as their subordination in the structure of one or another direction of ensuring socio-economic dynamics. It is not equivocal to consider such a state of the economy of the region, in which changes in its social and economic directions are unbalanced, which makes the overall dynamics of the system against the annual with much less managerial effect on the development of civilization standards.

From the point of view of the new paradigm for monitoring and assessing the socio-economic dynamics of a region, which is oriented and takes into account non-equilibrium and unbalanced development processes, it is necessary to continue to approve its basic provisions and to realize the potential of combining purely analytical capabilities and improving the management system.

SUMMARY

Successes in regional transformation, as well as the quality of national regional governance and regulatory policies on the ground, depend on the objective pursued by the socio-economic system. The constitutional goal of development for the construction of the welfare state is meant. Given the phenomenon of setting a global goal for both national and regional levels, it is obvious that in the theory of regional development management in the projecting and evaluation of dynamic processes, an important prerequisite should be a positive trend in economic and social directions. To address the issues of managed change in socio-economic dynamics at the regional level, a model that synthesizes economic and social gains is needed. For ensurance the changing in socio-economic dynamics at the regional level, a model that synthesizes economic and social gains is needed. The paper proposes an algorithm for differentiation of factors by force of influence on the socio-economic development of the region and groups of experts of rapid response to its changes and proposes information and methodological support of socio-economic development that will contribute to the monitoring of social state development.

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CHAPTER 7

MANAGEMENT OF HUMAN RESOURCES REWARD SYSTEM AS THE ELEMENT OF ENTERPRISE'S EFFECTIVENESS

Kovalenko-Marchenkova Ye. V.

INTRODUCTION

The effectiveness of the enterprise depends on the qualification of employees, effective management of human resources, which is becoming an increasingly important factor in improving the competitiveness of the enterprise, its development. The essence of human resources management can be justified as an activity, which leads to the most efficient usage of human resources to achieve the goals of the enterprise.

The reward system of an organization is studied at different levels – macro and micro levels. In the works of P. Thompson, K. Ayers, D. Croston, D. Goddesses, N. Volkova, E. Geyer, N. Ilyenko, A. Kolot, M. Semikina, Yu. Bayonet and others the problems of encouragement of employees with a reward system, the influence of remuneration on the standard of working life are investigated. National scientists A. Kibanov, O. Hetman, V. Grischenko, M. Chernova, and others dedicated their researches to the theoretical and methodological aspects of improvement in the systems of remuneration of human resources, systems of encouragement, implementation of their progressive forms and flexible models. At the same time, the theoretical and methodological base of the research is not definitively formed, as it contains discussion questions on determining the nature and structure of the compensation policy, the compensation package, elements of the system of organization of human resources rewards, etc. The effectiveness of the enterprise depends on the qualification of employees, effective management of human resources, which is becoming an increasingly important factor in improving the competitiveness of the enterprise, its development. The essence of human resources management can be justified as an activity, which leads to the most efficient usage of human resources to achieve the goals of the enterprise.

7.1. An overview of the essence of reward system in the human resources management concept

Human resources management is a specific function of management activity, the main object of which are people belonging to certain social groups, labor collectives, where the subject of management are the leaders and specialists who perform the management functions concerning their subordinates. This is a purposeful activity of the management of the organization to develop concepts, strategies of personnel policy and methods of human resources management. Planning, formation, redistribution and rational usage of human resources are the main content of human resource management. The concept of human resource management is a system of theoretically methodological views on understanding and defining the nature, content, goals, objectives, criteria, principles and methods of human resource management and the development of mechanisms for their implementation in a specific organization.

The overall concept is refined through personnel policy and staffing, where the main purpose of human resources management is:

- formation of highly qualified, responsible workforce with modern economic thinking and developing a sense of professional pride;
- ensuring social efficiency of the team.

The basic principle of the modern concept of human resource management is the recognition of human resources as a decisive factor in the effectiveness and competitiveness of an organization, as its key resource that has economic utility and social value. Reward of human resources is one of the most urgent problems of socio-economic relations of any organization, on the solution of which depends not only the labor activity of people, but also the strategic stability and development of the organization and, as a result, the whole society.

The implementation of a business strategy of any enterprise depends to a large extent on the loyalty of the workforce and the degree of its motivation for high-performance work. The most active element in managing human resources to achieve strategic goals is reward.

Reward refers to the total compensation received by an executive, which includes not only the person's base salary but options, bonuses, expense accounts and other forms of compensation. The amount of reward and the form it takes is dependent on many factors, including the employee's value to the company (whether the person is full-time vs. part-time, holds an executive position vs. entry-level), the job type (whether it is salaried vs. hourly pay, whether the earnings are

commission vs. base pay, tipped positions) and the company's business model (some companies offer bonuses or employee stock options while others do not). One company might try to hire a desirable employee of another company by offering better remuneration.

By A. Kibanov's definition, the remuneration is any periodic (monthly, quarterly) one-time sum (annual, etc.) material (monetary or natural) payment to employees based on indicators and terms of valuation of their production, business, trading or commercial activities, defined by at the enterprise, firm, organization¹.

According to P. Thompson, total reward of human resources includes not only traditional and material components such as remuneration and fixed and variable benefits, but also immaterial and non-financial elements such as educational, development and career possibilities, responsible position and tasks, internal motivation delivered by work itself and the quality of professional life provided by the organization.

Therefore, it can be assumed that the total reward encompasses all the elements of possible benefits that the employee can acquire in relation to the employment with the particular employer. Those benefits form an intentionally shaped package that supports the realization of the strategic objectives of the company and simultaneously takes into account the goals, needs and hierarchy of values of the employees².

Most scholars identify the concept of “reward of labor” with the concept of “remuneration”, “salary”, “compensation”, which does not quite fit the concept of human resource management. In our opinion, the reward of human resources is a fair and worthy recognition of employees, their true and possible socio-economic contribution to the enterprise, society and themselves.

K. Ayers indicated five basic needs of employees, that should be gradually fulfilled in sequence, so as they could perform the duties with passion and identification with the organization. Those are the need to be respected, need of education and development, need of inclusiveness (having access to important information), need of significance and need of “to be the part of a winning team”³.

¹ Armstrong M. (2006). Oplata truda. Prakticheskoe rukovodstvo po postroeniyu optimalnoy sistemyi oplatyi truda i voznagrazhdeniya personala. Dnepropetrovsk: Balans Biznes Buks, 512 p.

² Thompson P. Total Reward, Chartered Institute of Personnel and Development, London. 2002.

³ Ayers K., Engagement is not Enough. You Need Passionate Employees to Achieve Your Dream, Advantage Media Group, Charleston. 2006.

The conditions of the effective stimulation can be also presented by next basic factors⁴: the behavior of the leadership in the higher managerial staff, relations with the direct superior, interesting job with challenges, self-development perspectives, participation in the decision-making process, the autonomy of action, team spirit in the organizational culture, proper working conditions, supporting systems and structures.

The research of the Institute for Employment Studies indicates that the main factors of employee engagement are a sense of appreciation and participation, influenced by such elements as:

- proper training, development and career perspectives,
- direct superiors,
- results and evaluation,
- communication,
- equal possibilities and just treatment,
- remuneration and benefits,
- health and security,
- cooperation,
- friendly or “family” atmosphere at work,
- job satisfaction⁵.

The reward of labor must include not only the payment of labor and human capital, but also recognize the labor and human potential⁶. On this basis, the ratio of the objects of reward of human resources can be represented schematically (Figure 1).

There are different internal and external rewards. External rewards of human resources are provided by the enterprise: salary, career, office, business car, etc.

Since employee reward is a concept that refers to all forms of payments or rewards received by employees as a result of their hiring, it consists of two parts: direct payments in the form of wages, salaries, incentive bonuses, commissions and bonuses and indirect payments in the form benefits such as employer-provided insurance or paid holidays.

⁴ Croston D. Employee Engagement. „The People First” Approach to Building a Business, Moonstone Media, Sydney. 2008. 166 p.

⁵ Robinson D., Perryman S., Hayday S. The Drivers of Employee Engagement, IES Research Report, Brighton, Sussex. 2004. 23 p.

⁶ Bakulina N. Formuvannia kompleksnoi prohramy motyvatsii z metoiu pidvyshchennia rivnia upravlinnia personalom. URL: http://elartu.tntu.edu.ua/bitstream/lib/21042/2/TRM_2017_.pdf (accessed 5.12.2019).

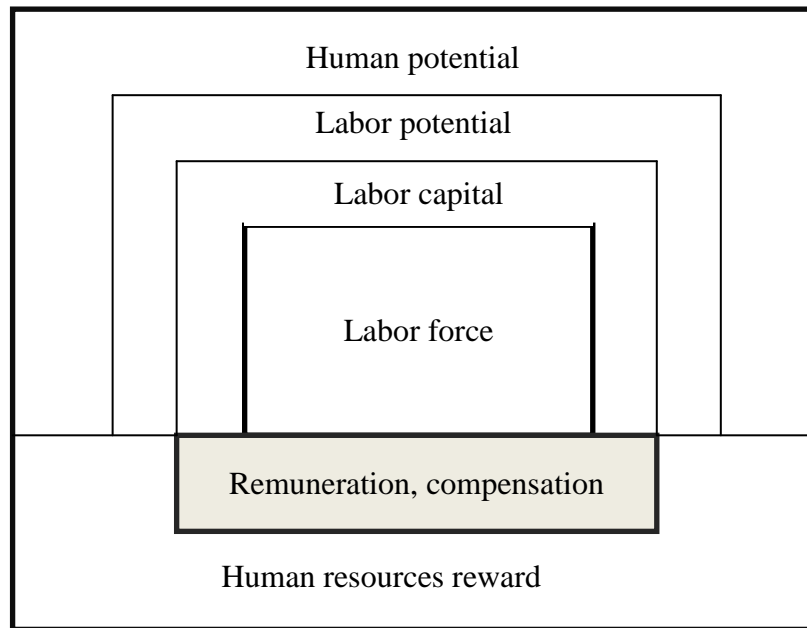


Figure 1. The ratio of human resources reward objects

The internal reward is given to the employee for the work he or she performs, ie it is related to the nature and content of the work itself, such as independence in work, achievements, personal, and professional growth, greater responsibility, content and importance of work, etc.

The internal rewards for the employee are valuable themselves. For example, for people of creative activity, a significant motivating force is the granting of autonomy in work, that is, the right to solve certain tasks independently, to start and finish work, to choose the way of its implementation. Also, a strong motivating factor is the satisfaction of a person with a high level of work, because it satisfies the need for achievements, increases self-esteem.

The general structure of the employee's reward in the organization, taking into account the theory of motivation, is presented as follows (Figure 2).

As it is shown in figure 2, the overall structure of reward is comparable to the structure of the needs of the individual described by A. Maslow. This emphasizes the existence of the necessary links between needs and rewards as a way of satisfying or recognizing them.

In reality, the boundaries between the objects (levels) shown are rather conditional, and they significantly influence each other, which is described by other theories of motivation and may change with the development of society. It is important to capture the main features of

remuneration inherent in advanced socio-economic (industrial) relations⁷.

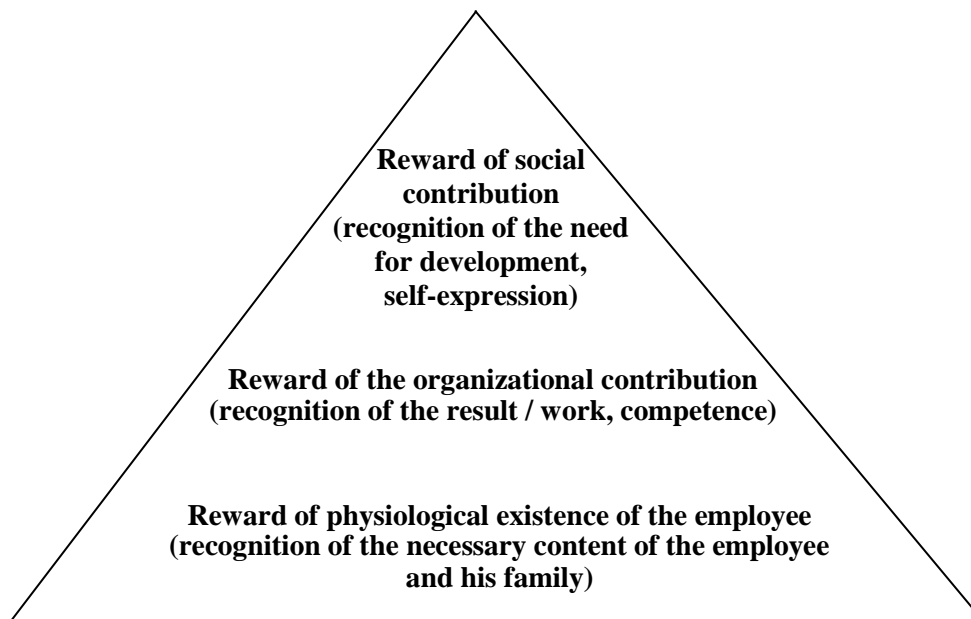


Figure 2. The structure of the employee's reward

Reward is one of the most important conditions for motivation. Traditionally, activity motivation has been studied as a means of increasing labor productivity.

As A. Kolot notes, when engaging with an enterprise, people are interested in various aspects of this interaction, regarding what they should sacrifice for the interests of the organization, in what conditions it will operate, what will give it the enterprise and so on. This and a number of other factors influence on a person's satisfaction with the interaction with the enterprise, its attitude and contribution to the activities of the organization⁸.

On the practical side, the concept of reward of human resources had to be substantially modified due to the emergence and successful operation abroad (and more recently in Ukraine) of new reward systems in which labor is not fundamentally measurable for its “pay” (this is implemented in SBP systems – systems of payment for knowledge,

⁷ Balabanova L.V. (2011). *Upravlinnia personalom: pidruchnyk*. M-vo osvity i nauky Ukrainy, Donetskyi nats. un-t ekon. i torhivli im. M. Tuhana-Baranovskoho. Kyiv: Tsentri uchbovoi literatury, 467 p.

⁸ Arapova O.M. (2011). *Kompetentnisnyi pidkhid v upravlinni systemoiu wynahorody personalu orhanizatsii* [Competent approach in managing the organization's staff remuneration system]. *Ekonomika: realii chasu*, no. 1, pp. 57–65.

skills, and competence). Besides, in developed countries, systems are being developed in which not only work is the object of remuneration, but also other characteristics or qualities of the worker as a person and his or her living conditions⁹.

Non-traditional systems take into account both the compensatory sphere of reward and the motivational, which corresponds to the modern concept of human resources management and tendencies of socio-economic progress¹⁰.

Relationships of compensation at the enterprise are relations of exchange between the employer and the employee, which are regulated by contradictory norms of maximization of benefits, the satisfaction of needs, equality, justice.

According to the theory of exchange, the employee exchanges his time, abilities and work efforts for remuneration. Conflicts between counterparties within the firm's labor market over labor reward often arise as a result of disagreement with the rules that underlie the distribution system.

Determining the rules for the distribution of rewards depends on such institutional aspects as ownership, management style, the level of democracy in the enterprise.

The rules on the distribution of reward are formalized in local regulations of enterprises – provisions on remuneration, engagements, social package, etc. These rules should be specific, clear and consistent, clearly spelled out in the said provisions. Informal norms of distribution exist in the minds of the workforce in the form of ideas of justice and must be supported by corporate culture¹¹.

The basic principles of reward policy can be: ensuring a competitive wage level, equal pay for equal work or internal justice, creating equal opportunities for wage growth in all categories of labor resources, differentiation of wages depending on the intensity and quality of work, raising the level of knowledge, non-discrimination in pay.

⁹ Kryvorotko I.O. Doslidzhennia zarubizhnogo dosvidu motyvatsii personalu dlia vykorystannia v ukrainskykh umovakh. *Ekonomika ta pidpriemnytstvo*. URL: http://irbis-nbuv.gov.ua/cgi-bin/irbis_nbuv/cgiirbis_64.exe?C21COM=2&I21DBN=UJRN (accessed 17.10.2019).

¹⁰ Arapova O.M. (2011). Kompetentnisnyi pidkhid v upravlinni systemoiu wynahorody personalu orhanizatsii [Competent approach in managing the organization's staff remuneration system]. *Ekonomika: realii chasu*, no. 1, pp. 57–65.

¹¹ Volkova N.V., Zemlianoi D.O. (2016). Napriamy vdoskonalennia systemy orhanizatsii wynahorody personalu [Areas of improvement of the system of organization of remuneration of personnel]. *Demohrafiia, ekonomika pratsi, sotsialna ekonomika i polityka*, vol. 2, pp. 244-249.

Thus, the reward of employees for their work plays an extremely important role in the labor motivation of labor resources. The reward of human resources is recognition of the true and possible socio-economic contribution of employees to the enterprise, society and themselves.

7.2. Methodological aspects of providing the assessment of the work activity

In nowadays economic conditions, a necessary and important assessment of perfect work is the existence of an adequate system of self-assessment. The inclusion of this system in the general mechanism of evaluation of the employee's activity allows to overcome a number of problems that may arise. Smoothing the contradictions between management and employees facilitates the formal assessment process.

Formal assessment of perfect work activity is a process that involves defining the points that relate to an employee's attitude to the assessment:

- assessment of employee's performance of their work;
- communicative aspect about the estimation;
- management improvement program.

Objectively conducted process of assessment the activity not only enables the employee to have a true idea of how his work was evaluated, but also influence on his motivation in performing further tasks.

The formal assessment of perfect work activity has the next main aims: improvement of the work activity, determination of remuneration for the work performed, considerations related to the employee's career.

In the organization usually different status groups exist. All of these groups are differentiated in terms of their incomes depending on several relatively constant or little-changing indicators. The main of them are:

- level of education (employee qualification);
- work experience (number of years the employee has worked);
- position (a place occupied by an employee in the enterprise structure).

Within the individual status groups, the system of formal assessment of work is completely or partially absent. At the same time, the normative characteristic pattern is the more complex one or another type of activity is, the less often it is possible to come across a regulated rating system.

The following measures are required to create a new human resource management strategy:

- design and assessment of the workplace;

– the formation of technology for the formal assessment of perfect work activity, that is, the exact definition of the timing, the necessary structure and baseline to determine the assessment;

– creation of a mechanism linking the formal assessment of perfect work activity with the system of reward for work.

There are lots of methods for the formal assessment of perfect work activity that can be classified into the following aspects:

1) according to the objectives: prognostic, practical;

2) according to the results: qualitative, quantitative, combined;

3) according to objects: methods of assessment the activities of managers; methods of assessment of human resources activity.

Commonly used methods of formal assessment of the work activity are the definition of a working standard and evaluation through goal management. The approach of defining a work standard, which focuses mainly on executive human resources in the field of material production, is reflected in the formation of production tasks for this category of employees. The work standard determines the result of the work activity and reflects the normal daily output for the average employee. There are several technologies that are used to create working standards, which can be found in table 1. This method is considered as one of the most widespread technologies of formation of estimation of perfect work.

Table 1

Working standards

Situation	Method
Tasks performed by all, the same or very similar	Determination of average output in a workgroup
Tasks performed by all are approximately the same, and it makes no sense to change the average production in the whole group	Performing activities by a specially selected individual
The work consists of routine and monotonous operations	Time-shifting
Non-cyclic type work, various operations are performed within it, and no action cycle is set.	Working model
None of the above methods can be used	Expert opinion

The goal management method is primarily used in evaluating the activities of managers and professionals. Other names are also used: results management, execution management. Goal management consists of:

- the creation of clear and well-formulated goals of the work to be performed by the employee;
- development of an action plan in which the paths to achieving the goals are
 - formed;
 - implementation of the plan by the employee;
 - evaluation of the results achieved;
 - adjustment of the employee's activity;
 - creating new future goals.

7.3. Methods for assessment the effectiveness of human resources reward system

The effectiveness of the reward lies in its relevance to the goals and mission of the organization. The result of the reward management depends on information, which have to reach the managers in time and be fully.

Methods for assessing the effectiveness of reward management in an organization include system analysis, functional cost analysis and expert-analytical method of assessment (method of expert assessments).

The systematic approach focuses on the study of the system of reward of human resources in the organization as a whole and its components: goals, functions, structure, methods of stimulation, information; identifying the types of connections of these components between themselves and the environment and connecting them together. his method of assessment is based on the analysis of certain indicators that characterize the system of remuneration of labor resources, such as productivity, wages in the organization, their ratio, the indicator of the qualitative composition of workers (by age, education, experience), discipline. After analyzing the correspondence of these indicators to the required level, the conclusion is reached about the system of stimulation of work as a whole. The more differences, the less effective the system is. The advantages of this method of assessment – its implementation does not require the direct

participation of employees of the organization, respectively, it is only necessary to analyze the documentation by indicators¹².

Functional-cost analysis of the reward system is a method of technical-economy research of the functions of the reward system aimed at finding ways to improve and reserve the cost of organizing the remuneration system in order to increase its efficiency.

The expert-analytical method is one of the most common methods of assessment, which is based on rational conclusions of highly qualified experts.

Each of these approaches to assessing the cost-effectiveness of the reward system has its positive aspects and difficulties in implementation. The most appropriate is the assessment of the reward system by separate indicators, which allows you to allocate the cost for its providing and determine the system's effectiveness. general criteria for determining effectiveness of human resources rewards can be the following:

- payback period for personnel costs;
- size of income growth;
- minimization of running costs;
- profit maximization;
- minimization of costs at the expense of personnel costs.

The orientation of the organization to use of one or another criteria determines the approach to the selection of indicators that are used to analyze and justify the effectiveness of the motivational policy, its forms and methods. Leading companies use the audit of the reward system, which examines the compliance of this system with the overall strategy for the development of the organization, budgeting and optimization of personnel costs, determines its impact on the final results of the organization. It should be noted that traditional approaches have not lost their significance. They are implemented into new formats of analytical processes in the form of audit of rewards.

Audit of the rewards system as one of the main areas of the audit of human resources provides control and analytical and consulting support to the entire management system to evaluate the effectiveness of the developed programs to encourage employees to achieve the strategic goals of the organization. In this regard, the main purpose of the audit of the reward system is to provide expert evaluation, diagnostics and competent justification of the mutual respect of

¹² Havkalova N. (2011). Upravlinnia efektyvnistiu menedzhmentu personalu: [monohrafiia]. Kharkiv : Vyd-vo KhNEU, 295 p.

employee's interests within the established legislation, implementation of personnel policy in the reward questions and development of recommendations for increasing motivation.

Common tasks for releasing the audit include:

- determination of compliance of the organization of wages with legislative acts;
- evaluation of the strategy developed for the reward of employees for achieving the ultimate goals of the organization;
- estimation and optimization of total personnel costs;
- estimating and optimizing the structure of personnel costs;
- identifying the dynamics and determine the trends of change in the total value and structure of reward, their compliance with the dynamics of the main production volumes;
- estimation of the ratio between the growth rate of labor productivity and the average wage;
- studying the mechanism of formation of the payroll fund and to determine its conformity with the distribution of funds for the remuneration of employees;
- determining the structure of the payroll fund and its justification;
- determination of deviations of the planned value of the payroll fund from the actual as a whole by the enterprise, as well as by separate divisions, categories of employees, by elements of wages, identification of the reasons for the deviations;
- research on the incentive systems, used in terms of their incentive effect on staff;
- evaluation of the flexibility of the motivational-incentive system in accordance with the changing strategy of enterprise development;
- studying of the mechanism of management of employees' remuneration;
- determination of reserves to increase the incentive return of money that goes to reward of human resources;
- determining the cost-effectiveness of improving the reward management mechanism.

It is important to develop a system of indicators that could provide an opportunity to analyze and diagnose the remuneration system. A system of indicators is needed to form a complete control base. A set of key indicators that reflect the reward system is presented in table 2.

Table 2

**A system of indicators for analyzing the effectiveness
of the reward system**

Indicator	The characteristics of the indicator and its application
Total value of remuneration	Absolute value. It is a major part of staff costs
Share of reward in the volume of products sold / services provided	A certain percentage, which can be compared to the standard, with that of other organizations. Outlines the remuneration policies adopted by the organization, optimizing staff costs
The ratio of the reward index to the production index	The correctness of the remuneration policy formulation and the tendency of the established trends: if the ratio is less than one, then there is a reduction in personnel costs per unit of output
Ratio of wage growth and labor productivity	Characterizes the efficiency of the reproduction process. Labor productivity growth should exceed wage growth
Structure of the reward fund	Shows the ratio of the constant and variable parts of the reward fund of labor resources (tariff part, bonus, allowances and compensations, social benefits, etc.). The rationality of the reward structure is evaluated
The level of the minimum wage in the organization	Characterizes the level of wages in the organization: the minimum size is compared with the value of the country's minimum wage and the value of the subsistence minimum
Minimum tariff rate	Characterizes the level of payment for the simplest unskilled labor performed under normal conditions with normal intensity per unit of working time; is analyzed against the minimum tariff rate approved in a sectoral or regional tariff agreement
Average salary in an organization	The indicator is necessary to determine the dynamics, comparison with the competing companies, used in factor analysis of the reward fund, etc.
Average salary by key positions	Indicators are compared to the market salary level based on a rating analysis or a salary review that allows you to identify and plan for future reward policies

Indicator	The characteristics of the indicator and its application
Average wage by employee category	Comparison of wages makes it possible to evaluate the existing differentiation in remuneration
Average wage structure by employee category	Provides information on the rationality of the ratio of the wage (tariff) part and the variable part in accordance with the policy adopted by the employee category remuneration
Profitability of encourage funds (ratio of employee encourage to profit)	Indicates the degree to which the main purpose of the bonus is achieved: for each spent hryvnia of the encourage means – to receive as much profit as possible. Dynamics shows a trend in the Implementation of the encourage role of employee’s benefits
The average size of bonuses by employee category	Allows you to evaluate the encourage policy, the correctness of their differentiation
Average bonuses per unit and employee category	Allows you to evaluate the existing encourage priorities within each unit and the correct differentiation of bonuses by employee category
The average amount of bonuses for each awarding direction	Determines the priority in the awarding directions
The average amount of bonuses by category of human resources and by each direction of bonuses	Determines the correctness of the encourage effect on categories of workers, depending on the role in the achievement of the purpose of the rewards.
Medium level of extra payments and compensation in the organization	Allows you to evaluate reward policies in the area of co-payments and compensation
Average extra payments and compensation by employee category	Allows you to evaluate the correct distribution of compensation by employee category
Average payments for each type of surcharges and compensation	Shows the priority and differentiation in the system of co-payments and compensation

The following list of indicators may vary and may include additional metrics depending on the organization's rewards system.

In the system of audit of the effectiveness of the system of reward of human resources options are possible in the choice of directions, indicators and amount of information that is studied, depending on the level of the audit (strategic, managerial, operational) and the type of audit (complex, situational, operational).

An expanded and in-depth analysis of the effectiveness of the reward system is possible in the presence of a well-developed and regularly maintained information base. Managerial decisions regarding the reward of employees are always responsible and complex. The right decisions should be based on dynamic changes and justified by the trends identified.

In addition to economic methods, an interview or questionnaire method may be used to evaluate the reward system. Interviews are information in personal communication. The essence of the method is that interview questions are developed either for working organizations or for professionals who act as interviewees. After the interview, conclusions are drawn about the reward system and its influence on employees' work activity.

Questionnaire is a system of logically consistent methodological and organizational-technical procedures that are interrelated with one purpose: to obtain objective reliable data about the object under study or process for their further use in management practice. The questionnaire for the survey of the workforce of the enterprise is designed to determine the effectiveness of the system of reward of human resources from the position of the employee¹³.

Another method of assessing the effectiveness of the reward system in an organization may also be the comparison method. The method of comparisons allows to compare the existing system of reward of human resources in an organization with a similar system of advanced organization of the respective industry of economy, with the normative state or state in the previous period¹⁴.

Thus, there are many methods for evaluating the effectiveness of remuneration management, so an enterprise should choose the best variant for itself, taking into account its own capabilities and resources. On our opinion, it should be used the integrated approach for assessment

¹³ Danylenko O.A. (2011). Metodichni pidkhody do otsinky efektyvnosti upravlinnia personalom orhanizatsii [Methodical approaches to assessing the effectiveness of the organization's personnel management]. *Aktualni Problemy Ekonomiky. Naukovyi ekonomichnyi zhurnal*, no. 6(120), 382 p.

¹⁴ Balabanova L.V. (2011). *Upravlinnia personalom: pidruchnyk. M-vo osvity i nauky Ukrainy, Donetskyi nats. un-t ekon. i torhivli im. M. Tuhan-Baranovskoho*. Kyiv: Tsentр uchbovoi literatury, 467 p.

the human resource reward system, considering industry's feature, which will give opportunity to estimate the influence of each factor, which form the reward system, to find out effective combination of the factors for the forward management, depending on their influence on the system as a whole.

CONCLUSIONS

Summarizing the information above we can conclude that the basic principle of the modern concept of human resource management is the understanding the human resources as a key-factor of the effectiveness and competitiveness of the enterprise, its key-resource. It is concluded that reward system is one of the most important elements of encouragement of the employees, it plays an extremely important role in the labor motivation of labor resources. The reward of human resources is recognition of the true and possible socio-economic contribution of employees to the enterprise, society and themselves.

The reward system includes not only material components such as remuneration and fixed and variable benefits, but also immaterial and non-financial elements such as educational, development and career possibilities, responsible position and tasks, internal motivation delivered and the quality of professional life provided by the organization. That is why the reward system needs include all the elements of possible benefits that the employee can acquire in relation to the employment with the particular employer.

The assessment of the work activity was discussed, and classification of assessment methods of work activity was given. The analyses of the methods and approaches to the reward system assessment was provided. Features of functional-cost method, the expert-analytical method, audit of the rewards, interviews, questionnaire and comparison method were analyzed. Implementation of the integrated approach for assessment the human resource reward system, considering the influence factors, forming the reward system, depending on their influence on the whole system of rewards.

SUMMARY

The research is devoted to studying the human resources reward system, which is the element of enterprises effectiveness. As far as business strategy of the enterprise depends on the loyalty of the workforce and the degree of its motivation for high-performance work, the system of rewards plays one of key-roles in encouragement the

enterprises' employees. The essence of human resources management and the reward system, as its component was studied. The methods of assessment the work activity of human resources was analyzed. Methodological aspects of the human resources reward system were explored. The integrated approach for assessment the reward system, which will give an opportunity to estimate the influence of each factor of the system, depending on their influence for improving the human resources reward strategy is proposed.

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CHAPTER 8

METHODOLOGY AND PRACTICE OF THE ADAPTABILITY EVALUATION OF THE NATIONAL ECONOMY TO THE EXTERNAL CONDITIONS CHANGE

Kononova I. V.

INTRODUCTION

Modern economic relations are characterized by the acceleration of transformation processes, which makes new demands for socio-economic systems at different levels of the hierarchy. Nowadays, changes are happening quite dynamically, creating conditions of the increased uncertainty and new threats. In such circumstances, functioning and development of the socio-economic systems requires to be more adaptable, which will allow to successfully resist the emerging threats.

Research in the national economy of the manifestations of chaotic dynamics, as well as the event detection of catastrophic nature associated with sudden abrupt changes in the environment, the influence of uncertainties and irregularities prove the lack of effectiveness of the use of classical methods and models in this situation. So, there is the urgent need to find the ways to adapt to the changing conditions of functioning of the national economy.

The problem of adaptation of socio-economic systems to the environmental conditions and ensuring their adaptability had been considered by foreign and domestic scientists-economists. Among them are: I. Pitaykin, O. Pastukhov, V. Yachmenova, G. Hanaliyev, A. Maksimovich, D. Chuiko, V. Fomin and many others.

Despite the value of the research results conducted by scientists, it should be noted that some methodological aspects of the adaptability of the national economy require clarification and practical testing.

8.1. The essence of adaptability as an economic category

The presence of a significant reaction of the national economy to changing environmental variability causes the need to determine the degree of adaptability of the national economy to changing conditions of the external environment.

First of all, it is necessary to determine from the point of view of modern scientific researches the definition of the term «adaptability».

The term adaptability (from the Latin «adaptio» – adaptation) was first introduced in the biology. Dissemination of this term in the systems theory requires the need to find the ways to adapt systems of different order to the changing conditions of their functioning.

Adaptability is a property of the system that stems from its openness. Openness means sensitivity to external impulses and provides feedback to the environment. The mechanism of implementation of adaptation is intended to make the system most adapted to the environment. This task involves adjusting the optimal balance between the internal capabilities of the system and the external requirements of the environment. Against this background, we should focus on defining the concept of «adaptation».

According to the American Encyclopedia, adaptation is a shift in the function or the form (structure) of the system's existence in the particular sphere.

Modern economic vocabulary interprets adaptation as the adaptation of economic systems and its individual subjects, workers to the environmental conditions, production, labor, exchange, and changing lives¹.

Scientists also give different definitions to this concept. The main approaches to defining the term «adaptation» by various scholars are given in the Table 1.

Therefore, in any sense, the concept of adaptation would not be considered, it is always some change, the ultimate goal of which is to ensure the effective functioning of the system in new conditions. The keywords in the definition of a concept are both process, shift, adaptation, mechanism, ability, as well as qualitative trait.

So, in spite of the variety of definitions, in our opinion, existing interpretations can be conditionally combined into the following approaches to the essence of the concept of «adaptation»:

– adaptation as the adaptation to certain conditions or changes (V. Kaznacheev, S. Chyzhenkov, I. Pitaykin, V. Yachmeniova, A. Sudarev, B. Reizberg, L. Lozovsky, O. Starodubtseva, V. Danilov-Danilyan);

– adaptation as the change under the influence of certain factors (T. Lastayev, A. Kaygorodtsev, O. Pastukhov, G. Kozachenko);

¹ Rayzberg B.A., Lozovskiy L.Sh., Starodubtseva E.B. (2006). *Sovremennyiy ekonomicheskiy slovar* [Modern economic dictionary]. Moskva: Infra-M, 564 p.

Table 1

**Approaches to defining the concept of «adaptation»
by various scholars**

Authors	Approaches to the definition		
	As the action	As the impulse	As the focus
1	2	3	4
V. Kaznachejev [1]	Adaptation to living conditions	Change of living conditions	Saving, developing, achieving the main goal of the progress
T. Lastayev, A. Kaygorodtsev [2]	Change in parameters, structure and properties of the system	Influence of external and internal factors	Effective functioning of the system and its elements
I. Miloslavova[3]	Interference with the environment	Dynamism of the external environment	Successful functioning
Y. Chyzenkova [4]	Adaptation of business entity parameters	Uncertainty of environmental conditions	Increase in functioning efficiency
I. Pitaykina [5]	Adaptation of organizational-economic and socio-economic relations	-	Effective use of property and strengthening of social orientation
O. Pastukhova [9]	Modifications	-	Survival
V. Yachmen'ova[4]	Adaptation of the system	New system functioning conditions	-
G. Kozachenko [8]	Changes	-	Security
G. Hanaliyev [9]	Mechanism of regulation	External factors	Saving (change) of direction and pace of development

Continuation of the Table 1

1	2	3	4
A. Sudarev [6]	Adaptation of legal norms	Changes in the environment	-
B.Reisberg,L.Loovsky, O. Starodubtseva[4]	Adaptation of economic systems and individual entities	Conditions of external and internal environment	-
V. Danilov-Danilyan [5]	Adaptation in complex environments	-	-

Source: created by the author, based upon [1-9]

– adaptation in response to certain changes in the form of regulation or intervention (I. Miloslavova, G. Khanaliyev).

As we can see, most authors are inclined to use the very first approach, defining adaptation as the adaptation to certain conditions or factors (most often, external ones). In our opinion, this approach most accurately reflects the essence of adaptation. Thus, when using the concepts of change, intervention, regulation to reveal the essence of the concept of «adaptation» requires certain clarifications, additions, because not all of the changes, interventions or regulation indicate adaptation of the system.

At the same time, the adjustment has several interpretations – mastering in certain conditions due to the acquisition of certain traits, skills, abilities; getting used to a new, unfamiliar environment, unusual conditions; bringing their actions and behavior into line with anything; coordination of their actions in certain conditions; changing, acquiring new forms, features, qualities depending on the circumstances, environment. As we can see from the above aspects of defining the essence of the concept of «adjustment», this term most accurately reflects the essence of the concept of «adaptation».

Scientists attribute the impulse to adaptation to the action of external factors or conditions or their change (T. Lastayev, A.Kaygorodtsev, V. Yachmeniova, G. Khanaliyev, A. Sudarev), conditions of the external and internal environment (B.Raisberg, L. Loovsky, O. Starodubtseva), changing conditions of existence

(V. Kazantsev), dynamism of the external environment (I. Miloslavov) or uncertainty (S. Chyzhenkov).

Different scientists have different opinions of the focus of adaptation. V. Kazaevayev reckons that adaptation is directed to preservation, development, achievement of the main goal of progress, T. Lastayev, A. Kaygorodtsev – to the effective functioning of the system and its elements, I. Miloslavova – to successful functioning, S. Chizhenkov – to increase of the functioning efficiency, I. Pitaykin – to the efficiency of the property use and strengthening of the social orientation, O. Pastukhov – to survival, G. Kozachenko – to security, and G. Khanaliyev – to preservation (change of directions and rates of development).

Based on the above approaches to the definition of adaptation, it can be argued that adaptability implies the ability to respond promptly in the course of the system's functioning to the current information coming about changes in its functioning conditions. The essence of the concept of adaptability is to change the parameters, structure and algorithms of the system's operation based on not only a priori information, but also current, as well as predicted information, in order to achieve or maintain the certain efficiency of the system when its conditions change.

So, unlike adaptation, the key to defining adaptability is property, response, ability, characterization.

Adaptability is closely linked to the availability of adaptive capabilities, which, in the context of socio-economic systems theory, can be defined as the resilient resistant characteristics of the national economy, which ensure its ability to adapt successfully to diverse environmental changes as it guides its development. The presence of adaptive capabilities of the national economy, their size determines the range of environmental factors to which the system can adapt.

When it comes to the adaptability of the national economy, it means the following:

- 1) national economy operates in the presence of the adequate response to uncertain or variable conditions;
- 2) national economy operates on the basis of the information received about these conditions and forms the ability to analyze them;
- 3) national economy immediately responds to the information to change the direction of its functioning.

A. Brichko reckons that in the course of the adaptability evaluation it is necessary to pay attention to the degree of response to internal challenges, the speed of changes in the management in the initial stages.

He proposed the cybernetic model for adaptation evaluation based on the model of «market adaptation» of the enterprise².

K. Orlova reckons that adaptability is a complex indicator of the enterprise's ability to respond to fluctuations in environmental factors. She offers the evaluation of adaptability of the enterprise state in the following areas: external, marketing, resource, financial, organizational and management. The adaptability coefficient is an integral evaluation of the internal environment of the enterprise, its ability to introduce changes in order to adapt to the external environment³.

V. Tkachenko, E. Smirnov, V. Nerubatsky consider that the limits of the system adaptability should be based on the use of such indicators as the number of perturbations per unit time or the cycle of perturbations entering the system.

M. Starikova proposes to base the evaluation of the adaptability (stability) of the branches of the national economy on XYZ analysis, based on the calculation of the coefficient of variation, which reflects the degree of volatility of the studied trait. She proposed the hypothesis that the volatility of economic indicators of industries characterizes their adaptability to the transformation of the environmental conditions⁴.

V. Yachmeniova proposes to use the system of indicators which makes it possible to evaluate adaptability on the basis of a number of integrated characteristics, such as: internal and external reserves of adaptability. Internal adaptability reserves are determined by the aggregate providing, and external adaptive reserves are determined by the aggregate of supporting factors. Adaptability, as the characteristic of the economic system, this author proposes to evaluate using the theory of fuzzy set using the method of fuzzy logic and to reflect the corresponding function of membership⁵.

There are two groups of indicators in the methodology of estimation of adaptability proposed by A. Maksimovich: according to the estimation of the adaptability of the organizational structure, consisting of four indicators and the evaluation of special conditions of

² Lastaev T.T. (2006). *Mehanizm agropromyshlennoy integratsii* [The mechanism of agricultural integration]. *Vestnik KASSU*, no. 4, pp. 10–12.

³ Chizhenkova E.V. (2006). *Formirovanie ekonomicheskogo mehanizma adaptatsii hozyaystvuyushchego sub'ekta k ryinochnoy srede: avtoref. dis. ... kand. ekon. nauk : spets. 08.00.01 «Ekonomicheskaya teoriya»* [Formation of an economic mechanism for the adaptation of an economic entity to a market environment: author. dis. ... cand. econ. Sciences: special. 08.00.01 “Economic Theory”]. Moskva, 24 p.

⁴ Yachmeneva V.M. (2008). *Ponyatie «adaptatsiya» i «adaptivnost»: shodstvo i razlichie* [The concepts of “adaptation” and “adaptability”: similarities and differences]. *Nauchnyy vestnik Poltavskogo universiteta potrebitelskoy kooperatsii Ukrainyi*, no. 1 (26), pp. 97–103.

⁵ Hanaliev G.I. (2005). *Adaptatsionnyy protsess avtotransportnykh predpriyatiy* [Adaptation process of motor transport enterprises. Stavropol]. *Dep. VINITI RAN, № 1122-V*, pp. 115–121.

development, two or three indicators, at the discretion of experts. It offers a matrix of the level of adaptability of the city's industry structure, based on the evaluation of the main parameters that influence the adaptability of the structure: level of diversification of the economic structure; magnitude of the agglomeration effect (indirectly determined by the population of the city); degree of conjuncture of the leading branches of specialization and the level of income of the population. In addition, specific development conditions, such as the unique economic and geographical position or special administrative status of the city, which entails redistribution in favor of the city's financial resources, are identified by the expert way⁶.

O. Pastukhov in his methodology proposes to use three groups of indicators (there are eleven indicators at most), which reflect the stability of the system (three indicators), adaptability of the system (four indicators), dependence of the system on the environment (four indicators). In the complex internal structure of the concept it is possible to distinguish the functional and process components that characterize the essence of adaptability, to which O. Pastukhov attributes the following essential elements of the life of economic systems: first, adaptive features that ensure the survival of systems in specific environmental conditions; second, the adaptability caused by the whole organization of economic systems; third, adaptation processes that transform socio-economic systems, their subsystems, elements and individual adaptation traits depending on changes in the environmental conditions⁷.

Adaptive traits are qualitative characteristics inherent in the socio-economic system that enable them to function effectively in the aggressive environment.

V. Andreev, V. Kobzev, S. Kostornichenko consider adaptability only from the point of view of the human factor, as making the managerial decision. In their opinion, adaptability of the economic system is calculated by two indicators, which is the ratio of the number of executives with a high level of independent thinking to the total number of executives in the enterprise^{8 9 10}.

⁶ Lastaev T.T. (2006). *Mehanizm agropromyshlennoy integratsii* [The mechanism of agricultural integration]. *Vestnik KASSU*, no. 4, pp. 10–12.

⁷ Yachmeneva V.M. (2008). *Ponyatie «adaptatsiya» i «adaptivnost»: shodstvo i razlichie* [The concepts of “adaptation” and “adaptability”: similarities and differences]. *Nauchnyiy vestnik Poltavskogo universiteta potrebitelskoy kooperatsii Ukrainyi*, no. 1 (26), pp. 97–103.

⁸ Miloslavova I.A. (1974). *Ponyatie i struktura sotsialnoy adaptatsii : avtoref. dis. ... kand. fil. nauk: spets. 09.00.00 «Sotsialnaya filosofiya»* [The concept and structure of social adaptation: author. dis. ... cand. Phil. Sciences: special. 09.00.00 «Social Philosophy»]. Leningrad, 24 p.

T. Shkilna, V. Pakhomov and L. Pechena propose to calculate the adaptability index by the four indicators and their derivatives: market share, sales, enterprise profit and investment volume. In this case, performance indicators are preferred, which significantly reduces the evaluation of prospects¹¹.

According to I. Pitaikina, adaptability of the enterprise is better to assess expertly, not engaged in formalization and comparison of quantitative and qualitative indicators of the system. I. Pitaikina believes that adaptability of the organization as the organizational property characterizes the degree of adaptability of functionaries in the joint interaction of its employees¹².

V. Stasyuk notes that the adaptive properties of the enterprise provide more effective reaction to the change in the conditions of realization of the goals, providing the conditions for maintaining equilibrium and stability. One of the main approaches to determining the optimal depth of enterprise adaptability is based on the calculation of the optimal field of maneuvering of the strategic plan of enterprise development.

Under the field of maneuvering, V. Stasiuk understands the amount of reserves that the system has when adjusting of the plan of its functioning. When calculating the plan that has adaptive properties, it is necessary to distinguish between two types of reserves: direct and indirect. In his view, direct reserves are the presence of surpluses that will be required when adjusting the production plan, indirect reserves represent the amount of surplus that, if possible, when adjusting the plan would provide maximum satisfaction of demand for them, and the threat of increasing costs through reserves would be minimal¹³.

⁹ Chizhenkova E.V. (2006). Formirovanie ekonomicheskogo mehanizma adaptatsii hozyaystvuyushchego sub'ekta k ryinochnoy srede: avtoref. dis. ... kand. ekon. nauk : spets. 08.00.01 «Ekonomicheskaya teoriya» [Formation of an economic mechanism for the adaptation of an economic entity to a market environment: author. dis. ... cand. econ. Sciences: special. 08.00.01 "Economic Theory"]. Moskva, 24 p.

¹⁰ Pitaykina I.A. (2006). Zakonomernosti razvitiya gosudarstvennykh unitarnykh predpriyatiy Rossii v ryinochnoy ekonomike: avtoref. dis. ... kand. ekon. nauk : spets. 08.00.01 «Ekonomicheskaya teoriya» [Patterns of development of state unitary enterprises of Russia in a market economy: author. dis. ... cand. econ. Sciences: special. 08.00.01 "Economic Theory"]. Penza, 23 p.

¹¹ Yachmeneva V.M. (2008). Ponyatie «adaptatsiya» i «adaptivnost»: shodstvo i razlichie [The concepts of "adaptation" and "adaptability": similarities and differences]. *Nauchnyy vestnik Poltavskogo universiteta potrebitelskoy kooperatsii Ukrainyi*, no. 1 (26), pp. 97–103.

¹² Pitaykina I.A. (2006). Zakonomernosti razvitiya gosudarstvennykh unitarnykh predpriyatiy Rossii v ryinochnoy ekonomike: avtoref. dis. ... kand. ekon. nauk : spets. 08.00.01 «Ekonomicheskaya teoriya» [Patterns of development of state unitary enterprises of Russia in a market economy: author. dis. ... cand. econ. Sciences: special. 08.00.01 "Economic Theory"]. Penza, 23 p.

¹³ Kozachenko G.V., Ponomarev V.P., Lyashenko O.M. (2003). Ekonomicheskaya bezopasnost predpriyatiya: suschnost i mehanizm obespecheniya: monografiya [The economic security of the enterprise: the nature and mechanism of support: a monograph]. Kiev: Libra, 280 p.

A similar view is presented in the source¹⁴

Most of the described approaches use complex and vague indicators that are not clearly formalized, and cause a rather loose interpretation of their meaning. In addition, often indicators are determined not only analytically but also expertly, which significantly reduces the reliability of the calculations.

We propose the approach to the adaptability evaluation that, unlike others, is based on the use of reactivity and reaction time indices, allowing not only to identify the ability of the national economy to resist threats and to use opportunities, speed of adaptation to negative and positive changes, but also to give an integrative adaptability evaluation of the national economy to the influence of changing environmental factors.

Methodological approach to the adaptability evaluation of the national economy to environmental changes is shown in Figure 1.

At the same time, it is worth considering the choice of appropriate methods for assessing the adaptability of the national economy. Having studied different methods, we came to the conclusion that the most appropriate is the combination of two groups of methods. These are economic-mathematical and statistical methods. Among the statistical methods, it is proposed to use an index method that will not only determine the adaptability indices according to the selected evaluation criteria, but also to summarize them in the aggregate index due to the comparability of the obtained values.

At the same time, the indices themselves (the indicators used for their calculation) are based on the results of economic and mathematical modeling using correlation-regression and variational analysis.

First of all, it is necessary to define criteria for assessing the adaptability of the national economy to the impact of changes in the external environment (positive, creating additional opportunities and negative, creating additional threats).

As such criteria we propose to use reactivity and reaction time. Reactivity is characterized by the ability to counter threats and take advantage of the opportunities that have arisen. Regarding reaction time, it is proposed to characterize the rate of adaptation to positive and negative changes.

It is proposed to calculate partial indicators for each of the adaptability evaluation criteria.

¹⁴ Hanaliev G.I. (2005). Adaptatsionnyiy protsess avtotransportnyih predpriyatiy [Adaptation process of motor transport enterprises. Stavropol]. *Dep. VINITI RAN*, № 1122-V, pp. 115–121.

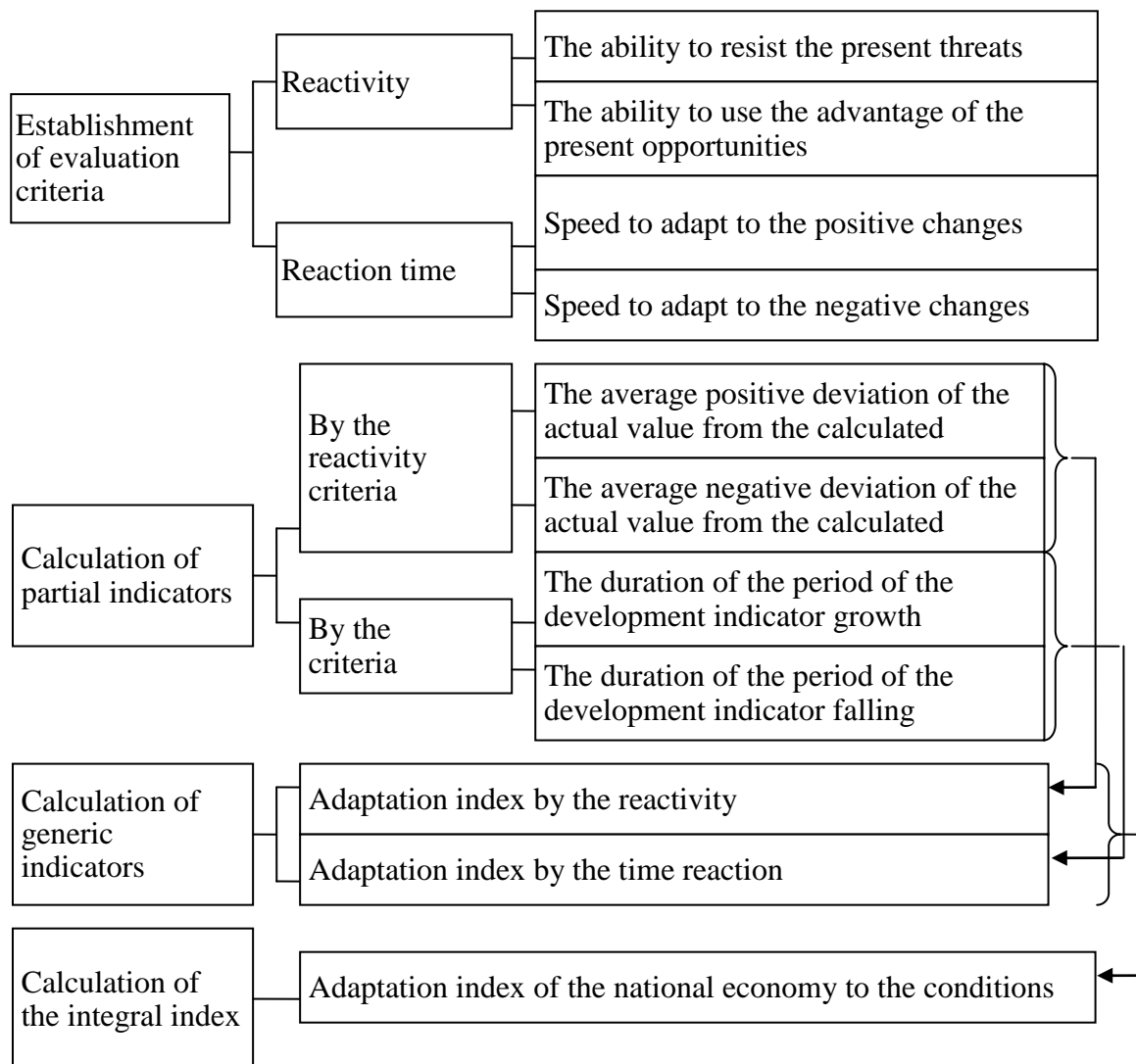


Figure 1. Methodical approach to the adaptability evaluation of the national economy to the changes in the environment

Source: created by the author

According to the reactivity criteria it is proposed to determine the average positive deviation of the actual value of the integral index of development of the national economy from the estimated one, as well as the average negative deviation of the actual value of the integral indicator of the development of the national economy from the calculated one. At the same time, it is proposed to determine the calculated value of the integral indicator of the development of the national economy on the basis of the function of the dependence of the development indicator on the indicator of environmental variability.

8.2. Practice of the adaptability evaluation of the national economy to the external conditions changing

The estimated value of the integral indicator of the development of the national economy (national economy) is shown in Table 2.

Table 2

Estimated value of the integral indicator of national economy development

Year	Estimated value of the integral indicator of development
2011	0,163
2012	0,214
2013	0,242
2014	0,237
2015	0,228
2016	0,201
2017	0,183
2018	0,175

Source: created by the author

The average positive deviation of the actual value from the calculated value is determined by the formula:

$$\Delta X_{SEE}^+ = \sqrt{\frac{\sum_{t=1}^n (X_{SEEt}^{act} - X_{SEEt}^{calc})^2 \cdot \alpha_t}{T^+}}, \quad (1)$$

where ΔX_{SEE}^+ – average positive deviation of the actual value of the integral indicator of the development of the national economy from the calculated value of this indicator;

X_{SEEt}^{act} – actual value of the integral indicator of the development of the national economy;

X_{SEEt}^{calc} – calculated value of the integral indicator of the development of the national economy, which corresponds to the certain level of variability of the external environment;

α_t – parameter of choosing the actual values of the integral indicator of the development of the national economy for a certain year, which are greater than the estimated ones;

t – period number;

T – total number of years, of the analyzed period;

T^+ – number of years of the analyzed period in which the actual values of the integral indicator of the national economy development exceed the estimated ones.

The parameter of choice of the actual values of the integral index of development of the national economy for the certain year, which exceeds the calculated ones, can take the following values:

$$\alpha_t = \begin{cases} 1, & \text{if } X_{SEEt}^{act} > X_{SEEt}^{calc} \\ 0, & \text{if } X_{SEEt}^{act} \leq X_{SEEt}^{calc} \end{cases} \quad (2)$$

The higher the value of the average positive deviation of the actual value of the integral indicator of the development of the national economy from the calculated value of this indicator, the higher the ability of the national economy to use the opportunities that have arisen as the result of changes in the conditions of the system functioning.

The average negative deviation of the actual value from the calculated one is determined by the formula:

$$\Delta X_{SEE}^- = \sqrt{\frac{\sum_{t=1}^n (X_{SEEt}^{act} - X_{SEEt}^{calc})^2 \cdot \beta_t}{T^-}}, \quad (3)$$

where ΔX_{SEE}^- – average negative deviation of the actual value of the integral indicator of the development of the national economy from the calculated value of this indicator;

X_{SEEt}^{act} – actual value of the integral indicator of the development of the national economy;

X_{SEEt}^{calc} – calculated value of the integral indicator of the development of the national economy, which corresponds to the certain level of variability of the external environment;

β_t – parameter of choosing the actual values of the integral indicator of the development of the national economy for a certain year, which are less than the estimated ones;

t – period number;

T – total number of years, of the analyzed period;

T^- – number of years of the analyzed period in which the actual values of the integral indicator of the development of the national economy are less than estimated.

The parameter of choice of the actual values of the integral index of development of the national economy for a certain year, which are less than the estimated ones, can take the following values:

$$\beta_t = \begin{cases} 0, & \text{if } X_{SEEt}^{act} > X_{SEEt}^{calc} \\ 1, & \text{if } X_{SEEt}^{act} \leq X_{SEEt}^{calc} \end{cases} \quad (4)$$

The smaller the value of the average negative deviation of the actual value of the integral indicator of the development of the national economy from the calculated value of this indicator, the higher the ability of the national economy to resist threats that arise as a result of changes in the conditions of the system functioning.

The table for calculating the average positive deviation of the actual value of the integral development indicator is presented below.

Table 3

Table for the calculation of the average positive and negative deviation of the actual value of the integral development indicator from the calculated

Year	X_{SEEt}^{act}	X_{SEEt}^{calc}	$X_{SEEt}^{act} - X_{SEEt}^{calc}$	α_t	β_t	$(X_{SEEt}^{act} - X_{SEEt}^{calc})^2 \cdot \alpha_t$	$(X_{SEEt}^{act} - X_{SEEt}^{calc})^2 \cdot \beta_t$
2011	0,160	0,163	-0,003	0	1	0	0,00001
2012	0,163	0,214	-0,051	0	1	0	0,00265
2013	0,221	0,242	-0,021	0	1	0	0,00045
2014	0,253	0,237	0,016	1	0	0,00024	0
2015	0,252	0,228	0,023	1	0	0,00055	0
2016	0,242	0,201	0,041	1	0	0,00171	0
2017	0,200	0,183	0,017	1	0	0,00029	0
2018	0,153	0,175	-0,022	0	1	0	0,00047
$\sum_{t=1}^n (X_{SEEt}^{act} - X_{SEEt}^{calc})^2 \cdot \alpha_t$ or $\sum_{t=1}^n (X_{SEEt}^{act} - X_{SEEt}^{calc})^2 \cdot \beta_t$						0,00279	0,00357
$\frac{\sum_{t=1}^n (X_{SEEt}^{act} - X_{SEEt}^{calc})^2 \cdot \alpha_t}{T^+}$ or $\frac{\sum_{t=1}^n (X_{SEEt}^{act} - X_{SEEt}^{calc})^2 \cdot \beta_t}{T^-}$						0,00070	0,00089
$\Delta X_{SEE}^+ \text{ or } \Delta X_{SEE}^-$						0,02642	0,02990

Source: created by the author

As we can see from the data of the table in the four years, the period under review shows an excess of the actual value of the integral indicator of the development of the national economy over the estimated one. Other years are characterized by excess of the estimated value of the

integral indicator of the national economy development over the actual one.

The reaction time measures evaluation of adaptation to the positive changes and evaluation of adaptation to the negative changes. At the same time, evaluation of adaptation to the positive changes is characterized by the duration of the period of growth of the integral index of development of the national economy (P^+), and evaluation of adaptation to the negative changes is characterized by the duration of the period of decline of the integral index of development of the national economy (P^-). The longer the period of growth and the shorter the period of decline of the integral index, the greater the adaptability of the system.

On the basis of partial indicators of the adaptability evaluation of the national economy to the impact of the external environment, general evaluation indicators are calculated:

1. Reactivity index for system reactivity.
2. Reaction time index.

Reactivity index of the system reactivity is calculated by the formula:

$$I_r = \frac{\Delta X_{SEE}^+}{\Delta X_{SEE}^-}, \quad (5)$$

where I_r – index of adaptability of the national economy by its reactivity;

ΔX_{SEE}^- – average negative deviation of the actual value of the integral indicator of the development of the national economy from the calculated value of this indicator;

ΔX_{SEE}^+ – average positive deviation of the actual value of the integral indicator of the development of the national economy from the calculated value of this indicator.

The reactivity index of the national economy is:

$$I_r = \frac{0,02642}{0,02990} = 0,884$$

It is proposed to determine the adaptability index of the national economy by the formula:

$$Irt = \frac{P^+}{P^-}, \quad (6)$$

where Irt – index of adaptability in reaction time of the national economy to the changes in the environment;

p^+ – duration of the period of growth of the integral index of development of the national economy;

p^- – duration of the period of decline of the integral index of development of the national economy.

Considering that for the analyzed period the average duration of the decline of the integral index of development of the national economy is four years, and the average duration of the period of growth – three years, adaptability index for the reaction time of the national economy will be:

$$I_{rt} = \frac{3}{4} = 0,75$$

The integral index of adaptability of the national economy is proposed to be determined by the formula:

$$I_a = \frac{I_r + I_{rt}}{2}, \quad (7)$$

where I_a is the integral index of adaptability of the national economy to the influence of external factors;

I_r – index of adaptability of the national economy by its reactivity;

I_{rt} – index of adaptability in reaction time of national economy to the changes in the environment.

It is proposed to interpret the value of the integral index of adaptability of the national economy to the changes in the environment using the following scale:

- $I_a > 1$ – sufficient adaptability;
- $I_a = 1$ – normal adaptability;
- $I_a < 1$ – low adaptability.

According to our calculations, the integral index of adaptability of the national economy is:

$$I_a = \frac{0,884 + 0,750}{2} = 0,817$$

The value of the integral index of adaptability of the national economy is lower than one, which indicates that the national economy is not sufficiently adaptable to the changes in the external environment.

CONCLUSIONS

Based on the analysis, it has been proved that there are many definitions of the concepts of adaptation and adaptability, which

indicates the versatility of their use. It has been determined that adaptability should be used as a characteristic of the national economy, which is necessary to determine the nature and adequacy of the structural change. Against this background, adaptation will be considered as the process necessary to ensure the effective functioning of the national economy and its structural elements in the new environment, oriented towards the constant change of the aggressive external environment. The proposed methodological approach allows us to evaluate the adaptability of the national economy. It involves the use of the combination of scientific methods of evaluation, which make it possible to draw objective conclusions about the current level of adaptability of the national economy and to determine possible changes in the future.

SUMMARY

The purpose of this study is to develop a methodological approach to the adaptability evaluation of the national economy, taking into account its reactivity and reaction time, and practical testing. As a result of the analysis of the existing works of different scientists it has been established that in any way the concept of adaptation is considered, it is always some change which ultimate purpose is to ensure the effective functioning of the system in the new conditions. Unlike adaptation, the key words in determining adaptability are property, reaction, ability, characterization. It has been proved that adaptability is closely linked to the availability of adaptive capabilities, which in the context of socio-economic systems theory can be defined as stable resistant characteristics of the national economy, which ensure its ability to adapt to various environmental changes successfully, directing its development. On this basis, our own definition of the concept of adaptability has been formulated.

Methodological approach to adaptability evaluation of the national economy has been developed, which, unlike others, is based on the use of indices by the criteria of reactivity and reaction time, allowing not only to identify the ability of the national economy to resist threats and to use opportunities, adapt to negative and positive changes, but also to give evaluation of the adaptability of the national economy to the influence of the changing environmental factors.

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CHAPTER 9

SETTLEMENT SYSTEM AND FINANCIAL CONTROL

Korinko M. D.

INTRODUCTION

Banking investment systems are determined by investments in securities that are traded on the financial market. Accordingly, the focus is on the categories that characterize the investment process. The issue of bills in Ukraine is the least studied in the classification of securities. Bills of exchange should be considered as part of the banking system. In today's context, calculations using promissory notes should be prominent among other forms of calculations. The bill is necessary in the calculations to solve a number of problems, but its application must be balanced, regulated and the results of the bill circulation should be transparent and predictable. Unfortunately, the economic conditions in our country do not meet the conditions of effective bill circulation. In Ukraine, there has been and remains a difficult economic and political situation, which does not contribute to either the introduction of bills or their definition in our country, and even more so abroad. The development and implementation of science-based measures aimed at creating effective bill circulation is one of the priority tasks of the scientific community of the state. This is in the area of interest of the National Academy of Sciences, subject to proper funding and organization of control over the effectiveness of scientific development.

The development of democratic relations, the formation of a civilized legal environment necessitates a change in approaches to financial control. Budgetary management as a whole and the implementation of its individual functions are formed on a new organizational and methodological basis, providing transparency, evidence, priority and effectiveness of the implementation of various projects or programs.

Formation of an effective system of state financial control in Ukraine for completeness and timeliness of receipt, legality and efficiency of use of budgetary resources is one of the directions of modern economic policy. Therefore, the improvement of the system of state financial control in Ukraine should be a priority in the overall system of restructuring of the financial mechanism.

The need to improve the effectiveness of public financial control of budget resources is due to the complication of financial aspects of government activity in market conditions, including the active involvement of commercial structures to meet public needs, the use of infrastructure of banks and other financial institutions to service public funds, the entry of the state as an owner property and manufacturer of goods and services.

The foregoing substantiates the feasibility and relevance of the study of issues and issues below in the sections of this monograph.

9.1. Settlement system

According to the National Bank of Ukraine, the banking system of Ukraine has 34% overdue, prolonged and doubtful loans. Some banks overdue 90% of their total loan portfolio. At that, 70% of this amount was debt on loans for public programs. In this situation, the National Bank of Ukraine initiated the launching of the so-called state receipt or budget (treasury) bill ¹. This security, like government bonds, had 100% liquidity, which facilitated the conditions for obtaining a loan on a liquid security. The introduction of the budget promissory note was supposed to allow for the offsetting of offsetting between the clients of the banks that are guilty of the state and the state itself.

Treasury bills were practically distributed with the release of the order of the Ministry of Finance of Ukraine No. 269 of 09.12.1997 “On putting into circulation treasury bills” ².

According to the Instruction “On the procedure for issuance, registration and redemption of bills of the State Treasury of Ukraine” (No.269 of 09.12.1997), the treasury had the following features:

1. The Chief Treasurer of the State Treasury of Ukraine acts as a bill-payer and payer on treasury bills.

2. Bills of the State Treasury are issued in the form of simple bills with bill amounts of 5000 and 10000 hryvnia. Interest on the bill amount is not accrued.

3. The endorsement is carried out on general terms, that is, no different from the endorsement of commercial bills ³.

Note holders of treasury bills may carry out the following operations with them: repayment of accounts payable with the consent of

¹ National Bank of Ukraine. URL: <https://bank.gov.ua/>

² Order of the Ministry of Finance of Ukraine No. 269 of 09.12.1997 “On putting into circulation treasury bills”. URL: <https://minfin.com.ua/>

³ Ibid.

creditors (payments are made on promissory notes); sale to legal entities that are residents according to the legislation of Ukraine; pledge operation – to secure obligations to residents; credit offset payment of taxes and fees to the state budget at the request of the holder of the bill.

Treasury bills are repaid by bodies of the State Treasury of Ukraine as follows:

- transfer to the account of the bearer of treasury bills of cash in the amount of corresponding promissory notes;
- crediting the amount of the Treasury bill in payment by the holder of obligatory payments, which are fully paid to the State budget. It should be noted that it is this method of repayment that is most widespread due to its greatest flexibility and rationality.

The Treasury bill should fulfill the important functions of a government securities: it has the highest liquidity, ie it can serve as a collateral for obtaining loans; in the absence of restrictions on the sale and purchase of residents, the Treasury bill creates the conditions for conducting transactions with it in the internal secondary market; the possibility of repayment of the bill by deducting the amount of the treasury bill in payment by the holder of the obligatory payments creates the conditions for the functioning of the system of offsetting between the state and the enterprises.

In view of the above, the restriction on the use of treasury bills (except for the enterprises of the coal industry), in our opinion, significantly worsened the ability of business entities and the state in financial calculations and circulation of funds and securities, and consequently financial support for the further development of the state economy.

The main conditions for improving the efficiency of calculations using promissory notes should be, first, general economic conditions, namely:

- relatively stable political and economic situation in the country;
- satisfactory inflation;
- availability of a sufficient number of producers and consumers, a certain volume of marketable products;
- availability and satisfactory level of development of financial institutions of the state;
- no special restrictions on the bill legislation;
- the proper level of economic consciousness of the population and entrepreneurs;
- availability of sufficiently qualified personnel.

The last two conditions can be reached at a certain interval of time with the gradual introduction of promissory notes, and all the above – are dictated by the general conditions of market functioning.

Second, the conditions relating to the intrinsic nature of bills:

- the bill must fulfill its functions only when it is drawn up in a certain form – any failure to meet the established standards will destroy the bill's capacity;

- the bill is a payment document, a security, so it must be protected from forgery (for example, a bill of exchange of one of the Russian banks has 12 degrees of protection);

- provision of promissory notes. Each bill as a debt carries a risk of default. The degree of this risk decreases as the solvency, profitability, better indicators of profitability of production, positive image of the promissory note company increase.

But if the drawer refuses to pay the debt, there is a mechanism of protest, with levers such as fines, penalties, prosecution, marks in the register of billsmen, publication of a list of unreliable, insolvent billsmen in the press, it is possible not only to repay debts, but also to pay debtors' irresponsibility and reduce their negative impact on bill circulation.

Ukraine is taking the first steps towards implementing promissory notes. This is the formation of a legislative framework in the context of bill circulation; the use of promissory notes in the calculations, as a rule, to repay the debt of enterprises.

Number of general economic problems that hinder the development of bill circulation in Ukraine:

- persistent inflation expectations;
- lack of required number of capable producers and consumers.

Thus, for every 2000 years, every third company operated at a loss. Most of the businesses were in a difficult financial state, with a negative return on production. Moreover, the Law of Ukraine “On the State Budget” practically banned the effect of government bills and as a variant of their treasury checks⁴.

Among the reasons for the tensions in the calculations are the stagnation of the economy, the fall in the competitiveness of the products of enterprises, as well as the shortage of money in circulation due to the policy pursued by the National Bank of Ukraine aimed at overcoming

⁴ Law of Ukraine “On the State Budget” for 2001. URL: <https://zakon.rada.gov.ua/>

inflation. These reasons led to an increase in receivables and payables, barter payments, and a decrease in the working capital of enterprises.

In a crisis of payment, a promissory note can be identified as an effective means of overcoming it. Of course, for the effective functioning of the promissory note repayment, it is necessary to observe all the conditions of effective promissory note circulation and to define a specific scheme of issue, circulation and redemption of such promissory notes. Ukraine has an example of an unsuccessful attempt to repay debt by means of promissory notes. These are the energy bills of the NDU. Ways to improve the terms of use of promissory notes in Ukraine are:

- first, since the introduction and use of promissory notes is based on the general economic conditions of economic development and takes a long time, it is necessary to maintain a stable satisfactory level of inflation, accelerate the pace of privatization and structural restructuring of the economy;

- secondly, the improvement of the existing legislation on the issues of promissory notes circulation, due to the enforcement of the Law of Ukraine "On the circulation of promissory notes in Ukraine"⁵, based on the world legal and economic practice, will create legal grounds for the effective use of promissory notes through financial and administrative sanctions;

- thirdly, in the circumstances prevailing in our countries, it is imperative to conduct a private and / or state examination (audit) of the bidding companies on the terms of solvency, profitability of break-even;

- fourth, the gradual introduction of promissory notes under the conditions of mandatory circulation control, determination of the scheme of issue and maturity, the terms of circulation.

These measures are possible to implement if the scientific potential of both Ukraine itself and the experience of developed countries of the world are involved. Science is a sure guarantee of the further development of society, spiritual and material enrichment of all citizens of the country. In the development and implementation of strategic programs of state development, science sets high economic and social standards.

Economic research even before the IT revolution showed that nearly 85% of the measured increase in per capita income in the United States was due to technological change.

⁵ Law of Ukraine "On the circulation of promissory notes in Ukraine". URL: <https://zakon.rada.gov.ua/>

According to the Law of Ukraine “On Scientific and Scientific and Technical Activities”⁶, the highest scientific organization of Ukraine, which organizes and conducts basic and applied research on the most important problems of natural, technical and human sciences, and coordinates the implementation of basic research in scientific institutions and organizations regardless of forms. The property is owned by the National Academy of Sciences of Ukraine.

The Academy enjoys the rights of self-government, which consist in the independent determination of the topic of research, its structure, the solution of scientific-organizational, economic, personnel issues, the implementation of international scientific relations. The Academy brings together full members, correspondent members and foreign members, all scientists of its institutions, organizes and carries out basic and applied research on the most important problems of natural, technical and socio-human sciences.

At the same time, the Academy does not have complete data on the amount of implementation of the research results for the study period as a whole and in terms of their sources of funding (the general fund of the state budget of Ukraine and at the expense of economic contracts and contracts). The Academy does not actually carry out an adequate analysis of the level of implementation of research results.

Thus, the Academy's passive position on the quality of research results makes it impossible to carry out a thorough analysis of the efficiency of use of the funds of the General Fund of the State Budget.

In addition, with a significant annual increase in funding, there is a significant decrease in the level of the total citation index of publications of scientists of the Academy (from 16.6 in 2004 to 13.8 – in 2017), although the total number of publications fluctuated slightly. In turn, the comparison of the rankings of the academies of sciences of the countries of the former Soviet Union showed a rather low level of citation of scientists of the Academy.

Regardless of the results obtained in the course of the research, the Academy is obliged to ensure the maintenance of scientific institutions, while the sole source of funding remains the programs aimed at financing research. This approach to funding does not improve the quality of research results. Proof of this statement is the data on the rapid decline in the level of the general citation index of the Academy's

⁶ Law of Ukraine “On Scientific and Scientific and Technical Activities”. URL: <https://zakon.rada.gov.ua/>

scientists against the background of significant increase in the amount of funding from the state budget.

The lack of correlation between the quality of research and the amount of funding, and transparent competitive bidding on the allocation of budget funds, does not contribute to improving the quality of scientific work and, in turn, improving the level of implementation of their results.

In view of the above, the regulatory framework governing the planning, financing and implementation of research requires urgent substantial changes, the adoption of which will in the future enhance the efficiency and quality of research, which in turn will increase the contribution of the scientific sector to the growth of national research economy and public well-being. Thus, the non-implementation by the Academy of competitive principles in the financing of departmental and research topics of research leads to a decrease in the quality of research results and as a consequence – inefficient use of funds.

The formation of a reserve of unallocated funds for the purpose of allocating budget allocations for the implementation of measures not envisaged by the directions of the budget program, leads to inefficient use of budgetary funds allocated for scientific research. In addition, the budget reserve thus allocated for centralized activities does not have a clear purpose for their use and the expected results, which does not actually meet the basic principles of the programmatic target method, the main purpose of which is to establish a link between the allocation of budget funds and the results of their use.

9.2. Financial control

In the sphere of the national economy of Ukraine there are significant transformations related to the establishment of market relations, the development of democratization and the formation of a civilized legal field. This led to a change in the philosophy of functioning of budgetary institutions, the introduction of new standards for the formation of their budgets, resource base, recognition of the appropriateness and efficiency of use of budgetary resources. Budgetary management as a whole and the implementation of its individual functions are formed on a new organizational and methodological basis, providing transparency, evidence, priority and effectiveness of the implementation of various projects or programs. The activities of any budgetary institution must be absolutely justified, effective and progressive. Consumer approaches to budget allocations,

economically unjustified budget projects, etc. are becoming unpopular.

Financial control issues have always occupied a special place among pressing social problems. Financial control is a system of bodies and measures for verification of legality and expediency of actions in the sphere of creation, distribution and use of state funds and local self-government, one of the forms of state control, which promotes legality, protection of property rights, proper and efficient use of budgetary, loan and own funds. Clearly functioning state financial control is an integral part of a democratic society and a rule of law. Such control ensures that the public is provided with objective information on the use of budget resources, which in turn implies the responsibility of the authorities for the legality and efficiency of financial management.

State control in Ukraine in accordance with the current legislation is carried out as necessary and within their competence by various bodies of state power of Ukraine and their subordinate organizations: Verkhovna Rada of Ukraine, President of Ukraine, Cabinet of Ministers of Ukraine, Ministry of Finance of Ukraine, Accounting Chamber, local state administrations and executive bodies relevant councils (their financial departments), State Audit Service of Ukraine, State Treasury of Ukraine, State Tax Service of Ukraine, National Bank Ukraine, the State Customs Service of Ukraine, the State Commission on Securities and Stock Market, the State Property Fund of Ukraine, various services and inspections.

The financial control system built in Ukraine does not provide adequate fiscal discipline both at the state level and at the regional level in particular. This is due to a number of problems that create trends in the number and volume of major financial irregularities.

First of all, it is important to highlight the lack of a comprehensive financial control system. One of the reasons for the failure of a coherent system is the imperfect legislation. The system of public financial control of Ukraine functions without the existence of a basic law that would set basic concepts in this area, clearly divide tasks, functions and powers between state and local authorities, regulate relations between entities and entities of control, determine responsibility and independence of the relevant authorized officials. The Budget Code of Ukraine does not regulate these issues⁷. The rules of applicable laws and regulations in the field of public financial control are not always

⁷ Budget Code of Ukraine. URL: <https://zakon.rada.gov.ua/>

consistent with each other. Guidelines and instructions cover only certain aspects. Higher education institutions do not actually have a systematic training course for the training and retraining of relevant personnel in this field.

The consequence of the systemlessness in the legal field has been the unbalanced system of bodies providing state financial control and audit. The activity of state bodies carrying out control, control and audit, supervisory and fiscal actions on budgetary funds is regulated by separate special laws and normative legal acts. Although in the Constitution of Ukraine⁸ (Article 98), only the Accounting Chamber is defined as a body that controls the use of state budget funds. The Verkhovna Rada of Ukraine adopted amendments to this article, significantly expanding the powers of the Accounting Chamber in terms of parliamentary control over the formation of state and local budgets and the implementation of local budgets.

At the same time, it should be noted that the decree of the Cabinet of Ministers of Ukraine on streamlining the structure of local state administrations does not provide in the structure of the apparatus of administrations of a separate unit, which would be entrusted with the functions of conducting internal financial control.

Audit reports are compiled according to the old system of indicators, which does not comply with a number of norms of the Budget Code of Ukraine, while at the local level, such reports are not compiled. implementation of state and local budgets and is not considered by the Verkhovna Rada of Ukraine and relevant councils. Regarding the reports on the implementation of local budgets, they are not prepared at all by the conclusions of an external (independent) body of financial control, and are considered only by the budget committees of the respective councils. Generalized results of audit reports sent by the bodies of the State Control and Audit Service to the Verkhovna Rada of Ukraine and the Ministry of Finance are not approved and no relevant decisions are taken, but only taken by the authorities.

In terms of control over the use of funds from the State Budget, the tasks of the State Control and Audit Service intersect with those of the Accounting Chamber of Ukraine. At the same time, the Accounting Chamber conducts parliamentary control mainly at the level of central government bodies, and the State Audit Office – starting with the budgetary institutions in the villages, up to the ministries and

⁸ Constitution of Ukraine. URL: <https://zakon.rada.gov.ua/>.

departments. For this purpose, the State Audit Office has for almost ten years an extensive structure in all cities, districts and oblasts, and the Accounting Chamber consists only of a central office.

Disputes are resolved by law enforcement and public authorities, provided that the parties submit written findings to an independent audit authority.

Financial and economic control of the activity of enterprises in terms of market relations and different forms of ownership takes on another meaning, since a new form of financial control has emerged – audit control.

Analyzing the effectiveness of financial control in Ukraine, we can identify a number of serious problems of becoming a state financial control. The most important of these is the methodological problem associated with the lack of clarity on the nature of internal and external financial control.

To date, Ukraine has failed to create a coherent, robust, effectively functioning system of public financial control. Evidence is that there are significant problems in the state's financial system.

Aiming at maximizing high profits, a number of entrepreneurs reach it in the forbidden way: tax evasion; engaging in prohibited activities; illegal export of capital abroad; appropriation of assets and deprivation of investors' rights to income; illegal legalization of income and creation of fictitious firms; monopoly overvaluation of commodity prices and falsification of trademarks; theft of state property; misuse of budgetary funds and government guarantees.

There is no better situation with the use of public finances and in the budget sphere. There are many financial violations related to the spending of funds beyond budgetary purposes, non-compliance with legislation in the course of calculations for tangible goods and services, demand of volumes and overestimation of works performed, leasing of state property at low prices, failure to secure state and communal property.

The practice of misuse and inefficient use of a large part of the budget funds of all levels, state trust funds, has not been overcome.

State financial control is regulated by the rules of law, the activity of state authorities and management to control the timeliness and accuracy of financial planning, the validity and completeness of the receipt and movement of public financial and material resources, the correctness and efficiency of their use.

Public financial control should be involved in solving problems such as: identifying business entities that threaten national security (carry out smuggling operations, engage in drug trafficking, weapons, etc.), prevent monopolization of markets; reliable assessment of the results of natural monopolies and regulation of their tariffs; proper functioning of investment, pension funds, ensuring the interests of their depositors.

The need to improve the domestic system of financial control due to the shortcomings in its organization. Although some elements of the control system are already functioning, they operate in a differentiated, uncoordinated manner, under the conditions of imperfect and sometimes contradictory regulatory framework governing their activities.

Today, control functions in the financial sphere are entrusted to 10 state bodies, duplication of functions and interference of some control bodies into the competence of the activities of others. At the same time, responsibility is shifted from authority to authority and the burden on entrepreneurs is increasing. The situation can be corrected by the adoption of the Law of Ukraine "On State Financial Control", which should establish uniform rules, define a clear organizational structure of the system of state financial control, clearly distinguish the powers of the controlling bodies, determine the objects of control and forms and methods of its implementation.

The problem of legal uncertainty of the integrated system of public financial control is partially solved by separate laws and numerous by-laws, which outline control powers and procedures only for some ministries, other central executive bodies whose main or one of the separate functions of activity is control. financial and economic activities of other public sector bodies that are not within the scope of their management (centralized control).

Another problem is that public financial control does not always apply the proper methods (techniques, forms) of control.

The main purpose of public financial control is to promote the growth of sectors and sectors of the economy by monitoring the achievement of target targets and checks on compliance with the restrictive parameters of the financial and economic development of the national economy at the micro and macroeconomic levels.

Achieving this goal requires that the state direct control actions not only on the activities of government bodies and non-profit institutions and organizations, but also on the activities of business entities of all forms of ownership.

Taking into account the existing methodological base and taking into account the existence of a budget deficit in Ukraine, the tasks of state financial control should be periodically refined. Now they have to meet the common objectives of the budgetary mechanism, to provide the solution of three urgent problems:

1. Who and what methods should be supported from the budget?
2. How to ensure that budget funds are already used for the purpose (programs) already defined?
3. How to fill the budget without excessive fiscal?

At the same time, finding answers to these questions using a form of audit control is difficult or impossible at all. This is due to the following disadvantages:

- the audit focuses on identifying violations and violators, that is, studying the consequences instead of concentrating efforts to identify systemic deficiencies that lead to them, that is, the causes;
- audits are usually carried out after the end of the budget year, when it is almost impossible to recover the lost funds;
- during the audit, there is no assessment of the internal control system, which, according to the current legislation, is obliged to create the head of the institution in order to prevent financial irregularities, as well as an assessment of the quality of control implemented by the chief managing officer.

Thus, there was a need to change the approaches or even the ideology, philosophy of public financial control. If the main purpose of the state financial control to date was to prevent violations of current legislation, then it is added here to prevent inefficient management.

Along with the traditional audit, a form of control is introduced in the practice of the controlling bodies as an audit of financial and economic activity. This is a fundamentally new form of control, envisaged by the Budget Code and aimed at preventing financial irregularities and ensuring the reliability of financial statements. Due to the fact that this form of control is new in Ukraine, there is a problem of its legal, regulatory and methodological support.

The status of this form of control has not been determined to date. On the one hand, it is considered that the audit of financial and economic activity is a form of day-to-day control, because according to the Procedure of carrying out audits of financial and economic activities of budget institutions by the bodies of the state control and audit service, it is aimed at preventing financial offenses, that is, it is intended to ensure prevention of financial offenses first of all. operational control of risky

business operations. Adhering to this concept, the audit methodology should provide for mechanisms to prevent financial misconduct in a timely manner.

On the other hand, there is an opinion that audit of financial and economic activities is a form of follow-up control, which provides not so much a warning as a complete elimination or minimization of the consequences of committed violations.

The disadvantages of state financial control of budgetary resources in Ukraine should also be attributed to the fact that it is not sufficiently prophylactic, sufficiently costly and closed to the public, does not always cover all objects of control.

As the world experience shows, a system of effective public financial control should consist of two independent, but equally important parts: internal public financial control and independent-external. Today, public financial control does not apply to the revenues of the State and local budgets. In Ukraine, such functions are vested in the tax service. An important problem is the lack of proper state financial control over the use of state and communal property.

In order to ensure the stable operation of organizations, enterprises, in accordance with the adopted course on business deregulation, the supervisory authorities should coordinate the terms of holding

checks. According to government regulations, scheduled on-site inspections of financial and economic activity of business entities are conducted by all control bodies simultaneously on the day, determined and notified 10 days before the inspection by the State Tax Service. Where it is not possible to carry out simultaneous inspections, the inspections shall be carried out at different times agreed by the supervisory authorities with the inspected undertaking. Compliance with these rules can help to eliminate a large number of violations in the exercise of state functions.

Another major problem is the lack of a system of control over the use of public funds. Violation of current legislation, misuse of funds, waste and even theft become, unfortunately, the norm of our lives.

The effectiveness of financial policy implementation depends on many factors, including financial control. It is he who provides the feedback between the intended and the achieved results. Finance is a very complex system of relationships, they have a clearly contradictory character. Of course, in the process of developing the principles and directions of financial policy should take into account as much as possible all circumstances and specifics of the use of certain financial

instruments. However, as the economic and political situation in the country is constantly changing, it affects the nature and directions of financial instruments. Continuous monitoring is required to monitor the success of financial policies and the effectiveness and relevance of the impact on the intended results of specific financial instruments.

The main functions of control over the implementation of financial policy are vested in the higher bodies of the legislative and executive power. Direct control is exercised by the Ministry of Finance and the specialized independent body, the Accounting Chamber. The tasks of the Accounting Chamber are more important. The Ministry of Finance, while developing the principles and directions of financial policy, controls only their implementation. The Accounting Chamber must also control how soundness and appropriateness of the financial policy implemented and its course – galization. However, while the Accounting Chamber may also carry out detailed audits of the financial activities of individual entities, its main focus is; but at the control of the implementation of financial policy at the micro and macro levels: And in the field of international financial relations.

Financial control over the activities of individual entities is intended to verify its compliance with applicable financial legislation. At the same time, given that current laws reflect the content of financial policy, such controls are also directly linked to its implementation. The illegality of the actions of individual entities leads to distortion of financial policy and impedes the achievement of the intended results. If many entities are subject to continuous violations of financial law in the control process, this may indicate that their interests are not taken into account by financial policies. Some adjustments should be made to such policies, as no strengthening of control will produce the desired results as long as the financial policy does not take into account the interests of all financial entities.

In order to enhance the role of financial control in Ukraine, to address the main problems in the country related to this issue, it is necessary to reform the system of financial control. Among the reform measures are the following:

- development of legislative framework, normative-legal acts, guidance and methodical documents that increase the efficiency of the state financial control;
- creation and improvement of the mechanism of coordination of work of control bodies;

- solving the issue of improving logistical support of control bodies;
- conducting measures to improve the professional level of employees of control bodies;
- studying and putting into practice the foreign experience of conducting state financial control.

Public financial control is one of the most important functions of public administration, which is increasingly important. Only proper use of control in the management of public financial resources will allow to create the necessary prerequisites for effective economic policy in the country. Therefore, building a coherent system of financial control is an important step in ensuring the functioning of the public authority and is of particular interest both in theory and in practical terms.

In scientific terms, the issue of state financial control has not been studied and developed sufficiently. This is due to the fact that over the past years its role as an element of the unified system of public administration has been diminished, and only the crisis state of the state and public finances has forced to draw attention to the practice of exercising public financial control. The specific attitude to the state financial control, its underestimation is also caused by the fact that it is carried out in the plane of intertwining of state, regional, corporate and individual interests.

At present, a considerable number of government bodies and services are operating in Ukraine, exercising financial control in one way or another. In the absence of a clear concept and regulatory framework in the field of public financial control, they are usually associated with the Accounting Chamber, the Chief Audit Office, the State Treasury, the Ministry of Finance, the State Tax Administration, the State Customs Service, the State Securities Commission securities and stock market, National Bank, State Property Fund, Bankruptcy Agency, etc.

However, it is more logical to refer only to the Accounting Chamber, the Main Control and Audit Department and the audit services of central government bodies to the bodies of state financial control. The State Tax Administration and the State Customs Service are fiscal bodies and do not exercise control over the use of public funds, but, conversely, require control over their activities, especially those related to ensuring the implementation of the revenue side of the budget. They do not exercise systematic control over the use of state property and funds by the Ministry of Finance, the State Treasury, the State Commission on Securities and Stock Market, the State Property Fund, the Bankruptcy

Agency. These management structures perform only specific specific control functions and will not be attributed to the control bodies and will not be necessary. After all, in the case of such an approach, all ministries and agencies will need to be referred to the supervisory authorities, since they perform separate oversight functions, not to mention law enforcement agencies, which are even empowered to designate audits and inspections.

The activities of control agencies are carried out in the absence of clear interaction. In fact, state financial control in practice does not operate as a single system but exists in the form of separate units. The latter, as a rule, in the autonomous mode perform their tasks and functions, which are determined by numerous laws, decrees of the President of Ukraine, government decrees and other normative legal acts. It is clear that in such circumstances there are inconsistencies, duplications, lack of interaction, and sometimes contradictions. This leads, first of all, to the lack of efficiency in the activities of financial control bodies, the dispersion and excessive expenditure of human and financial resources, legal and methodological chaos. As a result, the same control subjects are repeatedly audited, while others are not controlled at all. Therefore, the current system of financial control is outdated, does not take into account the realities of today, contradicts the principles of building a democratic state and requires urgent, properly elaborated, quality reform.

There are bills proposing to reform the system of public financial control in one way or another. As a rule, they are they are reduced, in their essence, to the role of regulatory documents, which contain a list and subordination of control bodies and normative acts regulating the organization of the existing financial control in the country, including in the sphere of activity of higher state bodies, in the system of local self-government, intra-governmental, communal and independent financial control, audits and more. These draft laws do not properly define the concept of state financial control, the system of financial control bodies, the peculiarities of its implementation in relation to institutions maintained at the expense of state and local budgets, national extrabudgetary funds, state (treasury), joint-stock and private enterprises. No due regard was given to the legal status of control officers, which would guarantee independence from organ interference/

It is extremely important to define the objectives and purpose of the state financial control, the methodological bases of its formation, taking into account both the accumulated own and foreign experience.

Unfortunately, the vast majority of drafters, individuals, and scholars see this category only as a routine check on the use of budgetary resources. But this task does not require extraordinary efforts, only the existence of control and audit bodies at the level of all units of the budgetary system. However, such primitive views at this stage of development of the state and its economy are a way into the past. That is why in order to build an effective system of public financial control that meets the standards of leading democratic countries, it is urgently needed to develop a strategic concept paper. This will clearly differentiate the tasks and powers of the control bodies, eliminate duplication and parallelism in their work.

The concept of creating a unified system of state financial control should give a clear concept of the category of state financial control, its principles, system, tasks, priorities, main types and order of implementation.

It is necessary to establish a mandatory periodic audit for all business entities and the responsibility of audit firms and auditors directly for the objectivity and completeness of control. It is also appropriate to determine the legal status of the audit report as a document and the scope of its use.

The core of this concept should be the division of state financial control into parliamentary and governmental ones. Certainly, both the legislative and executive branches of government should exercise control functions. This will at once remove the reasons for the discussion in recent years regarding the definition of the main body of state financial control, will allow to improve the methodological basis of a unified system of state financial control in a consistent and conceptual way.

Financial science and practice have long divided control into three main forms: previous, current and later. Taking this criterion as a basis in the development of the above concept, we will have a clear structuring, because the vast majority of control agencies have their specific tasks, clearly defined area of activity and work on the first two forms of control. The main problem arises in the organization of further control, in the division of tasks and powers between the Accounting Chamber, the Main Audit Department and the reanimated departmental control.

The state has more than 15 thousand managers and recipients of budget funds. In the economic plane of the state there are more than 800 thousand taxpayers, from them receive certain tax exemptions over 100 thousand. The above indicators indicate that the field of control activity is sufficient for all control bodies. Of course, in order to ensure

elementary order and financial discipline, it is necessary to check at least every two years the legality, efficiency and purposeful use of budgetary funds, the functioning and use of state property, the relationship of taxpayers with the state, etc. Therefore, the main function of the State the control and audit service should become a control over the legality, efficiency and purposeful use of public funds by each spending unit and their recipient.

The Accounting Chamber should not focus solely on budgetary issues. The functions, powers and functions of the Accounting Chamber should be fundamentally different from other state bodies of financial control, at least because this institution, as a constitutional body, is outside the executive power and is called upon to exercise financial control over it on behalf of the Verkhovna Rada of Ukraine and for the benefit of all taxpayers. that is, society as a whole. its activities should shift from controlling the flow of funds to controlling the effectiveness of the use of budgetary resources, at a minimum, and at a maximum – to determine the effectiveness of the activities of the relevant ministry. That is, the result of the audit is to answer the question: how does a government agency work, using the money it receives from the budget?

Taxpayers need to be sure that the money they pay to the public treasury is not just used for its intended purpose, but also efficiently. Only in this case, we will set the procedure for payment of taxes and in reality, and in all requirements, we will achieve compliance with payment discipline. Thus, the Court of Auditors should first of all conduct not an audit of financial performance but an audit of the efficiency of the use of public finances and state property.

The issue of developing proposals for improving financial, budgetary, tax and customs laws should not be left out. In order to ensure a comprehensive system of state financial control, the scope of powers of the Accounting Chamber should be attributed to the control over the effectiveness of all activities of the National Bank, not just the implementation of its budget. There is no doubt that some of the functions that are currently being performed should be preserved. In particular, such as control of public debt, budget deficits, etc.

In the concept it is advisable to regulate the issues of relations and interaction of control bodies, to consolidate the provision that the Accounting Chamber is the highest body of state control and controls both the revenues and expenditures of the State Budget of Ukraine and has the right to inspect all state institutions, and the State Control- the audit service provides periodic audits and inspections, including at the

request of law enforcement agencies. At the same time, the control functions of certain structures exercising public financial control should be determined by special laws.

To develop the concept, a working group should be created and, after completion, the document should be thoroughly discussed at a joint meeting of representatives of the supervisory bodies with the involvement of relevant scientists and approved by a joint decision of the Verkhovna Rada of Ukraine and the Cabinet of Ministers of Ukraine, and possibly by Presidential decree. This will allow to remove all inconsistencies and misunderstandings of strategic character before the preparation and adoption of the relevant legislative act and to gain the support of both the legislative and the executive. Only after the concept is developed and approved will it be appropriate to proceed with the preparation of the relevant draft law.

The implementation of the proposed measures will create a coherent and effective system of public financial control, improve budgetary discipline, minimize misuse of budgetary and use of state property, improve public finance management and achieve democratic standards of transparency in this process.

CONCLUSIONS

Based on the results of the above study, it is possible to draw conclusions. The development of the economy of the state in terms of market relations necessitates the formation of mechanisms to ensure payments between economic entities. Among them, it is advisable to use world experience in the application of bills of exchange. The role of financial control over the formation and use of budgetary resources in each element of the national economy, which is in one way or another related to the budget process. The use of available scientific potential, with adequate financial support, will enable the development of research-based proposals to solve emerging practical problems.

It is essential for the economy to ensure proper control over the distribution and use of budgetary resources at different levels of government and self-government. The development of new methods, procedures, control actions aimed at noticing effective control over the formation of the allocation and use of budget funds will have a positive result for the development of the economic potential of Ukraine.

Local authorities are not interested in organizing internal financial control in the regions, which leads to poor internal control over the spending of local budgets and transfers. The low level of objectivity in

the assessment of the state of financial and budgetary discipline in Ukraine and the inefficiency of the procedure and mechanisms of reporting.

In the context of market relations, conflicts arise between businesses and state control bodies regarding the amount of taxes to be paid to the budget, prices and the procedure for applying them. In the system of financial control a special place belongs to the state financial control, which reveals deviations from the adopted laws, standards, determines the efficiency, expediency and economy of resource management.

The system of public financial control in Ukraine should be built on a common legal framework, be guided by common principles and solve the tasks of controlling the formation and use of budgetary resources. At the same time, the functions and powers of the supervisory authorities should be clearly distinguished.

The proposals made on the results of the study, provided they are fully implemented, will significantly improve the situation in the country in terms of financial control and use of budget funds for the development of the Ukrainian economy.

SUMMARY

The article presents the results of the study on solving the problem of settlement. In particular, the ways and suggestions for improving the circulation of promissory notes are highlighted. The proposal is made to use the available scientific potential of the state and use the experience of developed countries of the world. The attention is paid to the state and necessity of development of financial control. Particular attention is paid to the feasibility of developing new methods and procedures. The opinion is expressed that the improvement of control over the formation of budget funds, their allocation and use will help to increase the economic potential of the state. The need to form a democratic society with a well-defined legal environment for the activities of economic entities and government bodies and local self-government bodies is emphasized.

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CHAPTER 10

ORGANIZATION OF ACCOUNTING AND CONTROL OF EQUITY IN AGRICULTURAL ENTERPRISES

Krukovska O. V.

INTRODUCTION

Reforming the accounting and financial reporting systems required by both internal and external users is an integral part of measures aimed at introducing market-oriented economic relations. The well-managed definition of accounting in accordance with the changes taking place in the organization and practice, enhances the role of accounting as the main means of obtaining reliable information for making economically justified decisions and risk warnings in the production and economic activity of enterprises, in the tax system, in the obligations of long-term, current and billing, balance sheet, preparation of financial reporting, etc. Particularly acute is the problem of rational accounting organization with the transition of domestic enterprises to national standards. After all, it is the nature of management accounting that determines the nature of management decisions and their effectiveness in improving the financial condition of the company. Analyzing the current state of accounting at Ukrainian enterprises, it should be noted that according to the Law of Ukraine «On Accounting and Financial Reporting in Ukraine» every enterprise, regardless of organizational and legal form and types of activity, must keep a continuous accounting from the date of its registration to liquidation. Responsibility for the organization and accounting is allocated to the owner of the enterprise, institution or organization or its authorized body (official), which executes the management of the enterprise.

The purpose is to investigate accounting, analysis and control of equity and to identify ways to improve it. To achieve this purpose it is necessary to solve the following objectives:

- to disclose the nature and content of the company's equity;
- to carry out the review of the legal documents regulating the accounting of the equity of the enterprise;
- consider the features of accounting, analysis and control of equity at the enterprise;

– develop ways to improve accounting, analysis and control of equity at the enterprise.

The subject of the research is theoretical and methodological and applied problems of accounting, analysis and control of the equity of the enterprise.

The scientific novelty of the obtained results is to clarify and recommend the implementation of proposals for improving the accounting and auditing of the formation and functioning of equity of agricultural enterprises of various organizational and legal forms of management. The scientific novelty is determined by the following basic provisions: the essence and definition of the category «equity» and the composition of its elements as an object of accounting in agricultural enterprises are specified; the concept of accounting of equity and peculiarities of its application in agricultural enterprises of different forms of ownership in accordance with the legal requirements and legal regulation of property relations are substantiated; the method of accounting the formation of share capital of agricultural production cooperatives at the expense of introductory, share and additional contributions, as well as the method of accounting the share capital of farm enterprises.

10.1. Theoretical and methodological foundations of the organization of accounting and audit of equity of agricultural enterprises

The property of the enterprise consists of different objects of accounting: holders of ownership rights of individual entities. The rights of each owner to the property of the enterprise and to participate in its profits are determined by the share and form of invested funds. They should be clearly reflected in the accounting report based on the relevant documents. Equity is a guarantee for the protection of property rights of an enterprise, an indicator that characterizes solvency, creditworthiness, availability of funds and the functioning of a utility company.

The essence of the economic category of «capital» has been researched by scientific thought for many centuries. The original meaning of the term «capital» (from Latin «capitalis») means the main, the basic. Later, in the German and French languages, this term began to denote the principal property or the principal sum of money.

Capital is characterized by the following features: it is the main factor of production, characterizes the financial resources of the company, which are profitable, it is the main source of formation of

owners' well-being, it is the main indicator of the market value of the enterprise, its dynamics is an important «barometer» of the level of efficiency of economic activity of the enterprise. The first scientific definition of capital was given by Aristotle. He linked its essence, on the one hand, with property, with possession, on the other hand, with the art of providing a fortune, or with such an activity that is aimed at making a profit on the investments made.

In further studies, capital was considered: as a set of means of production that bring income to the owner of these funds; as a stock that is used for economic purposes and generates income; as a set of things without which production could not take place, but which are not a free gift of nature. In the above definitions, according to A.M. Poddierohin, the capital category is associated with the physical form and does not take into account cash capital, which cannot be identified with the means of production and intended for their acquisition, to ensure the continuous movement of capital in the fields of production and circulation. If we consider capital as a kind of investment that makes it possible to generate income, then it should also include costs that contribute to the future increase in income, i.e. investment in labor.

These approaches to the defining capital can be described as the macroeconomic. From the point of view of the enterprise (at the microeconomic level), capital is the sum of the valuation of property and funds of an entrepreneur that he/she can use for economic needs. The functioning of capital at the microeconomic level can be characterized by the process of its individual cycle, which is carried out according to the scheme (Figure 1):

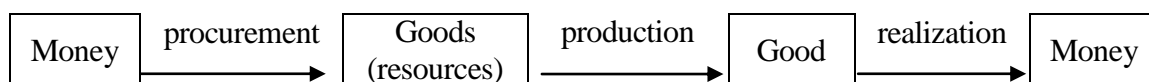


Figure 1. The operation of capital at the microeconomic level

That is, the capital of any entity consists of three parts: the means of production, finished goods, money and monetary instruments. The enterprise, first of all, has to advance funds for the procurement of factors of production. For this purpose it enters into economic relations with sellers in the market of the means of production and enters the labor market in order to acquire the necessary quantity and quality of labor.

Thus, for a new enterprise, capital begins to move in the sphere of circulation as cash capital. The main function of production capital is

to bring greater value, that is, to grow itself. In this case, capital takes the form of commodity capital, the main function of which is the sale of goods and the receipt of greater value in cash.

The capital of the enterprise is the main measure of its market value. This role is primarily played by the equity of the enterprise, which is determined by the volume of its net assets and, at the same time, the amount of borrowed funds that contribute to generating additional income¹. The growth of equity in the dynamics characterizes the level of efficiency of economic activity of the enterprise, its ability to maintain financial equilibrium at the expense of internal sources. The decrease in equity is related to its ineffective, or unprofitable, activity. The great role of capital in the economic development of the enterprise and ensuring the interests of the state, investors, owners and employees determines its importance in the financial activity of the enterprise.

The multifaceted nature of the enterprise classifications, as a consequence, has led to the existence of a large number of areas of classification of the company's equity in the economic literature (Tab. 1).

Table 1

**Basic directions of definition of the equity structure
in modern economic literature**

No.	Authors	Equity structure
1	Anthony Robert N.	— Joint stock — Reinvested earnings
2	Welsh Glenn A., Short Daniel G.	— Authorized capital — Additional capital — Retained earnings
3	Sopko V.V.	— Registered capital — Unregistered capital
4	Hendriksen E.S., Van Breda M.F.	— Amounts paid by shareholders — Excess of net profit over dividends — Free income from others
5	Hendriksen E.S., Van Breda M.F.	— Face value — Additional face value paid by shareholders — Formed as a result of revaluations — Retained earnings

¹ Butynets F.F. (2003). Bukhhalterskyi finansovyi oblik: Pidruchnyk dlia studentiv spetsialnosti «Oblik i audyt» vyshchikh navch. zakl. [Accounting Financial: A textbook for students of the specialty «Accounting and Auditing» higher education] 5-e vyd., dop. i pererob. Zhytomyr : PP «Ruta», 726 p. ISBN 966-681-012-5.

No.	Authors	Equity structure
6	National Accounting Provisions (Standards) of Ukraine	<ul style="list-style-type: none"> — Actual paid authorized (share) capital (authorized capital except for unpaid and withdrawn) — Additional capital — Reserve capital — Retained earnings (+) / Uncovered losses (-)

Different authors have different approaches to defining and accordingly offer different structure of equity. Some academic economists divide equity into equity invested by shareholders and created by a joint-stock company during its lifetime. For example, Sopko V.V. proposes the general structure of business equity in the following form: equity of owners (registered and unregistered, i.e. additionally invested by founders), capital created in the course of activity, other additional capital not invested by owners². In domestic practice, joint-stock companies use the components of equity given in the present NP(S)A 1 «General requirements for financial reporting».

The capital of the enterprise can be characterized by the following features: by belonging to the enterprise, sources of capital formation, belonging to the owners of capital, form of ownership, organizational and legal form of raising capital, term of raising capital, forms of stay in the process of circulation,³ objects of investment, level of risk, the nature of use in the production process.

By belonging to the company equity and loan capital are distinguished. Equity is a part of the assets (property) of an enterprise, which is formed at the expense of the contributions of the founders and own funds of business entities. Equity information is contained in section 1 of the liability balance sheet. Loan capital is the money that is used to finance the business of an enterprise on the principles of timeliness, return and payment. The main types of loan capital are: bank loans, bond issue, financial leasing. Both equity and loan capital can be generated from internal and external sources.

By nationality, the owners of the capital that make it available for economic use to the enterprise distinguish between national capital and foreign capital invested in the enterprise. Equity and public capital are distinguished in the form of ownership. This classification of capital is used primarily in the process of forming

² Kulichenko O. (2004). Vypustit mene, bud laska [Let me out, please]. Debet-Kredyt – 311, p. 25.

³ Holov S.F. (2000). Bukhholderskyi oblik ta finansova zvitnist v Ukraini: Navch.-prakt. posibnyk [Accounting and financial reporting in Ukraine]. Dnipropetrovsk, 768 p. ISBN 966-683-033-9.

the authorized capital of the enterprise. According to the organizational and legal form of raising capital, the company allocates joint stock, share capital and individual capital. By the form of being in the process of circulation, the capital of the enterprise is divided into capital in cash, capital in production form and capital in commodity form (Figure 2).

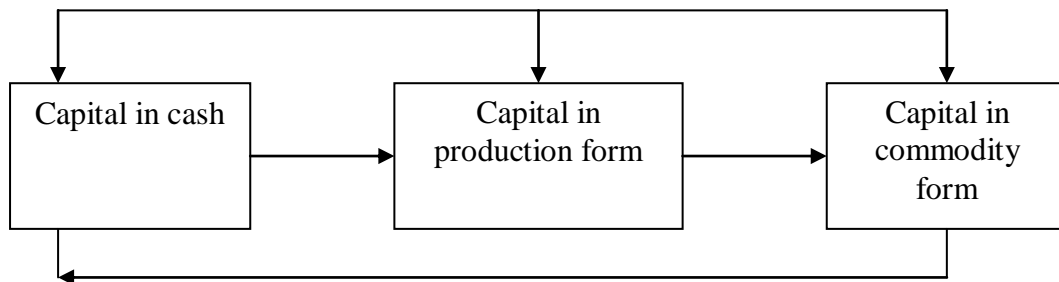


Figure 2. Circulation of capital of the enterprise

Depending on the term for which the capital is raised, long-term capital and short-term capital are distinguished. The long-term capital of the enterprise consists of equity and loan capital with a life period of more than one year. The short-term capital of the enterprise is raised for a period of up to one year and is used in case of financial difficulties that arise due to shortage of working capital.

Depending on the object of investment, the company's fixed capital and its working capital are distinguished. The fixed capital of the enterprise is a set of property values of the enterprise, which repeatedly participate in the process of economic activity and transfer their value to the value of manufactured products in parts. The fixed capital describes the portion of capital used by an enterprise that is invested in all types of non-current assets. The working capital of the enterprise is a set of property values that serve the economic process and is fully used in one production cycle. Therefore, the working capital characterizes the part that is invested in all types of its current assets.

The essence of an enterprise's equity is manifested through its functions. Equity functions are shown in Figure 3.

The equity of the enterprise in the process of its constant movement is characterized by a certain liquidity, which means its ability to be realized at its real market value and to cover at the expense of part of its liabilities in liquidation of the enterprise.

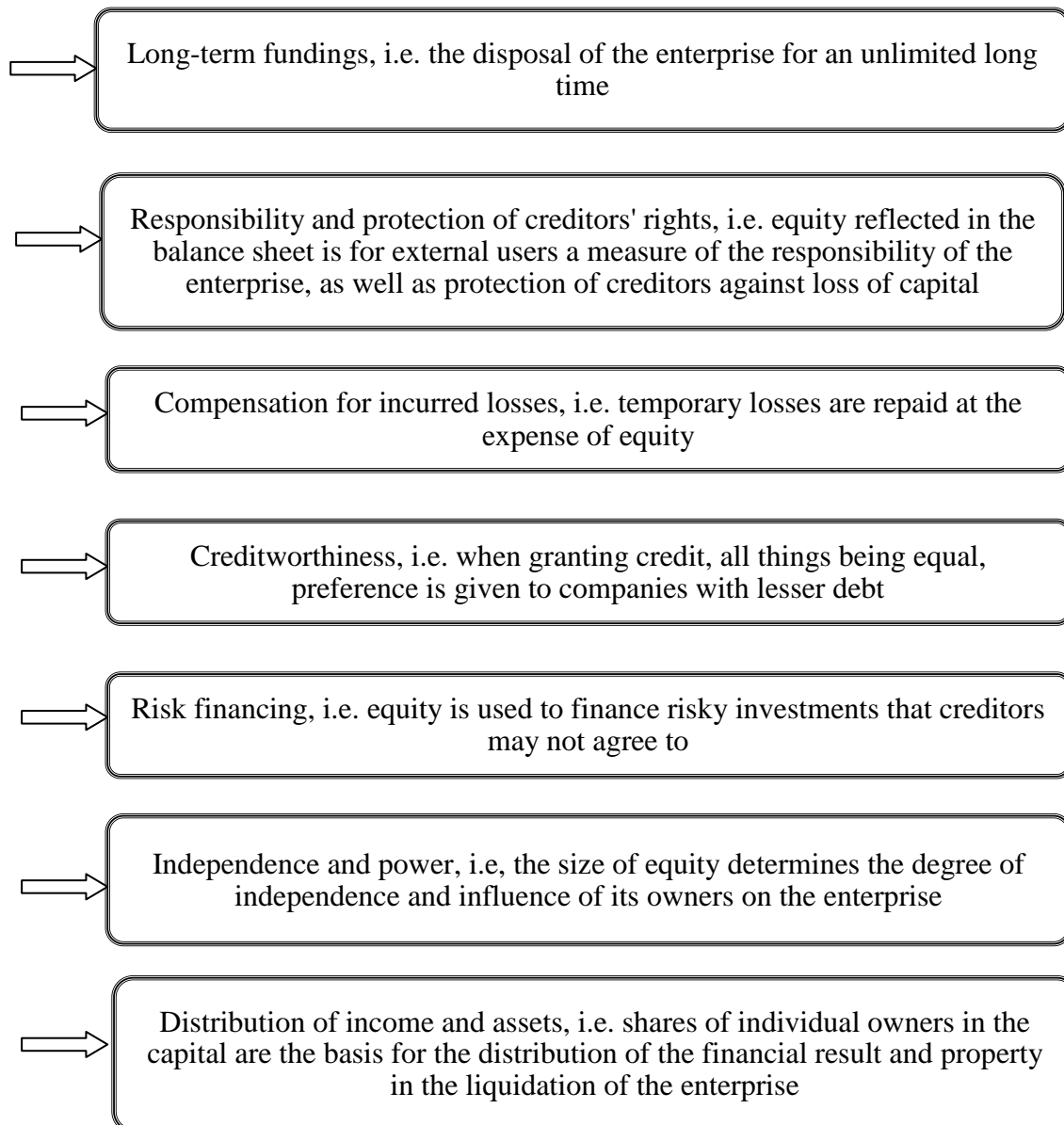


Figure 3. Equity functions

At the time of the establishment of the enterprise, the equity is equal to the value of the founders' assets, which are valued at their approved fair value. The use of invested assets allows the founders (owners) to start their business. Further, in the course of the enterprise's economic activity, the amount of equity is constantly changing, and the assets contributed at the date of its establishment can no longer be identified. The amount of equity is affected by the presence and valuation of the assets and liabilities of the enterprise. It can be determined by the basic balance equation.

$$\text{ASSETS} = \text{OBLIGATIONS} + \text{CAPITAL} \quad (1)$$

$$\text{CAPITAL} = \text{ASSETS} - \text{OBLIGATIONS} \quad (2)$$

The sources of equity formation are: contributions (investments) of the business owners in the form of cash and other assets; donation of property or funds to individuals and legal entities; revaluation of the assets of the enterprise provided that their market value increases; accumulation with subsequent reinvestment of retained earnings. Therefore, it should be noted that in accounting, equity is most often classified according to the sources of creation and the level of responsibility. Thus, according to the sources of creation, equity is divided into two categories: invested (contributed or paid capital); retained earnings.

Equity is the “abstract value of the property; it is neither current market nor any other valuation for its owners, therefore, does not reflect the present value of the rights of the owners of the firm». Equity is significantly affected by the components of an entity's accounting policies that relate to the principles, methods and procedures⁴ selected to recognize and evaluate the elements and items of the balance sheet, including its assets and obligations.

The general concept of «enterprise capital» is understood as its different types, which are characterized by dozens of terms. All this requires appropriate systematization of the terms used. In most detail, according to the main classification features, V.V. Hlushchenko considered some types of the enterprise capital as a whole and equity in particular. The financial and economic vision of the classification of equity proposed can be represented as a scheme (Figure 4).

Authorized (registered) capital and additional (unregistered) capital perform different functions. Thus, authorized capital is the primary source of investment and formation of property of the enterprise.⁵ Unlike additional capital, it provides regulation of property relations and management of the enterprise, its size cannot be smaller than the amount stipulated by law. According to NP(S)A 1, the equity of the enterprise is represented by section I of the liability, the result of which reflects the size of this financial indicator. Equity includes the following structural elements (Figure 5):

⁴ Holtsova S.M., Plikus I.I. (2007). Bukhhalterskyi oblik: navchalnyi posibnyk [Accounting]. 2-he vyd., pererob. i dop. Sumy: VTD «Universytetska knyha», 254 p.

⁵ Goncharova N.N. (2001). Problemy stanovleniya uchetnoy polityki predpriyatiya v usloviyakh reformirovaniya bukhgalterskogo ucheta [The problems of the enterprise's accounting policy formation in the circumstances of reformation of accounting]. Rehionalni perspektyvy, 286 p.

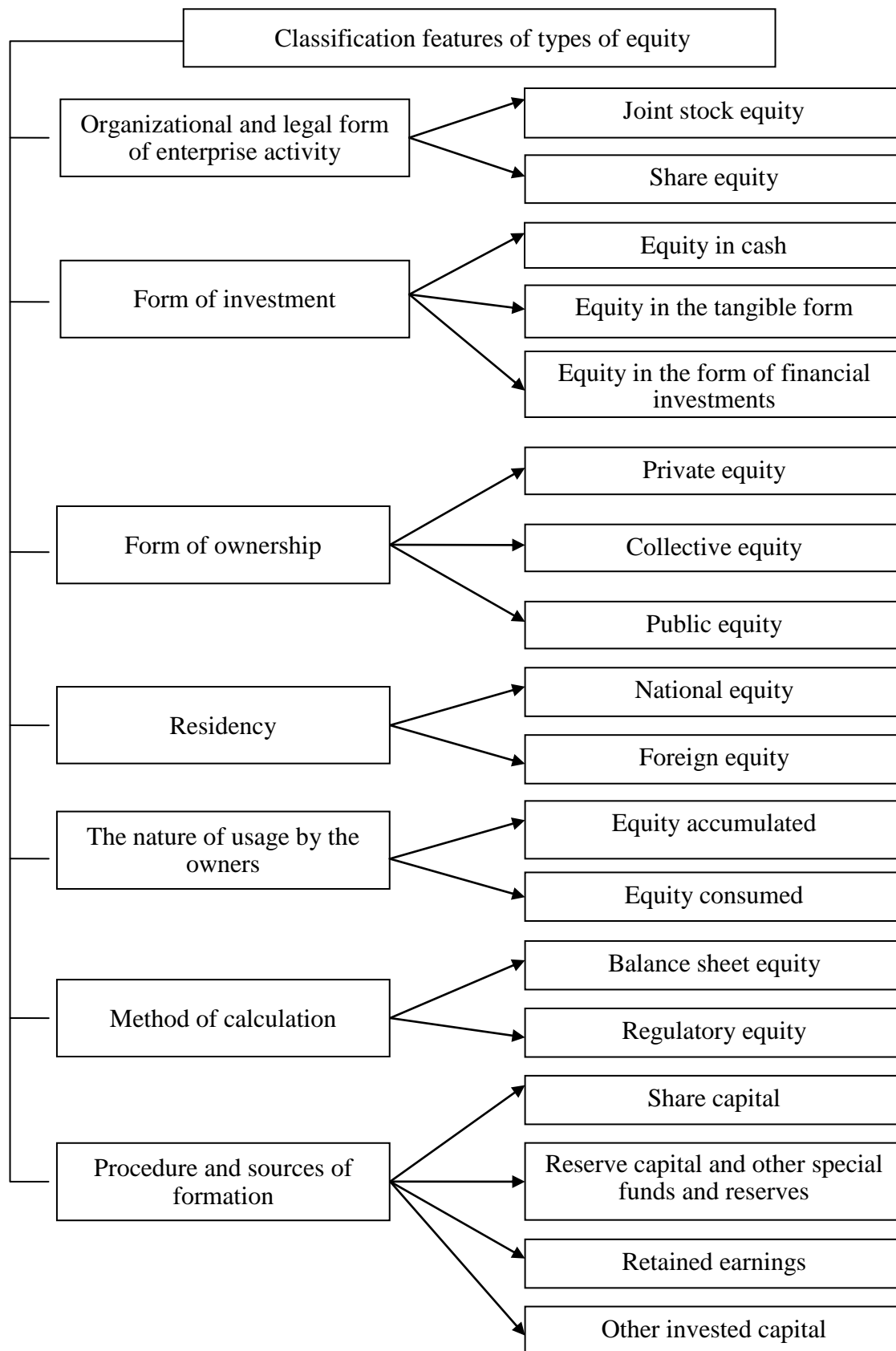


Figure 4. Classification of equity

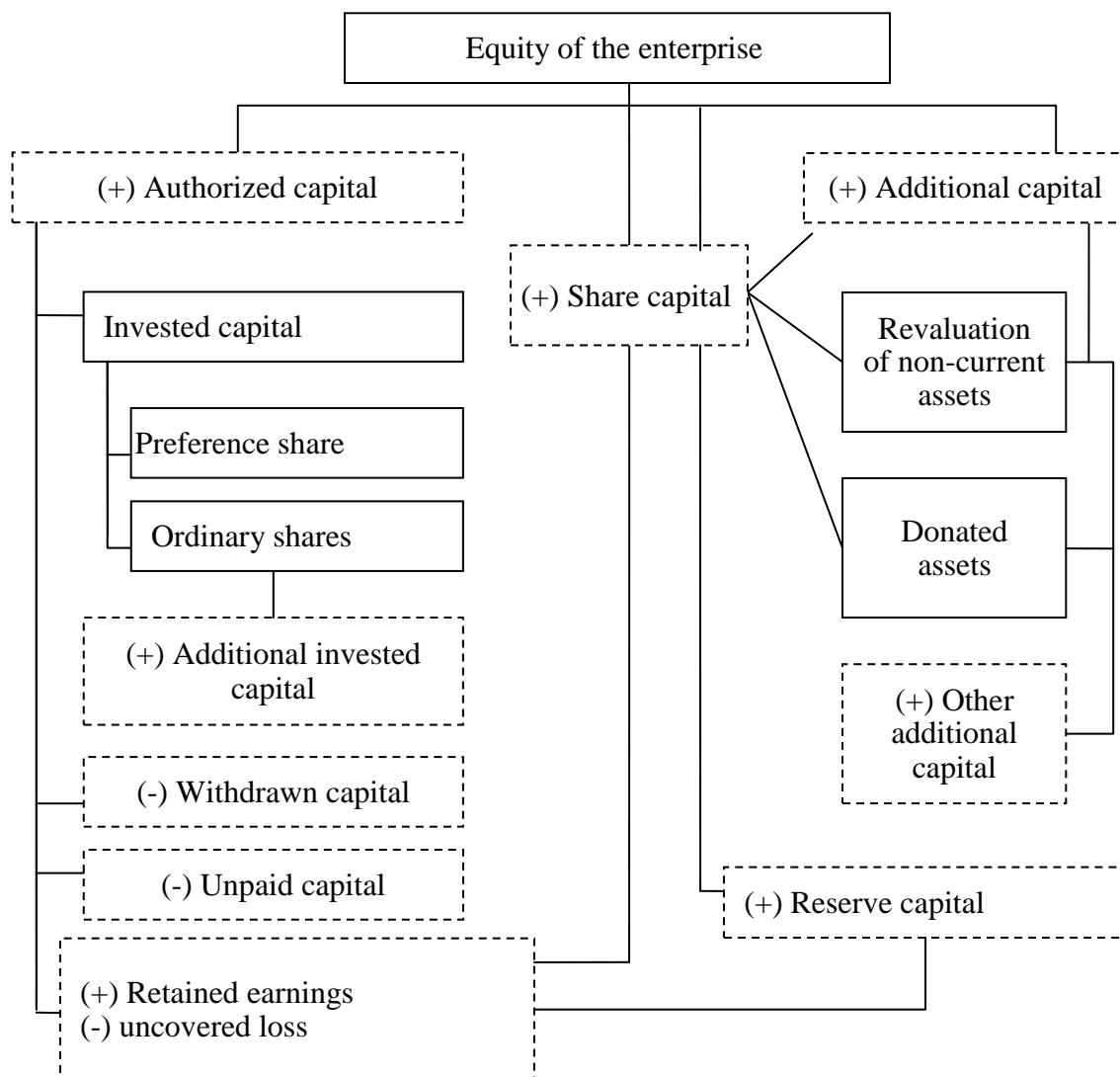


Figure 5. Structure and relationship of individual elements of equity

10.2. Current state of accounting and control of equity in agricultural enterprises

Having studied the peculiarities of functioning of agrarian enterprises, it is possible to determine the main tasks of organization of accounting of equity at the enterprise:

- providing data accounting and generalization of information on the state and movement of equity;
- control over the correctness and legality of the formation of equity;
- timely, complete, correct reflection of the size and all changes in equity;

- control over the rational distribution of profits by the respective funds;
- organization of analytical accounting on equity accounts for timely receipt of reliable information;
- correct recording in the registers of accounting and reporting of the transaction with equity. Equity accounting shows how well the company is provided with the funds for normal functioning. Thus, accounting performs the observation, measurement, recording and control of the amount of equity.

Equity management is the management of the structure and value of sources of financing (liabilities) in order to increase the return on equity and the ability of the enterprise to pay income to creditors and co-owners (shareholders) of the enterprise. Saving and enhancing equity is one of the main tasks of the capital management system because it contributes to the financial stability of the enterprise and capital must always work for the benefit of the enterprise. The result of capital management should be a system of indicators of the state and use of capital, taking into account theoretical generalizations, developed by the enterprise on the basis of its own experience.

The results of the study show that own financial resources for the enterprise are the vital part, without which neither work nor further existence is impossible. Enterprise capital management is closely linked to management decisions, as its size and dynamics are important criteria in determining their optimality. Capital is always a necessary attribute of activity from the moment of creation to its liquidation or reorganization. Therefore, an important characteristic of any enterprise is the effectiveness of its management system.

Methodological principles of formation in accounting of information about equity and disclosure of such information in the financial statements are determined by NP(S)A 1 «General requirements for financial statements», which applies to enterprises, organizations and other legal entities of all forms of ownership (except banks and budgetary institutions).

Accounting is considered as an element of a business information system that generates and interprets the entire database of information flow provided by different systems for effective management. Accounting in general, and accounting for equity in particular, performs the following main tasks:

- providing data accounting and generalization of information on the state and movement of equity;

- control over the correctness and legality of the formation of equity;
- preservation of property of owners of the enterprise;
- timely, complete, correct reflection of the size and all changes in equity;
- determination of financial results of the enterprise;
- control over the rational distribution of profits by the respective funds;
- organization of analytical accounting on equity accounts for timely receipt of reliable information;
- proper recording in the registers of accounting and reporting of transactions with equity;
- providing users with information to manage the business activity of the enterprise.

Authorized capital accounting reflects the total value of assets that will be received or already received by the enterprise as deposits (contributions) of owners (founders and participants) in the property of the enterprise to ensure the activity of the business entity within the boundaries defined by the constituent documents. These are assets that are transferred to the enterprise in full economic control (ownership, use, disposal) and form the basis of its activities.

To ⁶summarize information on the status and changes in the authorized capital passive account 40 «Registered (share) capital» is assigned. At DB 40 the decrease of the authorized capital is reflected, and at CR 40 it is an increase. The amount of credit balance on account 40 should correspond to the amount of authorized capital recorded in the constituent documents of the company, and is reflected in the balance sheet of the company.

Changes in the authorized capital are carried out in accordance with the procedure established by the current legislation and only after the corresponding changes in the constituent documents are made. The authorized capital may be increased by: additional contributions of participants; proper dividend participants; retained earnings.

The listed options require changes in the founding documents and state registration, as well as the calculation with the participant, to which the amount of his/her contribution to the authorized capital should be returned, the value of part of the property, proportional to his/her contribution to the authorized capital, the share of profit received by the

⁶ Nakaz Ministerstva Finansiv Ukrainy: pro zatverdzhennia polozhen (standartiv) bukhhalterskoho obliku: 31.01.99 p. № 87.

company in the current year. Reduction of the authorized capital is possible at exit, exclusion of the participant, removal of part of the authorized capital.

The reduction of the authorized capital is always connected with the appropriate decision of the owners of the enterprise, which is designed and registered accordingly. The balance in this account must correspond to the amount of authorized capital recorded in the constituent document of the enterprise.

Thus, in accounting, the authorized capital is formed according to the accrual method, when the credit of the account 40 and line 300 of the Balance sheet shows the declared (fixed in the constitutional document) the amount of authorized capital, which may be real and not secured (paid) by the assets on the specified date. At the same time, only the actually paid part of the declared authorized capital should be taken into account in the total indicator of the company's equity (the total value of line 380 of the Balance Sheet).

Analytical accounting of authorized capital is conducted by types of capital by each founder, participant, shareholder, co-owner, etc.

The variety of types and forms of enterprises, which currently exists in Ukraine, is conditioned by the legislative consolidation of the diversity of ownership forms, the ways of establishment (formation) of enterprises, the legal regimes of property, which is transferred to the enterprise by its founders. Formation of equity is carried out at the expense of:

- the authorized fund is created at a rate not less than the amount equivalent to 1250 minimum wages, based on the minimum wage rate in force at the time of creation of the company;
- the authorized fund is divided into a certain number of shares of equal minimum value;
- formation of the statutory fund is conducted within one year from the moment of registration of the constitutional documents;
- the amount of the authorized fund in the account must correspond to the amount specified in the constitutional documents;
- changes in the size of the authorized capital are made by the decision of the shareholders meeting with the introduction of changes to the registration card;
- the increase of the authorized capital is carried out by increasing the face value of the shares;
- the decrease of the authorized capital is due to the decrease in the face value of the shares, the loss of the stock of shares.

An increase in the authorized capital of a joint-stock company by not more than 1/3 may be made by a decision of the board, provided that it is provided by the charter.

Changes to the charter related to the increase of the authorized property must be registered by the body that registered the charter of the joint-stock company after the registration of additionally issued shares. The ways (methods) to increase the authorized capital of a joint-stock company is to increase the number of shares of the existing face value or to increase the face value of the shares. The additional shares are distributed among the shareholders in proportion to their shares in the authorized capital of the joint-stock company. Registration of additional issue of shares is carried out on the basis of the legislation of the Ministry of Finance of Ukraine. The information on additional issue of shares includes:

- 1) the characteristics of the issuer, i.e. its title, location, date of registration of the joint-stock company, the amount of paid part of the authorized capital and its total volume;⁷

- 2) data on issue of shares, on additional shares, their face value, shareholders' rights on additional shares, etc.;

- 3) data on amounts of past periods of cost indexes and depreciation of fixed assets.

If the authorized capital is increased by increasing the face value of the shares, the shares of the previous issues are exchanged for the shares of the new face value according to the number of shares owned by the shareholder. Upon increase of the authorized capital of a joint-stock company by increasing the nominal value of the shares, the registration of the previous issues of shares is canceled and the issue of the shares of the new face value and information on the issue of new shares is required.

The decision to reduce the authorized capital of a joint-stock company is made in the same manner as for the increase of the authorized capital. The share capital is reduced by reducing the face value of the shares or reducing the number of shares by repurchasing a portion of the shares from their owners in order to cancel those shares. According to the decision of the joint-stock company on reduction of the authorized capital, the shares not presented for cancellation shall be declared invalid.

⁷ Goritskaya N.G. (2002). *Osobennosti buhgalterskogo ucheta v sovremennyih usloviyah* [Features of accounting in modern conditions]. Kiev: Redaktsiya gazetnyi «Buhgalteriya. Nalogi. Biznes», 352 p. ISBN 966-957780-2.

The reduction of the authorized capital of a joint-stock company is allowed after notification of all its creditors in the manner prescribed by law. The creditors of the company have the right to demand early termination or fulfillment of the relevant obligations by the enterprise and compensation of losses. In case of reduction of the authorized capital of a joint-stock company, its size may not be less than the minimum size of the authorized capital specified by the Law of Ukraine “On Business Associations”.

When establishing a company and after making decisions on the size of the authorized capital, the total amount of registered authorized capital is recorded in accounting as unpaid capital:

DB 46 «Unpaid capital» CR 40 «Registered (share) capital».

According to NP(S)A No. 1, an unpaid capital is the amount of debt of owners (participants) on contributions to the authorized capital.

Such debt arises after fixing its size in the founding document of the enterprise (charter, founding agreement, memorandum) and state registration of this document (additions or amendments to it). Thereafter, the debt is repaid in accordance with the procedure established at the legislative level and/or constitutional documents. The amount of debt is given in parentheses and is calculated when determining the total amount of equity.

The Instruction on the Application of the Plan of Accounts for the Accounting of Assets, Capital, Liabilities and Economic Transactions of Enterprises and Organizations No. 291 provides for all receipts to the authorized capital of enterprises to be displayed using an account 46.

Account 46 «Unpaid capital» is regulatory, intended to summarize information about changes in the composition of unpaid capital of an enterprise. The debit of the account reflects the debt of the founders (participants) on contributions to the authorized capital of the enterprise, as well as the face value of the outstanding shares; on loan it is about repayment of debt on contributions to the authorized capital, i.e. the actual inflow of assets to the enterprise and the face value of the shares paid. The balance of the account 46 «Unpaid Equity» shall correspond to the amount of debt of the founders or shareholders, which shall be repaid within the period specified in the constitutional documents.

The property transferred in kind to the ownership of the enterprise on account of payment of shares, is estimated by agreement of the participants. The basis for the relevant records in accounting are documents certifying the fact of transfer of objects to a joint-stock company.

Analytical accounting of unpaid capital is maintained by types of outstanding unpaid shares (on joint-stock companies) and by each founder (participant) of the enterprise.

In the regulatory item 360 of the balance sheet, the amount of debt of the founders (participants) on contributions to the authorized capital is given in parentheses, calculated when determining the total equity.

The withdrawn capital remains the regulatory item of the balance. In this item, according to NP(S)A No. 1, companies reflect the actual cost of the shares of their own issue, or the amount of shares purchased by the company from its participants. The state (government-based) and public utilities reflect the transfer of property, according to the Provision on the order of accounting of individual assets and operations of enterprises of state, communal sectors of economy and economic organizations that own and/or use objects of state, communal property, approved by order of the Ministry of Finance of Ukraine dated December 19, 2006.

The Economic Code states that a joint-stock company has the right to repurchase from the shareholders the shares paid by them for the purpose of subsequent cancellation, resale or distribution to employees.

CONCLUSIONS

In the process of writing of the monograph, the objectives and questions were revealed. The analysis of economic and financial indicators was carried out. Equity plays a paramount role in the financial support of an enterprise. Own financial resources for each enterprise are the vital part without which neither the performance nor the continued existence of the enterprise is impossible. Not without reason, among the classification of total capital, it is the distribution of equity and debt that is in the first place. The own funds available allow the enterprise to use them both at their own discretion, and in some cases in legislatively established directions. It all depends on the source of such financing through the elements of equity. Considering the sources of funding, the following can be noted. Due to the authorized capital it is possible to form a number of non-current assets, that is, it should always be at the disposal of the organization. Its increase and decrease are firmly enshrined in legislation. As a source of financing the authorized capital works in two cases: – at the formation of the enterprise; – in case of additional issue of shares or attraction of additional shares. This means that the authorized capital rarely works as a source of funding. If, during the formation of the

enterprise, it is the basis for its organization and start-up business, then the attraction of funds in an already existing enterprise pursues the following goals: -attraction of additional capital (in case, when the price of attraction funds from the other source makes it impossible to perform, or it is necessary to attract a significant amount of funds to finance the investment project); – change of the capital's structure. Generally speaking, additional capital is difficult to consider as a source of financing for the activity of the enterprise, because it is formed mainly from the property acquired by the enterprise at the expense of profit or its revaluation, as well as various proceeds enshrined in the legislation of Ukraine. Basically, additional capital adds to the difference between the value of already available assets and the authorized capital. The costs of these funds are also rigidly fixed.

SUMMARY

The paper summarizes the theoretical and practical aspects of the existing systems of accounting and audit of the equity of enterprises and develops practical recommendations for their improvement in the conditions of market economy, analyzes the mechanism of formation of the main components of equity.

The paper specifies the definition of equity and its components as an economic category, substantiates the concept of accounting for equity at enterprises of various organizational and legal forms of management, proposes to clarify the method of accounting for share capital in agricultural production cooperatives and farm enterprises. The method of accounting of equity in private enterprises is developed. The method of calculating the part of the value of the property received by the founder (participant) upon leaving the Limited Liability Company is substantiated. The directions of improvement of methodology of accounting of additional capital of agrarian enterprises are determined. Suggestions on improvement of forms of reporting on the movement of equity of the enterprise on the basis of optimization of their structure are made.

The basic directions of increase of efficiency of carrying out of audit of equity of the enterprises are defined. The methodology (algorithm) of carrying out of the audit of equity for achievement of the purpose of audit in providing the owner with information on the structure and movement of equity of the enterprise is developed.

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CHAPTER 11
FISCAL DECENTRALIZATION
AS A TRANSFORMATION TREND OF THE SYSTEM
OF PUBLIC FINANCES IN UKRAINE

Kriuchkova N. M.

INTRODUCTION

Overall level of responsibility of the Ukrainian society continues to grow in the process of active implementation of decentralization reform in Ukraine. Ukrainian society actively creates financially sustainable joint territorial communities able to deal with systemic socioeconomic problems that have accumulated, and is directly involved in territory management processes. Today decentralization enables communities to have powers and resources to satisfy current needs of the region.

An updated system of financial support of local budgets contributes to growing motivation for increase of revenues thereof. At the same time current outcomes of fiscal decentralization suggest that local self-government bodies experience a lack of available additional resources for financing self-governing powers and powers delegated by the state, and for improvement of overall regional financial efficiency.

We should mention works of the following foreign scholars, who studied fiscal decentralization issues: R. Barro, R. Boadway, R. Musgrave, W. Oates, Ch. Tiebout, A. Shah and others. An important contribution to creation of the scientific paradigm of fiscal decentralization in the context of transformation of the entire tax system and range of problems concerning regional financial efficiency was made by such scholars as V. L. Andrushchenko, Ye. M. Bogatyriova, T. M. Bogolib, A. O. Danilenko, O. M. Desiatniuk, Yu. B. Ivanov, A. I. Krysovaty, T. V. Koshchuk, I. G. Lukyanenko, I. O. Lunina, I. O. Liuty, V. M. Fedosov, I. Ya. Chugunov, S. I. Yurii and others. In view of fundamental studies by the scholars, it should be noted that the above problems have not been exhaustively studied, and hence, further research in this field is necessary.

11.1. Essence of fiscal decentralization in contemporary theory and practice

Development of democracy and decentralization of the public sector contribute to ever growing attention to this matter all over the world. Starting from the 1980-s, many countries have chosen decentralization as their development path. Nowadays, there is no standard model, because processes and procedures differ in every country and depend on objectives, tasks, organizational structure and implementation mechanisms.

Decentralization is a method for movement of authority and powers from the centre of the controlled system to its periphery and for strengthening political and legal independence of peripheral subsystems: constituent entities of a federation, municipal entities¹.

In the 1960-s American economist Ch. Tiebout explained the theory of local taxes under decentralization. Ch. Tiebout proceeded from social and psychological motivation of humans, believing that for financial reasons some people would rather stay at home and try to improve their way of living than move somewhere else, while others would change their place of living.

In this sociological study Ch. Tiebout and his followers created a theory of inter-territorial mobility of population combined with the theory of provision of social goods².

Ch. Tiebout further emphasized that fiscal decentralization facilitated intra-regional competition and increasing level of provision of social goods based on the choice made by residents of this or other region – foot voting mechanism.

Relevance of studying Ch. Tiebout's model lies in the fact that it contains features one can use to describe and evaluate activities of local entities, and this way to describe approaches to the problem of optimum allocation of authority and powers and adequate dissemination of financial resources at various levels of country governance.

As any other theory, fiscal decentralization has its features, so when applying it, one should note its advantages and disadvantages. Key advantages of decentralization include, first of all, ability of local self-government bodies to better meet demands of the local population at the local level. Moreover, facilitation of development of competition

¹ Panejko Ju. (1963) Teoretychni osnovy samovrjaduvannja [Theoretical bases of self-government]. Mjunkschen. (in Ukrainian)

² Tiebout C. An Economic theory of fiscal decentralization (1961). NBER, Public Finances, Needs, Sources and Utilization. Princeton (Univ. Press). P. 79-96.

between local self-government bodies (that applies to unitary states; in case of federal states we mean competition between regional and local levels of governance) enables people to choose to deal with administrative units with better level of services.

A substantial contribution to theorization of fiscal decentralization was made by R. Musgrave, who defined the following principles:³

- principle of appropriateness (decisions on production of social goods shall be made by those people, who reside in the territory, where payments are made and taxes and duties are managed for the purpose of financing social goods);

- principle of centralized reallocation (changes in allocation shall be made by the central government holding necessary levers for implementation of allocation policy);

- principle of financial equalization (in case of absence of adequate individual allocation policy, central government shall ensure a certain level of equalization between more and less affluent territories);

- principle of national “sought-after” goods (central government may apply special purpose transfers to stimulate provision of certain local social goods, since production of such goods is characterized by spatial external effects, or such goods have specific relevance from the national point of view).

In reality process of decentralization of functions of central and local governments is extremely complicated. It covers such aspects as finance, administration, control, regulation, reporting and accountability, which per se are elements of relationships between various levels of government.

Key objectives of decentralization include improvement of the public sector efficiency and quality of people’s life. Decentralization is viewed as an integral element of problem solving, which is a consequence of growing demands the public agencies face, and the people’s growing expectations of more efficient performance of functions by public institutions.

From the political point of view decentralization shall facilitate planning improvement and more efficient operations of public agencies, enabling to take into account local needs and conditions simultaneously with fulfilment of regional and national objectives.

³ Musgrave Richard A. Essays in fiscal federalism (1965). Washington: DC: The Brookings Institution.

In terms of fiscal decentralization forms, one must emphasize the following types thereof:

- deconcentration (quasi-decentralization), which allows for dissemination of a number of functions of the central government in the fiscal field at various levels of social structure, while preserving powers of control and financing. This is a more administrative measure per se, since the right to take final decisions in the field of fiscal policy implementation remains with the central authorities;

- devolution (true decentralization), based on transfer of expenditure powers and sources of financing thereof to the lower levels of the national administration, which ensures fiscal autonomy of regional and local authorities, as well as improvement of transparency and accountability of the process of provision of social goods⁴.

11.2. Institutional analysis of fiscal decentralization effects

System of reasoning for implementation of fiscal decentralization appeared in the early 20th century. It is generally based on provisions of the economic theory and includes four key points.

Firstly, decentralization provides for more efficient placement and allocation of resources in the public sector.

Secondly, decentralization facilitates growing accountability of public authorities regarding application of the national budget funds. This point means that under decentralization a link between taxes collected and social goods provided becomes more transparent.

Thirdly, having their own tax base, regional and local authorities must take measures for expansion thereof, i.e. encourage development of local and regional economies. It also facilitates better management of local and regional taxes.

Fourthly, once authorized to manage their budget funds at their own discretion, regional and local authorities are inspired to cut inefficient costs in real economy of the regions⁵.

Fiscal decentralization principles continue to serve as a basis for assessment of local financing systems.

Financial decentralization does not solely depend on allocation of revenues and powers of local authorities to take relevant decisions. Even if those conditions are met, fiscal autonomy of local authorities can be

⁴ Lunina I.O. (2006) Derzhavni finansy ta reformuvannja mizhbjudzhetnykh vidnosyn [Public Finance and Intergovernmental Budget Reform]. Kiev: Institute for Economic Forecasting. (in Ukrainian)

⁵ Bondaruk T.Gh. (2013) Miscevi Finansy [Local Finances]. Kiev: Information and analytical agency. (in Ukrainian)

restricted by heavy regulation and control over expenses, financial planning and arrangements for provision of local public goods (Figure 1).

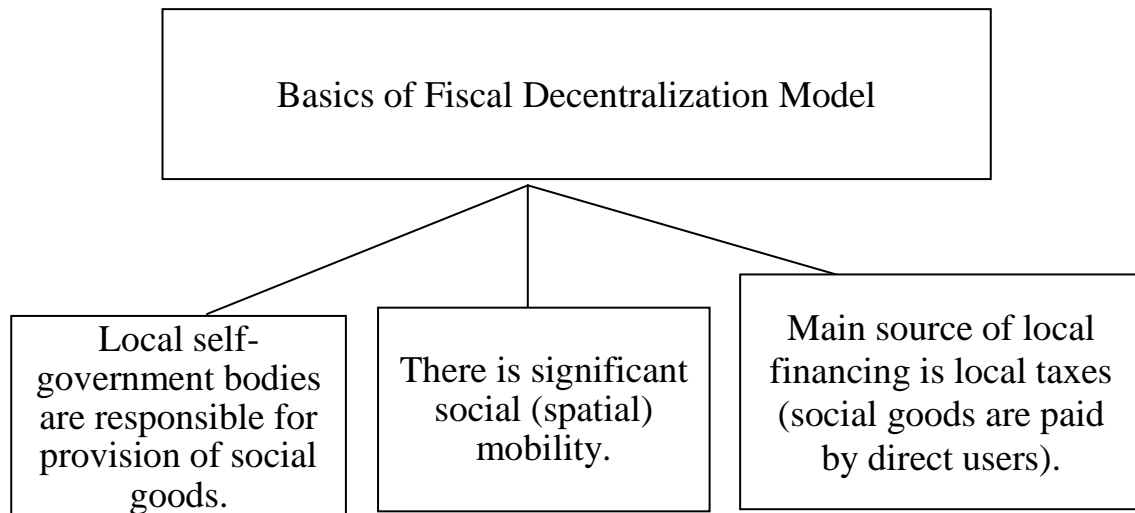


Figure 1. Basics of Fiscal Decentralization Model

Drawn up by the author on the basis of [2; 3; 6]

Features of Ukrainian contemporary model of arrangement of local governance include creation and operation of local executive authorities not for the purpose of control and supervision as to lawfulness of activities of local self-government bodies (as in West-European countries), but for the purpose of taking over the main scope of powers for management of relevant territories, which complicates division of functions between executive authorities and local self-government bodies. This dilemma can be solved by reforms, which include further decentralization.

In European countries decentralization resulted in reallocation of functions in favour of local self-government bodies: the state delegated its functions to local self-government bodies predominantly for provision of mixed social goods. This necessitated financial reforms for decentralizing not only the functions of the state, but also possibilities for implementation thereof. In the last 20 years a large number of European countries implemented reforms for reallocation of budget resources between various administrative levels^{6,7}.

⁶ Oates W.E. Searching for Leviathan: An empirical study / W. E. Oates // The American Economic Review. 1985. Vol. 75 (No. 4). P. 748–757.

⁷ Boryslavska O., Zaverukha I., Zakharchenko E. (2012). Decentralizacija publicnoji vlady: jevropskij dosvid i perspektivy Ukrajinj [Decentralization of public authority: European experience and prospects of Ukraine]. Retrieved from: <http://despro.org.ua/> (accessed 23 January 2020).

In Ukraine current stage of decentralization commenced in 2015, which was reflected in amendments to the Budget Code and Tax Code of Ukraine. Local governments were granted the right to set their local budgets at their own discretion (regardless of the date when the national budget is passed). List of taxes generating revenues of local budgets was extended by means of 100% fee for administrative services, 100% stamp duty, 10% income tax charged from 212 companies, retail sales tax for excisable goods, real property tax, tax on motor vehicles with large displacement engines, 80% environmental tax (in lieu of 35%) and 25% mining tax⁸.

At the same time local budgets lost a part of their revenues from individual income tax: 15% goes to regional budgets, 60% to budgets of district-equivalent cities, 25% to the national budget. As a result, revenues of the national budget from individual income tax grew by 4.5 times, and revenues of local budgets dropped from 46 to 38 billion hryvnias (UAH), and in revenue structure of local budgets – from 61.5% to 44.5%.

In accordance with implementation procedure of the current stage of decentralization, the first step was to create sustainable territorial communities by determining prospective administrative centres of such communities, and not functions of local self-government bodies.

Amid growing geopolitical tension and slowdown of economic dynamics, number of Ukrainian regions, budgets of which are passed with a deficit, continues to grow, along with a debt load on local budgets of the regions, which contributes to exacerbation of current and prospective problems of socioeconomic development. Continuing military operations on Donbass resulted in actual decentralization of administrative and territorial structure and decentralization of Ukrainian budget system.

Fiscal decentralization strategy in Ukraine must be based on evaluation of existing models of the country's tax and budget systems, rights and duties of local government institutions in the field of management of the country's financial resources; people's readiness to new powers of local authorities; increase of responsibility in the field of generation, allocation and application of financial resources region-wise; efficiency of qualified personnel recruitment in the field

⁸ State Statistics Service of Ukraine. (n.d.). Materialy oficijnogho sajtu Derzhavnoji sluzhby statyky Ukrajinjy [Materials of the official site of the State Statistics Service of Ukraine]. Retrieved from <http://www.ukrstat.gov.ua/> (in Ukrainian) (accessed 25 January 2020).

of local self-governance, level of qualification of local authorities, which must be able to provide for efficient process of generation, allocation and application of financial resources of the country's regions; level of motivation of regional authorities and local self-government bodies for increase in efficiency of application of economic, tax and budget potential of the region for the purpose of ensuring integrity and overall development of the state, as well as financial autonomy of the regions⁹.

In order to substantiate necessity for decentralization, we must consider all existing points. When studying indirect consequences of fiscal decentralization we shall focus on certain macroeconomic outcomes, which can be affected by fiscal decentralization and which have been identified in publications as potential determinants of poverty and income distribution. We can name some examples, such as economic growth, macroeconomic stability, regional convergence, scope of the public sector and level of institutional development. In so far as fiscal decentralization has a measurable effect on these outcomes, it is expected indirectly that it will also have a measurable effect on poverty and income distribution.

As far as income is concerned, fiscal decentralization may also affect progressivity of taxation system and hence it may change distribution of available income. For instance, local self-government bodies may be financed out of user fees and indirect taxes, which usually are more regressive, or out of real property taxes, which usually are less progressive than taxation system used by central authorities.

11.3. Analysis of European experience in implementation of fiscal decentralization

In the last few decades many countries of the world implemented large-scale reforms aimed at improvement of national administration efficiency.

Fiscal decentralization is the path European countries have taken and are taking now. Their experience should be studied and taken into account when dealing with decentralization of authority in Ukraine.

Success of such decentralization in our country is required both for creation of the modern civilized society and for improvement of

⁹ Misceve samovrjaduvannja v Ukrajini [Local self-government in Ukraine] (electronic source). Retrieved from http://academy.gov.ua/doc/koment-inter_prezident/2014 (in Ukrainian) (accessed 25 January 2020).

the country's competitiveness on the world markets, since Ukraine's current strategic task is to ensure international regional integration of the domestic economy into the world economy on a parity basis in line with its national interests.

Analysis of studies shows that fiscal decentralization in the countries with a multilevel system of state structure means granting powers to local authorities for imposing and collecting taxes into budget, undertaking expenditures on the basis of decisions made at the local level, and existence of several levels of administrative production of social goods and services is explained by difference in size of the regions.

In order to analyze successful tax decentralization, we shall study data on levels of local self-governance in European federal and unitary states – members of the Organization for Economic Cooperation and Development (OECD). Federations among the European states – OECD members are as follows: Austria, Belgium, Germany, and Switzerland. Highly decentralized countries like Spain and Great Britain shall be analyzed together with federations. Group of unitary states consists of the Czech Republic, Denmark, Estonia, Finland, France, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Sweden and Turkey. Iceland is not included due to lack of data (Tables 1, 2).

When analyzing tax decentralization, one should not forget about high variability of tax mechanisms at the local level. Tax revenues of the local self-governance differ in terms of tax autonomy, i.e. ability to influence taxation parameters. That is why even in countries with identical tax decentralization (TD) coefficient tax autonomy may be different. Ratio of tax autonomy of local self-government bodies in federations is higher than in unitary states, though this difference is not statistically relevant.

Tables 1 and 2 show tax decentralization (TD) coefficients up to the level of local self-governance in the European states – OECD members 2017, as well as correlation between taxation by local authorities and GDP. Variability is indeed very high, starting from the Czech Republic with the lowest level (TD = 1.06%) and up to Sweden with the highest level (TD = 36.93%). Mean decentralization coefficient is much higher in unitary states (TD = 10.6%, or 6.5% GDP), than in federal European states – OECD members (TD = 7.68%, or 2.54% GDP).

Table 1

Tax Decentralization (TD) Coefficient in Unitary States, 2017

Unitary states	Total revenues of the national budget, EUR millions	Revenues of local budgets, EUR millions	Share of tax revenues in revenues of local budgets, %	GDP, EUR millions	Share of revenues of local budgets in GDP, %
Sweden	1,940,035	716,469	36.93	5,380,000	13.31
Denmark	995,058	263,690	26.49	3,249,000	8.11
Finland	97,014	22,781	23.48	251,900	9.04
Italy	727,718	111,024	15.25	19,350,000	0.57
France	1,066,035	141,511	13.27	25,830,000	0.54
Estonia	7,785	70	0.89	25,920,000	2.70
Poland	671,916	86,219	12.83	524,510	16.43
Norway	1,263,230	198,551	15.71	398,830	49.78
Slovenia	15,589	1,461	9.37	4,877,000	0.02
Turkey	772,857	73,490	9.50	8,511,000	0.86
Portugal	67,012	4,817	7.18	2,176,000	0.22
Hungary	14,398,768	845,081	5.86	13,910,000	6.07
Greece	70,003	1,692	2.41	200,290	0.84
Luxembourg	21,405	863	4.03	6,240,000	0.01
Ireland	67,465	1,398	2.07	333,700	0.41
Netherlands	285,620	8,487	2.972	88,262	9.61
Slovakia	27,960	542	1.93	95,770	0.56
Czech Republic	1,760,400	18,806	1.06	2,157,000	0.87
Mean value			10.62		6.51

Drawn up by the author on the basis of data at <https://stats.oecd.org/>

Table 2

Tax Decentralization (TD) Coefficient in Federal States, 2017

Federal states	Total revenues of the national budget, EUR millions	Revenues of local budgets, EUR millions	Share of tax revenues in revenues of local budgets, %	GDP, EUR millions	Share of revenues of local budgets in GDP, %
Austria	149,208	4,517	3.03	416,600	1.08
Belgium	186,323.00	9,352	5.02	1,311,000	0.71
Germany	1,230,455	105,430	8.57	4,029,140	2.86
Spain	394,861	36,821	9.33	1,311,000	2.80
Switzerland	183,979	29,185	0.16	678,900	4.29
Mean value			5.22		2.35

Drawn up by the author on the basis of data at: <https://stats.oecd.org/>

Since we focus only on local self-governance, disregarding the state level in federations, the explanation is that levels of local self-governance in unitary states serve a purpose similar to that of state level governments in federations, especially in small European federations.

International experience shows that the most successful models of regional development include on a mandatory basis a fairly high level of financial autonomy of local authorities, which enables them to plan their own development strategies at their own discretion adjusting these strategies with the level of budget funds necessary for implementation thereof, thus improving their feasibility and implementation quality. The so-called “own” revenues of regional and local budgets are a key factor in fiscal decentralization, since they provide for interrelationship between tax revenues and production of social goods¹⁰.

European practice in the field of financial support for local self-governance confirms the fact that there are no all-embracing models and algorithm for dealing with matters of decentralization of powers, property and sources of local self-governance financing.

One should note a number of important stages of decentralization in European countries:

- Expansion of financial base of local budgets was a mandatory priority. This was done through significant expansion and codification of tax sources for financing local municipalities and methods for accumulation thereof in budgets of local self-government bodies. Various approaches were used for distribution of taxes between levels of the budget system, including: a) clear distribution of specific taxes by government levels (state and local) and assignment thereof to specific levels of the budget system (one tax – one budget principle); b) distribution of tax rates by assigning a certain part of the tax to every level within one tax rate (principle of assignment of quotas); c) inclusion of local charges into national (federal or regional) taxes;

- High value was placed on optimization of inter-budgetary relations both between budgets of various levels, and between budgets of the same level. Efficient measure in this case was elimination of the system of horizontal (budgets of the same level) financial equalization. Solution of those issues was left in hands of the countries’ central

¹⁰ Pro vnesennja zmin do Podatkovogho kodeksu Ukrainy ta dejakykh zakonodavchykh aktiv Ukrainy shhodo podatkovoji reformy [On Amendments to the Tax Code of Ukraine and Certain Legislative Acts of Ukraine on Tax Reform] (electronic source). Retrieved from <http://zakon3.rada.gov.ua/laws/show/71-19> (in Ukrainian) (accessed 25 January 2020).

authorities. Moreover, such practice as departure from delegated powers was widely applied (for instance in Finland);

– Special attention was given to maintaining budget discipline as one of the basic prerequisites for stability and sufficiency of financial resources at the local and national levels. This required more efficient interaction between public authorities (tax and customs services, social funds, etc.) and improvement of coordination between regulatory authorities. Independence of local authorities when using financial flows at their level became an important incentive for local governments to seek sources for budget revenues and to solve socioeconomic tasks of their communities¹¹.

At the same time European countries have a varying level of financial independence of local self-governance. Some countries maintain a high level of dependence of local budgets from central budget subsidies (for instance, in Spain up to 40% of revenues are financed out of national budget subsidies). Today a pressing issue for European countries is to reduce differentiation between levels of financial support of local budgets¹².

It should be noted that positive effects of fiscal decentralization reveal themselves only amid economically homogeneous environment, which entails a fairly high level of GDP production per capita subject to adequate development of institutional environment. In this case transfer of expenditure and revenue powers to the lower levels of budget system enables to create a multiplication effect of economic growth and to improve quality of people's life. If decentralization is implemented amid weak budget capacity and significant external and internal regional differentiation, it leads to conflict of interests of budgets of various levels and neutralizes its positive effects.

11.4. Impact of fiscal decentralization on socioeconomic development of Ukrainian regions

As a multifactor and multicomponent phenomenon of contemporary inter-budgetary relations, fiscal decentralization requires an adequate evaluation, enabling to take into account special features of instrumental components of implementation thereof and to ensure extensive possibilities for further comparative analysis.

¹¹ Dzherela dokhodiv miscevykh bjudzhetiv [Sources of local budget revenues] (electronic source). Retrieved from <http://decentralization.gov.ua/news/7476> (in Ukrainian) (accessed 25 January 2020).

¹² Struktura vydatkiv miscevykh bjudzhetiv [Structure of local budget expenditures] (electronic source). Retrieved from <http://www.treasury.gov.ua/main/uk/> (in Ukrainian) (accessed 25 January 2020).

There are two main approaches to evaluation of fiscal decentralization: qualitative and quantitative. Measuring decentralization degrees using a qualitative scale enables us to estimate, in which cases decentralization has a weaker or a stronger effect on comparable objects; and in these circumstances objects for comparison may be different countries or one and the same country at various levels of its development.

Quantitative approach is based on use of statistical parameters. However, application of quantitative estimates inevitably simplifies the picture and may create a false impression regarding realistic estimate of the degree of decentralization of public functions. Therefore, both approaches should be applied for evaluation of decentralization.

Comprehensive analysis was developed and suggested by E. I. Andreieva and N. V. Golovanov. It entails application of the following evaluation methods: quantitative evaluation of decentralization of expenditures, qualitative evaluation of the degree of decentralization of expenditure powers, quantitative evaluation of the degree of decentralization of revenues, qualitative evaluation of the degree of decentralization of revenues¹³.

When evaluating degree of decentralization of expenditures, one should take into account that possibility to spend does not always include the right to dispose of such funds. If expenditures of the lower levels are strictly governed by the law adopted at the higher level of authority, subordinate authorities will not have actual independence even amid strong decentralization.

Moreover, scope of expenditures of lower budgets depends on the scope of special purpose transfers, assignment of which manifests decentralization of expenditures, but may not mean decentralization of powers, if spending is subject to strict control. Hypothetically, we can evaluate the degree of decentralization of expenditures on the basis of analysis of laws and regulations governing division of powers between public authorities.

Decentralization of expenditures enables to differentiate provision of services in view of preferences of local residents. At the same time differentiation of the tax load may give rise to the problem of transfer prices, tax competition between territories and other undesirable effects.

¹³ Структура податковийх надходжень до місцевийх бюджетів [Structure of tax revenues to local budgets] (electronic source). Retrieved from <http://cost.ua/budget/revenue/> (in Ukrainian) (accessed 25 January 2020).

One of the parameters of decentralization of revenues is a share of revenues of regional and local budgets in revenues of the country's consolidated budget.

We can also evaluate the degree of independence of regional budgets on the basis of the share of own revenues of regional authorities in the structure of revenues of appropriate budgets: the higher the share of own revenues in the structure of regional budgets is, the higher the level of decentralization is.

When considering qualitative evaluation techniques, we should distinguish between six groups of the main components:

- powers of territorial authorities (scope of powers, method for determining powers and allocation thereof, institutional structure);
- finance (evaluation of the nature of own revenues, determining a pattern for regulation of the scope of transfers, quantitative evaluation of such parameter as share of own revenues in the budget, correlation between special and general purpose transfers, share of transfers in revenues, means for elimination of budget deficit, scope of statutory expenditures);
- public authorities (procedures and manner for creation of structure and composition);
- control (determining types of control, control authorities, forms of responsibility);
- evaluation of lobbying possibilities (in the form of participation in activities of higher level authorities, development of individual political career and local resources, forms and degree of impact by pressure groups – associations and unions of local authorities);
- practices of application of standards and use of possibilities¹⁴.

These techniques unveil to a fairly full extent opportunities and limitations of local authorities in allocation of resources assigned to them. However, in our opinion, when evaluating degree of decentralization one should also take into account participation of local authorities in the process of decision making on any issues, establishment of local authorities and other factors, not specified in the above techniques.

Local authorities are able to create conditions that would contribute to economic growth of the regions. It is in power of local authorities to utilize all necessary tools for bringing in investments, development of

¹⁴ Balynsjka Ju.I. (2014) Osoblyvosti rehionalnykh program vykorystannja vidnovljувanykh dzherel energhiji [Features of regional renewable energy programs]. *Regional economy*, vol. 1, pp. 74–78. (in Ukrainain)

entrepreneurship, small and medium-scale businesses, and to facilitate creation of new jobs and growth of self-employment level. By solving these problems we can improve wellbeing of local residents, guarantees for replenishment of local budgets, rate of increase in revenues to the national budget, and hence – growth of the country's wellbeing in general.

Problem of financial support of local budgets must be solved through revitalization of economic and commercial activities of local authorities for the purpose of increase in the share of own and assigned sources of revenues in local budgets and decrease in the share of transfers, as well as overall growing in number of the regions, which do not need significant transfers from the national budget.

Advantage of fiscal decentralization is facilitation of growing financial potential of the regions, investments and entrepreneurship, which in the end will ensure economic growth of certain territories.

Transfer of powers and resources for implementation thereof to the local level enables to ensure maximum efficient implementation of the functions of the state, improvement of inter-budgetary relations, proper control of the budget process and cash flows, increasing citizen activism and accountability to the community, better satisfaction of the community's needs on the basis of the delegated right of the local authorities to determine forms of provision of social services.

According to the law and regional prospective plans of territory formation joint communities receive the following significant preferences in terms of financial support and resources: 60% of individual income tax, direct inter-budgetary relations with the national budget, national government grants, participation in financial equalization, advanced list of social transfers, full expenditure powers, access to local external loans, powers in the field of architectural and civil engineering control, right to provide all administrative services directly through their own institutions, powers to establish public order agencies. Furthermore, joint communities receive national financial support out of assets of the State Fund of Regional Development in the form of grants from the national budget for creation of infrastructure in accordance with the plan of socioeconomic development of the community.

Significant differentiation of local budgets is determined based on the territory, infrastructure development, scope of reforms implemented, which is reflected on increase in essential deviations in allocation of tax

potential country-wise, differences in the structure of needs in budget financing, their budget position.

In order to improve efficiency of operation of budget systems, generation of local budget revenues must be based on the fiscal equivalence principle, according to which consumers of local social goods shall bear appropriate costs and finance provision of such goods out of taxes paid by them. Such approach means that tax load is not exported outside the territorial community, and differences in taxation levels determine benefits community residents receive from local social goods and services. Their “net financial benefit” will depend on taxation level and on availability of local social goods and services in the region (administrative area) where they live.

11.5. Prospects of fiscal decentralization development: modelling of indicative parameters

Ukrainian budget system today is characterized by a fairly high degree of centralization of budget resources, which indicates accumulation of basic powers at the level of central authorities, underdevelopment of local self-governance and instability of its financial system – local budgets.

However, practice of planning, control and analysis of execution of budgets of all levels highlights the fact that tax potential of the regions directly affects generation of revenues of local budgets, cost of services provided by regional executive authorities in view of varying nature of administrative areas, need in funds channelled for maintenance of social and cultural facilities and support of vulnerable social groups.

One can name reasons of low efficiency of the current local self-governance system, the main reason being non-agreement of certain regulations of the Ukrainian Constitution between themselves and ambiguousness of certain legal notions. 80% of powers of local self-governance are identical with powers of the state administration. Definition “district and regional budgets made out of assets of the national budget” undermines existence of executive bodies of district (regional) councils, because disposal of the national assets is a domain of executive authorities, and not of local self-government bodies¹⁵.

¹⁵ Lazur S. P. (2013) Systemnyj pidkhid do strukturyzaciji podatkovoji systemy rynkovogho typu [Systematic approach to structuring a market-type tax system]. *Efektyvna ekonomika* (electronic journal), vol. 1. Retrieved from http://nbuv.gov.ua/UJRN/efek_2013_1_31 (in Ukrainian) (accessed 29 January 2020).

Budget decentralization shall facilitate efficient implementation of result-oriented budgeting at the local level, development of the system of horizontal budget equalization at the level of administrative areas, system of parameters for evaluation and quality of finance management at the local level with simultaneous strengthening of public financial control over financial and commercial activities of local authorities.

When creating a model, we should take into account complexity of the subject of study. That is why at the initial stage of analysis we will focus only on one component of fiscal decentralization: correlation between revenues and expenditures of the national level budgets.

We used the following standard regression model in our study:

$$S_{it} = \beta X_{it} + \delta_t + u_i + \varepsilon_{it} \quad (1)$$

where S_{it} is a decentralization value in the period t in the region i ;

X corresponds to explaining variables used in this regression;

δ_t – dummy variable of a year or a period (temporary fixed effect);

β – estimated coefficient;

u_i and ε_{it} – two components of residuals showing effect specific for the country or the region, respectively.

In the course of our study we analyzed joint territorial communities in 24 regions of Ukraine with a breakdown into 4 explaining variables, namely:

- own revenues per resident (correlation between the scope of own revenues and number of residents in the given joint territorial community);
- distance from the region's administrative centre;
- level of subsidy-dependence of the budgets (correlation between the scope of basic or reverse subsidy and total revenues of the joint territorial community, less grants from the national budget);
- relative share of administrative expenses in financial resources of the joint territorial community (relative share of administrative expenses of local self-government bodies in total own revenues of the general fund).

They are essential for the model. There is no heteroscedasticity in the model (Table 3).

So, based on modelling results we have come to the conclusion that the leading positions are held by 10 joint territorial communities in Ukraine: Slobozhanske (Dnipropetrovsk Region), Verbky (Dnipropetrovsk Region), Bogdanivka (Dnipropetrovsk Region), Shakhove (Donetsk Region), Rozsosha (Khmelnysky Region), Globyne, Novooleksandrivka (Dnipropetrovsk Region), Orativ

(Vinnytsia Region), Galytsynove (Mykolaiv Region), Shyshaky (Poltava Region).

Table 3

Verification Values of the Model of Indicative Parameters of Fiscal Decentralization

	<i>Coefficient</i>	<i>Statistical error</i>	<i>t-statistics</i>	<i>P-value</i>	
const	-1,531.60	2,507.51	-0.6108	0.5680	
x	-14.2293	5.44011	-2.616	0.0473	
c	515.643	173.829	2.966	0.0313	
b	-36,064.3	9,942.01	-3.627	0.0151	
n	1.68975	0.330542	5.112	0.0037	

Mean dependent variable	10,235.43		Statistical deviation of the dependent variable	4,920.128
Sum of squared residuals	21,718,274		Statistical error of the model	2,084.144
R-square	0.900315			

Drawn up and calculated by the author

Based on statistical data, we have developed a correlation matrix for establishing interrelationship between values of growth of own revenues per resident and distance from the administrative centre of the region, capital expenditures from budgets per person, number of community members, relative share of administrative expenses and level of subsidy-dependence of the budgets (Table 4).

Here we can see direct dependence between the scope of capital expenditures and own revenues of joint territorial communities, i.e. the larger capital expenditures are, the larger the relative share of own revenues is, and inverse dependence between the population size and distance from the centre.

Therefore, we can conclude that we have introduced the term of interaction between regressors to explain differences in effects of fiscal decentralization region-wise.

For some regions we find a positive and statistically relevant effect of decentralization on the share of regional capital expenditures. Results show that degree of fiscal decentralization is growing, and we witness increase in national and local expenditures.

Table 4

**Dependency Matrix of Indicative Parameters
of Fiscal Decentralization**

Correlation coefficients, survey 1–10 5% critical values (two-sided) = 0.6319

Distance from centre (x)	Population size (q)	Own revenues (r)	Level of subsidy-dependence of budgets (t)	Capital expenditures (n)	
1.0000	0.4547	-0.1083	-0.2684	-0.0474	x
	1.0000	0.1637	0.0813	-0.1050	q
		1.0000	-0.4378	0.7329	r
			1.0000	-0.0653	t
				1.0000	n

Drawn up and calculated by the author

One can make some suggestions for dealing with the above problems of fiscal decentralization. Firstly, it is necessary to improve the existing tax system in order to enable and to authorize local authorities to create budget using their own sources for the purpose of improving their independence in generation of the necessary scope of assets. Afterwards, it is necessary to change the mechanism for provision of centralized national support to the regions for the purpose of creation of environment for activation of all development levers. It is also feasible to provide incentives to territories that spread economic growth tendencies and facilitate growth of the neighbouring regions.

CONCLUSIONS

Based on results of the study of theoretical and practical aspects of implementation of fiscal decentralization and impact thereof on financial efficiency of regional development in Ukraine, we can make the following conclusions.

We have identified the meaning of fiscal decentralization in contemporary theory and practice as a process of transfer of expenditure powers and sources of financing thereof to the lower levels of the national administration, which ensures fiscal autonomy of regional and local authorities, as well as improvement of transparency and accountability of the process of provision of social goods. We

have also identified principles of implementation and main types of fiscal decentralization.

In the course of institutional analysis of fiscal decentralization effects we have distinguished direct effects (economic growth and price stability, regional economic convergence, institutional development) and indirect effects (population mobility, structure of expenditures, tax expenses, employment).

Foreign experience in implementation of fiscal decentralization has been analyzed in terms of federal and unitary states – OECD members on the basis of calculation of tax decentralization coefficient, which has enabled us to substantiate the statement that the most successful models of regional development include on a mandatory basis a fairly high level of financial autonomy of local authorities, which enables them to plan their own development strategies at their own discretion adjusting these strategies with the level of budget funds necessary for implementation thereof, thus improving their feasibility and implementation quality. The so-called “own” revenues of regional and local budgets are a key factor in fiscal decentralization, since they provide for interrelationship between tax revenues and production of social goods.

On the basis of generalized methodological approaches to evaluation of fiscal decentralization, we have analyzed dynamics of fiscal decentralization parameters in Ukraine in 2015-2017, namely: dynamics of the relative share of revenues of local budgets in Ukraine, which was characterized by tendency for increase in the share of transfers starting from 2010: from 53% in 2010 to 59% in 2015, and, respectively, tendency for decrease in the relative share of own revenues; shares of local budget revenues in the structure of revenues of the Ukrainian consolidated national budget (decentralization coefficient in terms of revenues), and have identified a variety of trends for the time period analyzed.

Evaluation of financial efficiency of Ukrainian regions as a result of fiscal decentralization has enabled us to conclude that there is a relative tendency for growth of local budget revenues (less inter-budgetary transfers) with a clear trend in increase of transfers per se, which proves that local budgets depend on the Ukrainian national budget and confirms that it is necessary to focus the country’s budget policy on fiscal decentralization policy in the long run.

When studying prospects of development of fiscal decentralization as a factor of development of Ukrainian regions, we

have performed modelling of indicative parameters of fiscal decentralization by creating a regressive model with a breakdown into 4 explaining variables, namely; own revenues per resident, distance from the region's administrative centre, level of subsidy-dependence of the budgets of joint territorial communities, relative share of administrative expenses in financial resources of joint territorial communities. Based on modelling results, we have identified direct dependence between the scope of capital expenditures and own revenues of joint territorial communities, and inverse dependence between the population size and distance from the region's administrative centre.

We have suggested solutions for fiscal decentralization problems in Ukraine identified in the course of the study, namely: necessity to create local budgets using own sources of revenues, improvement of their level of independence and non-use of subsidies, optimization of the mechanism for provision of the national support to the regions, provision of incentives to territories for the purpose of dynamic economic growth.

SUMMARY

The article deals the processes of active implementation of the decentralization reform in Ukraine, increasing the overall level of responsibility of Ukrainian society, which actively creates financially viable integrated territorial communities, capable of solving accumulated systemic socio-economic problems, and directly participates in the processes of territorial governance. Decentralization is today an opportunity for communities to have the authority and resources to meet the current needs of the region. The purpose of this study is to summarize the theoretical foundations and to improve practical approaches to fiscal decentralization in the context of the transformation of the public finance system in Ukraine. Accordingly, the following research objectives have been identified and solved: the essence of fiscal decentralization in modern financial science and practice is revealed; conducted institutional analysis of the effects of fiscal decentralization; foreign experience of fiscal decentralization implementation efficiency is analysed; methodological approaches to the estimation of fiscal decentralization and dynamics of its parameters are presented; using the methods of economic and mathematical modelling the influence of fiscal decentralization on the socio-economic development of the regions of Ukraine is determined.

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CHAPTER 12

THE INTELLECTUAL-KNOWLEDGE IMPERATIVE OF THE GLOBAL ECONOMY IN THE 21ST CENTURY

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INTRODUCTION

The end of the twentieth century marked the formation of a global model of economic development as a result of gradual fundamental transformation processes in the world economy. The combination of world economic entities in a single international economic system in accordance with the trends of global economic development (integration, transnationalization, socialization, institutionalization and strategic orientation to innovation) defines the new disposition of countries on the economic map of the world. Sovereign states are forced to adjust foreign policy, develop strategies to adapt to current performance criteria, to find their place in the new model of international distribution of labor and their own niche in international markets.

But at the turn of the second and third millennium, the world economy faced information and communication technologies revolution, resulting in cheaper and more reliable communications, new information management software, powerful personal computers the proliferation of which is growing rapidly. If in the mid-1990s the number of mobile cellular subscribers averaged 2 per 100 people, and the proportion of those using the Internet fluctuated within 1% of the total population, in 2000 the value of these indicators reached 17 people and 9% respectively. In the first half of 2010, the upward trend in these indicators accelerated due to the emergence of mobile, portable devices that provided Internet access and the gradual decline of fixed telephony technologies. In 2017, the percentage of the world population using the Internet came close to 45%, and the proportion of mobile cellular subscribers per 100 people exceeded 100%¹.

Under new conditions, there is a redistribution of world economic power: the triad countries that formed the core of the world economy

¹ World Bank Group (2020). *World Development Report 2020: Trading for Development in the Age of Global Value Chains*, Washington: World Bank Publications. Retrieved from: <https://openknowledge.worldbank.org/handle/10986/32437> (accessed 01.12.2019).

of the twentieth century (the USA, Japan and the European Union) are inferior to global markets for countries that are effectively implementing strategies of intellectual breakthrough and maximum mobilization of the national resource base undergoing the formation of branches of the sixth technological way (China, India, Hong Kong, Brazil, Singapore, India, South Korea, and some countries in the Middle East). Modification of the model of world economic power is accompanied by exacerbation of socio-economic contradictions between the subjects of the global economy, which is manifested in the following: stratification of segments of the economy by technological structures (parallel existence of agrarian raw materials, industrial and postindustrial), and specific enclaves and innovation economics); complication of the structure of the economic system based on the differentiation of sectoral sectors (development of the virtual sector and creative industries) and subjects of the global economy (national states, integration groups, international organizations, cities-leaders, clusters, international companies and individuals which are able to influence the dynamics of global economic development scientists, Nobel laureates, university professors, prominent financiers, entrepreneurs, etc.)².

Taking into account these changes, it is appropriate, in our view, to analyze innovative developments in today's global markets; methodological identification of key concepts of global economy intellectualization process and identification of features of extended reproduction cycle of an intellectual product.

12.1. Innovative shifts in today's global markets

According to the world institutions dealing with issues of globalization, since the beginning of the 21st century. The fourth phase of economic globalization has begun, the peculiarities of which are the multipolarity of the world economy and the use of digital technologies in production, services³.

² Luk'yanenko D., Poruchnik A., Kolesov V. (ed.) (2013) *Global'noe ekonomicheskoe razvitiie: tendentsii, asimmetrii, regulirovanie* [Global economic development: trends, asymmetries, regulation: monograph]. Kyiv: KNEU. (in Russian).

³ Bhattacharya A., Bürkner H.-P., Bijapurkar A. (2016). What you need to know about globalization's radical new phase. *BCG Henderson Institute*. Retrieved from: <https://www.bcg.com/publications/2016/globalization-growth-what-need-know-globalization-radical-new-phase.aspx> (accessed 27 December 2019); International Bank for Reconstruction and Development / World Bank (2002). *Globalization, Growth, and Poverty. A World Bank Policy Research Report*. Washington – New York: a copublication of the World Bank and Oxford University Press. Retrieved from: <http://documents.worldbank.org/curated/en/954071468778196576/pdf/multi0page.pdf> (accessed 29 December 2019).

The defining direction of civilizational development since the end of the second millennium AD is the innovative vector⁴. Noting that innovations «... lead to deterioration in product performance, at least in the short term», but subsequently become «fully competitive in the same market» due to being «cheaper, simpler, smaller in size and easier to use, even if «the product improvement pace outstrips the growth of consumer needs», we are witnessing a breakthrough in new technologies⁵. To illustrate his statement, K. Christensen cites the emergence of light motorcycles Honda, Kawasaki and Yamaha in the markets of North America and Europe, which are considered as breakthrough technology for powerful Harley off-road motorcycles Davidson and BMW, the invention of transistors breakthrough, vacuum tubes Targeted and Walmart merchandise for supermarket purchases. Identifying the term «innovation» as «any combination of activities or technologies that breaks existing trade-offs to achieve results in such a way as to widen the scope of the possible»⁶, the nature of innovation can be recognized as destructive to the existing, established order. Movement and change, as a consequence, are typical phenomena of history, and therefore of economics. In our view, the movement to any direction, to any landmark, has, in the end, certain changes, adaptation to which promotes invention and development, which can be measured by economic indicators of income and expenses.

The steady tendency to invest in the development of science and technology has led to the end of 20th beginning of 21st century a significant change in the global landscape of research, education and business, which is considered the beginning of a new civilization era – postindustrial. The value reorientation of society from the dominant economic features of the industrial development system to the «system of intellectually-creative coordinates»⁷, defines the new

⁴ Bhattacharya A., Khanna D., Schweizer C., Bijapurkar A. (2017). The New Globalization: Going Beyond the Rhetoric. *BCG Henderson Institute*. Retrieved from: <https://www.bcg.com/publications/2017/new-globalization-going-beyond-rhetoric.aspx> (accessed 21 December 2019); Deloitte Development LLC (2015). *Patterns of disruption: anticipating disruptive strategies in a world of unicorns, black swans, and exponentials*. Bratislava: Deloitte University Press. Retrieved from: <https://www2.deloitte.com/content/dam/Deloitte/nl/Documents/technology/deloitte-nl-deloitte-patterns-of-disruption.pdf> (accessed 17 November 2019).

⁵ Christensen C. M. (2012). *The innovator's dilemma: when new technologies cause great firms to fail*. London: HarperCollins Publishers. Retrieved from: <https://pdfs.semanticscholar.org/ca36/98315441292596205d44d1a775d9cfc3fe37.pdf> (accessed 4 December 2019). DOI:10.15358/9783800642816.

⁶ Raynor M. (2013). Introducing perspectives on innovation. *Deloitte Consulting*. Retrieved from: <http://dupress.com/articles/introducing-on-innovation> (accessed 10 December 2019).

⁷ Luk'yanenko D., Poruchnik A., Kolesov V. (ed.) (2013). *Global'noe ekonomicheskoe razvitiye: tendentsii, asimmetrii, regulirovaniye* [Global economic development: trends, asymmetries, regulation: monograph]. Kyiv: KNEU (in Russian).

foundations of civilizational progress: the broad intellectualization of production, the priority development of science, the development of complex intellectual labor. The information-technological mode of production, which dominates at the present stage of civilizational development, is characterized by processes of informatization, electrification, computerization and robotization. Intellectual works, especially research in the field of science and technology and their commercialization, become the basis of modern economics, and the economy itself becomes intellectual, knowledge- and scientifically intensive.

The strategic orientation of the global economy to innovation tightly links the competitiveness of national economies with the effectiveness of adherence to technological progress, which dramatically altered the distribution of economic opportunities. Recognizing innovation as a major lever of economic growth today, it is impossible to ignore the destabilizing effects of super-rapid technological development, known as digitization, digitalisation of the global economy, or the Economy 4.0 phenomenon⁸. Among the interventions that increase «fragility» in the technological sphere, N. Taleb calls neomania, «the love of change and the new for the sake of change and the new; predicting the future by adding, not subtracting,» which can also result in alienation and dulling⁹.

Digital technologies, along with geopolitical and socio-economic shifts, have changed the course of globalization and led to contradictory facts about its development. According to the World Bank Group, the recession of the global economy continues during 2010-2019: the growth rate of the global gross product decreases (in 2017 3.2%, in 2018 3.0%, in 2019 (preliminary data) 2, 4%), world trade volume (in 2018 4.0%, 2019 (preliminary data) 1.4%) and investment flows¹⁰. On the other hand, during this same period, fundamentally new forms of business emerged, which were able to predict and capture models of innovative destruction in global markets in a timely manner (Table 1).

⁸ World Economic Forum (2019). *Policy Pathways for the New Economy. Shaping Economic Policy in the Fourth Industrial Revolution*. Geneva: World Economic Forum. Retrieved from: http://www3.weforum.org/docs/WEF_Policy_Pathways_for_the_New_Economy.pdf (accessed 27 November 2019).

⁹ Taleb N. N. (2018). *Antykrykhistij. Pro (ne)vrazlyve u realnomu zhytti* [Antifragile. Things that Gain from Disorder] / trans. from English. M. Kdymchuk. – Kyiv: Nash format (in Ukrainian).

¹⁰ A World Bank Group (2020). *Global Economic Prospects. Slow Growth, Policy Challenges*. Washington: World Bank Publications. Retrieved from: <https://www.worldbank.org/en/news/feature/2020/01/08/january-2020-global-economic-prospects-slow-growth-policy-challenges> (accessed 9 January 2020).

Table 1

Basic models of innovative destruction in today's global markets *

Catalysts	Risks	Examples of successful adaptation
Increasing the number of consumers and manufacturers through the use of virtual distribution channels		
A digital infrastructure that gives access to sophisticated production facilities Personalized products Reduction of barriers to entry and a favorable regulatory policy	Decrease in profit margins; receipts from physical distribution channels; values of investments in assets of retail trade, production and logistics; Changing perceptions about the need for physical assets	e-commerce Sale of audio and video content
Access to underutilized assets of adjacent markets		
Digital infrastructure Sensors for advanced analytics in real time; from ownership to access rights	Sustainability of low-use asset maintenance costs Decrease of economic expediency of acquisition of valuable assets	Hospitality and hotel business
Transformation of products into platforms		
Digital infrastructure from consumers to users through training and aggregation platforms	Standardized Product Revenue declines Impairment of production capacity Changing perceptions of who is a partner, not a competitor	Mobile Software, PC Operating Systems
Peer-to-peer interaction or peer interaction		
Creating digital technologies From information ownership (protection) and inside control to open information flows (sharing) and trust between businesses	Decrease in revenue from patented products Depreciation of own assets that contributed to centralization and concentration of power	Distributed control systems Digital Markets Streaming services
Distributed product development		
Digital infrastructure From passive consumer to active participant based on training and aggregation platforms	Lack of income from the main activity and the need to eliminate existing production facilities Changing perceptions of what the role of third parties is	Online libraries and encyclopedias, maps, travel guides, digital music players

Catalysts	Risks	Examples of successful adaptation
Transformation of goods and services into a package of goods and service		
A digital infrastructure that gives access to sophisticated production facilities From «more than you want» to «just what you want» Market growth due to aggregation platforms	Decrease in revenue as a result of market entry at a competitive price The need to eliminate existing production facilities and distribution infrastructure; change of the image that is valued by the consumers	Media players for the operating system Online ads, Wireless messaging systems
Value chains reduction		
Digital infrastructure and cheaper physical, digital distribution technologies; Consolidation of consumer purchasing power through aggregation platforms	Decreasing revenue from existing distribution channels and product configurations Need to eliminate existing production facilities, equipment	Digital cameras Personal computers Furniture and interior design
Matching the price and usage of a product		
Digital infrastructure; sensors for advanced analytics in real time; from property rights to access rights; avoiding down payments	Creating unique assets from “zero”; dilution of revenue due to refusal from advance payment; Perception change of the product value and product delivery	Customer relationship management systems; «SaaS», «PaaS», «IaaS» models; server computers
Products integration		
Invention and standardization based on smaller, faster, cheaper components; from desire to get the best to adopting a basic, more affordable, universal product	Need to eliminate existing production facilities; Perception change of consumer value and form-factor	Microchips and wireless units; smartphones, portable navigation devices

* summarized by author from sources¹¹

¹¹ Deloitte Development LLC (2015). *Expand market reach: connecting fragmented buyers and sellers – wherever, whenever*. Bratislava: Deloitte University Press. Retrieved from: https://www2.deloitte.com/content/dam/insights/us/articles/disruptive-strategy-market-reach-digital-marketplaces/DUP_1459_Expand-market-reach_vFINAL.pdf (accessed 27 October 2019); Deloitte Development LLC (2015). *Unlock assets from adjacent markets: cultivating opportunities on the edge*. Bratislava: Deloitte University Press. Retrieved from: https://www2.deloitte.com/content/dam/insights/us/articles/disruptive-strategy-unlock-assets-adjacent-markets/DUP_3059_Unlock-adjacent-assets_vFINAL.pdf (accessed 24 December 2019); Deloitte Development LLC (2015). *Turn products into product platforms: providing a foundation for others to build upon*. Bratislava: Deloitte University

The analysis of the Table 1 allows us to argue that the main catalysts for innovation in today's global marketplace are the proliferation of digital technologies as the basis for digital infrastructure, the emergence of a platform business model and the rethinking of consumer roles. As an example of businesses that emerged from the successful acquisition of catalysts for innovative change and a rethinking of strategic vision, unicorns, organizations specializing in the development of exponential technologies, and a platform business model can be called.

Technology companies operate on the principle of «smaller, faster, more powerful, but also cheaper», which results in the destruction of businesses with less technologically ready competitors. The amount and real amount of money raised by private companies tech startups that, according to PitchBook, CB Insights, Fortune news feeds and own research, have crossed the \$ 1 billion limit. As of January 2015, the number of «unicorns» was 80 companies¹², and in January 2016, their number exceeded 170 companies¹³, and formed a group of so-called. «Decacorns» companies whose valuation exceeded \$ 10 billion¹⁴. The first “decayer” venture capitalists call Facebook, the value of which reached \$ 10 billion in 2013. In January 2016, the Decare Group had 13 companies, led by Uber worth \$ 62 billion.

Press. Retrieved from: https://www2.deloitte.com/content/dam/insights/us/articles/disruptive-strategy-product-platforms/DUP_3056_Products-to-platforms_v2.pdf (accessed 25 November 2019); Deloitte Development LLC (2016). *Connect peers: leveraging the evolving digital infrastructure to empower the edge*. Bratislava: Deloitte University Press. Retrieved from: https://www2.deloitte.com/content/dam/insights/us/articles/3061_Patterns-of-disruption-connect-peers/DUP_Patterns-of-disruption-connect-peers.pdf (accessed 25 November 2019); Deloitte Development LLC (2015). *Distributed product development: mobilizing many to create one*. Bratislava: Deloitte University Press. Retrieved from: https://www2.deloitte.com/content/dam/insights/us/articles/disruptive-strategy-distributed-product-development/DUP_1461_Distributed-product-development_vFINAL.12.2.pdf (accessed 11 November 2019); Deloitte Development LLC (2015). *Unbundle products and services: giving you just what you want, nothing more*. Bratislava: Deloitte University Press. Retrieved from: https://www2.deloitte.com/content/dam/insights/us/articles/disruptive-strategy-unbundling-strategy-stand-alone-products/DUP_3033_Unbundle-products_v2.pdf (accessed 1 December 2019); Deloitte Development LLC (2015). *Shorten the value chain: mtransforming the stages of value delivery*. Bratislava: Deloitte University Press. Retrieved from: https://www2.deloitte.com/content/dam/insights/us/articles/disruptive-strategy-value-chain-models/DUP_3057_Shorten-the-value-chain_v2.pdf (accessed 27 November 2019); Deloitte Development LLC (2015). *Align price with use: reducing up-front barriers with usage-based pricing*. Bratislava: Deloitte University Press. Retrieved from: http://emprenderioja.es/files/recurso/dup_3058_align-price-with-use_v2.pdf (accessed 22 October 2019); Deloitte Development LLC (2015). *Converge products: making 1 + 1 > 2*. Bratislava: Deloitte University Press. Retrieved from: https://www2.deloitte.com/content/dam/insights/us/articles/disruptive-strategy-convergence-of-products/DUP_1465_Converge-products_vFINAL.pdf (accessed 6 December 2019).

¹² Fortune (2015). *The Unicorn List*. Retrieved from: <https://fortune.com/unicorns/2015/search/?valsort=desc> (accessed 13 January 2020).

¹³ Fortune (2016). *The Unicorn List*. Retrieved from: <https://fortune.com/unicorns/> (accessed 13 January 2020).

¹⁴ Griffith E., Primack D. (2015). The age of unicorns. *Fortune*. Retrieved from: <http://fortune.com/2015/01/22/the-age-of-unicorns/> (accessed 13 January 2020).

Exponential organizations embody a business model that predicts exponential growth in productivity, profitability, and market share while reducing the number of working and used physical resources, lacking business experience, and abandoning standard competitive strategies. Due to this, a significant increase in the performance characteristics and functionality of each subsequent generation of the product is ensured with a slow increase in its price (ie, an increase in productivity by orders of magnitude higher than the price increase). Greater flexibility and dynamism compared to large linear companies allows exponential organizations to be competitive even in the following circumstances: the loss of business competence has been reduced from 30 years in 1984 to 5 years in 2014, the average lifespan of companies in the list The S&P 500 ranged from 67 in 1920 to 15 in 2014, with Fortune 500 companies reaching \$ 1 billion in market cap. USA from, on average, 20 years in the twentieth century, up to, in some cases, 1 year in the second decade of the 21st century¹⁵.

The list of unicorn companies is closely intertwined with the list of exponential companies, so the risks of further development are common to them. Venture capital market experts acknowledge that the expectations of significant returns and rapid market capitalization on them by tech start-up investors are comparable to the degree of vulnerability of this business. In particular, Hortonworks' aggressive investment fundraiser specializing in open source software development, Box storage and the Fab e-commerce site failed to deliver «unicorns» of declared cost metrics¹⁶. The facts indicate the disproportionate impact of today's technology companies on macroeconomic dynamics: Google and Amazon represent the relevant global markets¹⁷; the market capitalization of the largest technology companies largely determines the state of the global stock market, since during the period from August 2018 to January 2020, their value reached \$ 1 trillion. United States: Apple \$ 1.38 trillion, Microsoft \$ 1.27 trillion, Alphabet \$ 1.001 trillion, Amazon \$ 931 billion¹⁸. Such

¹⁵ Ismail S., Malone M. S., van Geest Y. (2019). *Exponential Organizations: Summary and Review*. Retrieved from: <https://lifeclub.org/books/exponential-organizations-salim-ismail-michael-s-malone-yuri-van-geest-review-summary> (accessed 11 January 2020).

¹⁶ Griffith E., Primack D. (2015). The age of unicorns. *Fortune*. Retrieved from: <http://fortune.com/2015/01/22/the-age-of-unicorns/> (accessed 13 January 2020).

¹⁷ Ismail S., Malone M. S., van Geest Y. (2019). *Exponential Organizations: Summary and Review*. Retrieved from: <https://lifeclub.org/books/exponential-organizations-salim-ismail-michael-s-malone-yuri-van-geest-review-summary> (accessed 11 January 2020).

¹⁸ Denis-19 (2020). Rynoch'naya stoimost' Alphabet v pervye prevysila \$1 trln. [Alphabet's market value exceeded \$ 1 trillion for the first time]. *Khabr – soobshchestvo IT-spetsialistov* [Habr – .NET Knowledge Base]. Retrieved from: <https://habr.com/ru/news/t/484298/> (accessed 17 January 2020) (in Russian).

high market value indicators have so far been recorded only with the oil companies PetroChina and Saudi Aramco¹⁹.

12.2. Identification of key concepts of the global economy intellectualization

As a result of the World Economic Forum (WEF) meetings in November 2019, economic growth in both developed and developing countries is projected to be 80-90% driven by productivity gains over the next four decades. Turn is directly dependent on innovation. However, against the backdrop of this dynamic, there are three problems associated with innovation. First, in the years 2001-2013, the economy widened in performance by star companies that were able to take advantage of global presence (access to investment, resources, markets, talent) and all other companies that were stagnant (mostly in the service sector). The 5:95 star-to-other ratio has led to a slower overall productivity growth rate in the global economy and, in some countries, to nearly 0²⁰. Secondly, the predominance of private interests in the innovation activity of global business structures, while continuing to not interfere in solving social problems of society (climate change, education, health care, etc.) has led to the decline of the basic sciences, the distortion of the orientations of civilizational development, and underpinning many national economies, making them fragile. And third, the unpredictability, unmanageability of a particular group of innovations threatens the ethical norms of society (in particular, the invention and development of artificial intelligence, the recognition of work by people by gender and ethnicity, genetic engineering, etc.).

Relying on research²¹, we consider it advisable to speak about the intensification of the processes of intellectualization of the global

¹⁹ Lyons K. (2019). Google parent Alphabet is now a \$1 trillion company. *The Verge*. Retrieved from: <https://www.theverge.com/2020/1/16/21069458/google-alphabet-trillion-dollar-market-cap-apple-microsoft> (accessed 16 January 2020).

²⁰ World Economic Forum (2019). *Policy Pathways for the New Economy. Shaping Economic Policy in the Fourth Industrial Revolution*. Geneva: World Economic Forum. Retrieved from: http://www3.weforum.org/docs/WEF_Policy_Pathways_for_the_New_Economy.pdf (accessed 27 November 2019).

²¹ Bhattacharya A., Khanna D., Schweizer C., Bijapurkar A. (2017). The New Globalization: Going Beyond the Rhetoric. *BCG Henderson Institute*. Retrieved from: <https://www.bcg.com/publications/2017/new-globalization-going-beyond-rhetoric.aspx> (accessed 21 December 2019); Bhattacharya A., Bürkner H.-P., Bijapurkar A. (2016). What you need to know about globalization's radical new phase. *BCG Henderson Institute*. Retrieved from: <https://www.bcg.com/publications/2016/globalization-growth-what-need-know-globalization-radical-new-phase.aspx> (accessed 27 December 2019); World Economic Forum (2019). *Policy Pathways for the New Economy. Shaping Economic Policy in the Fourth Industrial Revolution*. Geneva: World Economic Forum. Retrieved from: http://www3.weforum.org/docs/WEF_Policy_Pathways_for_the_New_Economy.pdf (accessed 27 November 2019).

economy and its acquisition of the characteristics of the intellectual. In accordance with this statement, we propose the author's methodological identification of key concepts of the process of intellectualization of the global economy (Figure 1).

Intellectual leadership is based on the intellectual benefits that are formed within the intellectual ecosystem. That is, systems for which the creation, use and development of intellectual capital is a natural process. The different ability of national intellectual ecosystems to promote the development of intellectual capital determines the intellectual advantages of one country and the intellectual uncertainty of others.

The function of providing the intellectual ecosystem with intellectual capital is performed by the intellectual platform. The intellectual platform is composed of intellectual resources, both actually and potentially created by the ecosystem, and mechanisms of the intellectual property institute.

The effectiveness of an intellectual property institute can be assessed by the speed of transformation of an intellectual product into intellectual capital using intellectual technologies.

The ability of the intellectual platform to generate an intellectual product is largely dependent on the degree of intellectual comfort that can be described as the presence of conditions for: the development of an individual's intellectual ability; realization of human intellectual abilities in the process of intellectual work; awareness of the need to transform the intellectual work of man into the intellectual activity of economic entities of the intellectual ecosystem.

According to M.V. Polyakov, the basis for studying the knowledge economy is the following processes in relation to its basic unit knowledge: obtaining (acquiring accumulated or generating new knowledge); absorption from different sources; knowledge transfer such as dissemination, movement, sale, etc.; use (mainly for innovation and management)²². The implementation of this approach in an intellectually intensive, science intensive economy, in our view, can be represented by the following scheme (Figure 2).

²² Poljakov M. V. (2017). Osoblyvosti ekonomiky znanj ta jikh proyavy na rivni svitovogho ghospodarstva [Features of the knowledge economy and their manifestations at the level of the world economy]. *Naukovyj visnyk Uzhghorodskogho nacionaljnogho universytetu* [Scientific Bulletin of the Uzhgorod National University] (electronic journal), vol. 12 (2), pp. 98 – 102. Retrieved from: http://www.visnyk-econom.uzhnu.uz.ua/archive/12_2_2017ua/22.pdf (accessed 25 October 2019) (in Ukrainian).

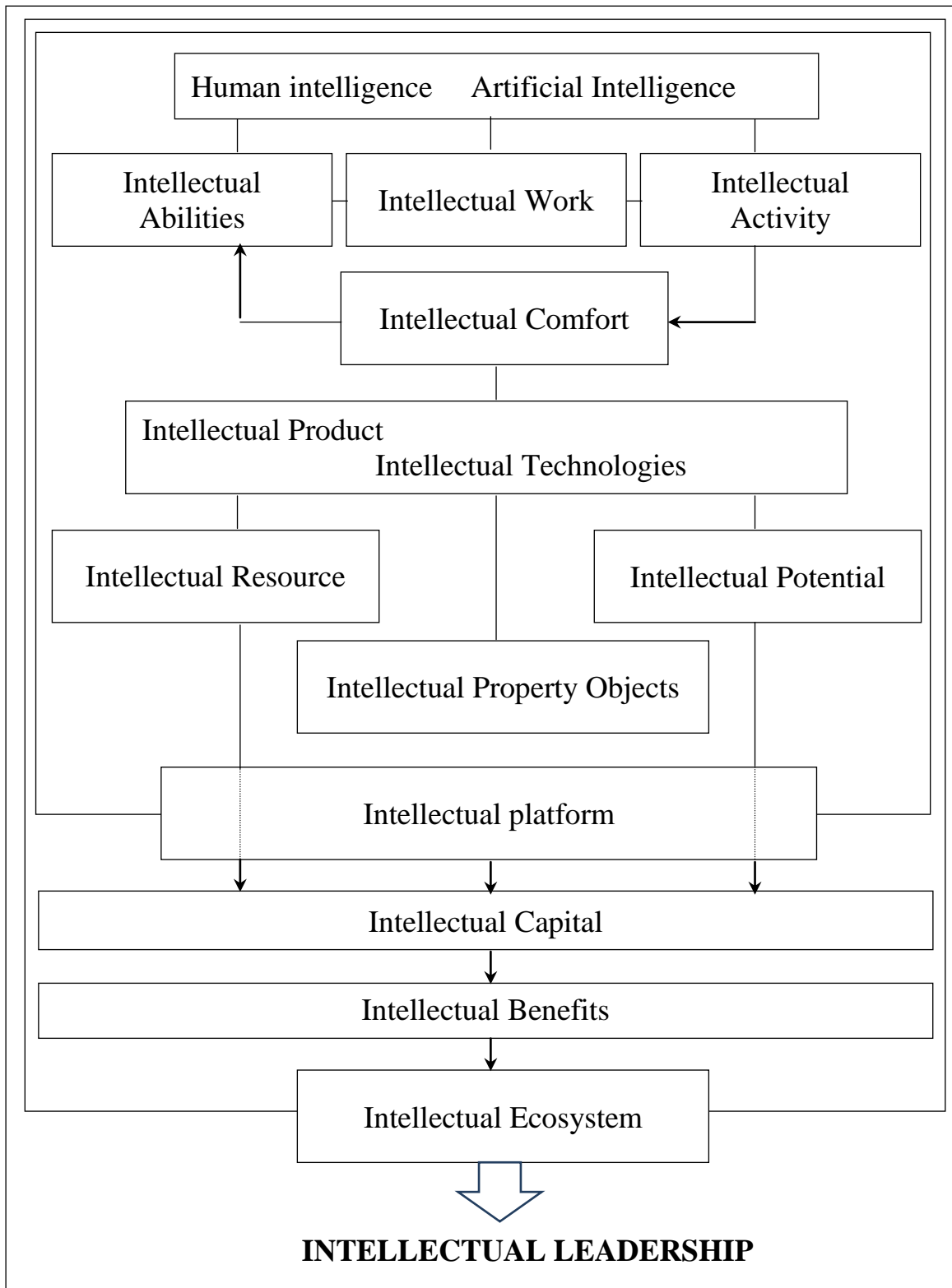


Figure 1. Methodological identification of key concepts of the global economy of intellectualization process

Source: developed by the author

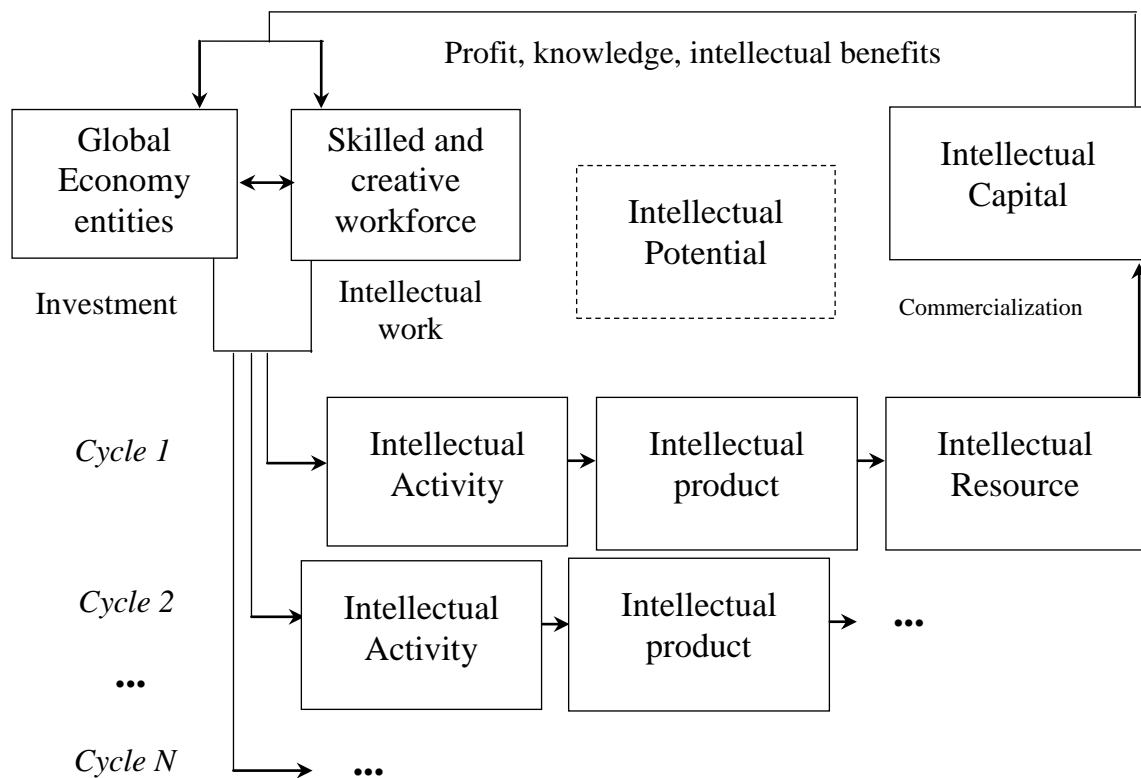


Figure 2. The cycle of expanded reproduction in the intellectual economy

Source: developed by author

The classical process of expanded reproduction of a social product in the economy is described as a sequence of stages: production → distribution → consumption → expanded production. But in our view, an intellectual economy has certain features that are determined by the characteristics of the dominant economic features of the system.

Firstly, the process of expanded reproduction in the intellectual economy is carried out in the informational way and develops cyclically in a spiral. The advent of revolutionary technologies (intellectual product) marks the beginning of a new cycle, in which the technologies of the previous cycle are already considered pre-revolutionary. The intellectual potential created and accumulated in the economy during each previous intellectual cycle constitutes an information resource for each subsequent cycle. Considering the transition to higher (more sophisticated) technologies and the accumulation (increase, increase) of intellectual potential, it can be argued that each coil turn is a new intellectual cycle.

Secondly, each turn of the spiral decreases the total duration of the intellectual reproduction cycle, which is explained by global factor mobility, the acceleration of the life cycle of intellectual products (in particular, it is about exponential technologies; on each subsequent cycle. That is, if the duration of the full cycle of extended reproduction in the intellectual economy is equal to T , then for each cycle N is inequality: $T_N < T_{N-1}$.

Thirdly, because of the unpredictable nature of scientific and technological progress (in particular, the spontaneity of inventions and discoveries), the distance between intellectual cycles varies considerably. Referring to the so-called «Moore's Law», it can be argued that during 1965-1998 the emergence of revolutionary technologies in the electronics industry occurred no less than every two years²³. Therefore, the distance between the turns of the intellectual cycles is considered by the author to be very small, dense. During the period 1999-2007, the distance between cycles began to increase as the potential of silicon ICT was gradually exhausted by the overheating problem of ultrafast PCs. In view of G. Moore's slowdown in the development of the electronic industry since 2007, the distance between neighboring intellectual cycles is gradually increasing. The reason for this slowdown in the second decade of the XXI century G. Moore sees in the natural physical limitations: the speed of light and the atomic nature of materials²⁴. In our opinion, today the basis of the intellectual cycle is not technologies aimed at improving the productivity and speed of operations, but intellectual products that optimize already developed technologies. Such products are differentiated by size, compactness, ergonomics, methods of cooling of technological units, quality of information visualization, degree of mobility, energy consumption level, etc.²⁵ The next round of progress may be driven by the quantum technologies, using graphene, etc. that the ICT market is already waiting for.

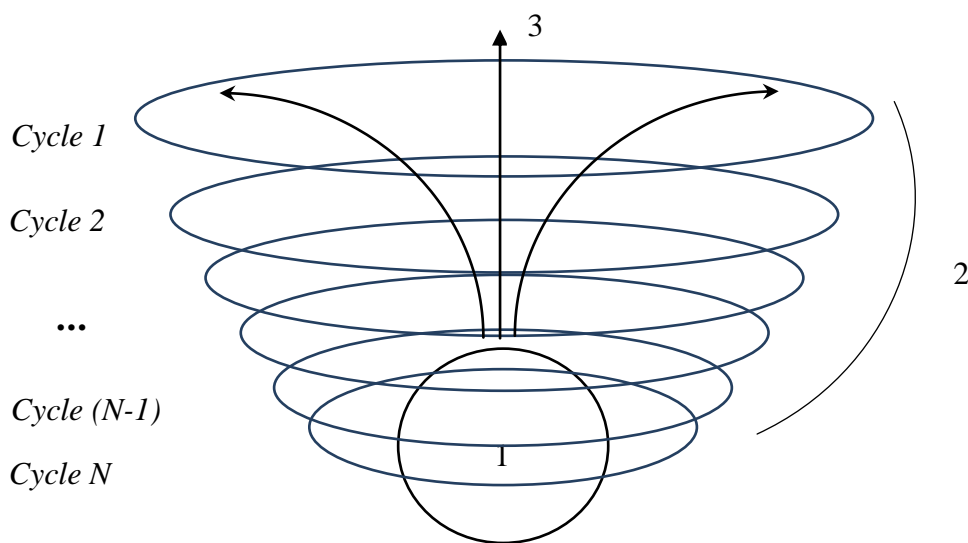
Fourthly, based on the concept of the «center and periphery» of the global economy, according to the author, each coil of the spiral of

²³ Moore G. E. (1998). Cramming More Components onto Integrated Circuits. *Proceedings of the IEEE*, vol. 86, no. 1, pp. 82 – 85. Retrieved from: <http://www.cs.utexas.edu/~fussell/courses/cs352h/papers/moore.pdf> (accessed 2 July 2019).

²⁴ Courtland R. (2015). Gordon Moore: The Man Whose Name Means Progress. *IEEE Spectrum*. Retrieved from: <https://spectrum.ieee.org/computing/hardware/gordon-moore-the-man-whose-name-means-progress> (accessed 3 July 2019).

²⁵ Fog A. (2015). Zakon Mura dostig predela [Moore's Law has reached its limit]. *Khabr – soobshchestvo IT-spetsialistov* [Habr – .NET Knowledge Base]. Retrieved from: <https://habr.com/ru/post/405723/> (accessed 2 July 2019) (in Russian).

expanded reproduction in fig. 2 has a tendency to gradually increase the radius of propagation. The Intellectual Center (the subjects of the global economy are intellectual leaders), as the intellectual potential increases, begins a new intellectual cycle, actively developing it. Having received an effect (profit, knowledge, intellectual advantage) that is sufficient to start a new cycle, the «intellectual center» moves from cycle N to cycle $(N + 1)$. On the one hand, intellectual leaders are interested in the rapid development of the cycle $(N + 1)$, that is, in reducing its duration T , and on the other, in the global distribution of the intellectual product of previous cycles $1, 2, \dots, (N-1), N$ from the center to the periphery. Extension of the duration of the previous cycles due to the time for geographical spread in the global economy (in fact, in «catching up», «pursuing» economies, developing economies, etc.) and heterogeneity of economic entities in terms of readiness for new technologies, spiral of expanded reproduction in intelligence the economy takes the form of an «intellectual tornado» centered on intellectual leaders, and on the periphery, which gradually increases its radius, the countries that follow the previous «pre-revolutionary» and intellectual products (Figure 3).



1 – «Intellectual center» 2 – Periphery of intellectual uncertainty
 3 – Rising streams of intellectual potential

Figure 3. Intellectual Tornado Spiral in Intellectual Economy

Source: developed by author

The author explains the radius increase of the intellectual cycle by the increase in the number of groups of countries (and, consequently, by the increase of geographical distances, planes), imitating products, technologies of the intellectual center (usually represented by a limited number of national economies).

Fifthly, the subjects of the global intellectual economy that imitate the technologies of intellectual leaders are significantly differentiated in their level of readiness for these technologies. Given the complexity of the concept of «level of readiness for intellectual technology», it can be argued that its implementation occurs in conditions of intellectual uncertainty. World Bank experts have concluded that the global economy is systematically moving national economies between types of integration into global value chains based on their technological specialization. Movement is possible in two directions: from the supply of primary raw materials and further, to more technologically complex types, and in the opposite direction from the innovative to the more simplified²⁶. In particular, during the period 1960–2015, the countries of Austria, Canada, Finland, Ireland, Israel, Italy, the Republic of Korea, Singapore, Spain and the Czech Republic took innovative positions. China is also showing rapid technological growth, with the total number of researchers tripling between 1995 and 2007²⁷. In the opposite direction, to the type of primary commodities, Jordan and Lesotho moved, and the whole group of countries during this period was characterized by a double movement in both directions (Swaziland, Botswana, Jamaica, Democratic People's Republic of Korea, Nicaragua and Senegal). The revealed facts, according to the author, confirm the existence of conditions of intellectual uncertainty, which explain the disposition of national economies according to the concept of «center periphery».

CONCLUSIONS

The leitmotif of the current stage of development of the global economy is the processes of its intellectualization, in particular the

²⁶ World Bank (2020). World Development Report 2020 : Trading for Development in the Age of Global Value Chains. Washington, DC: World Bank. Retrieved from: <https://openknowledge.worldbank.org/handle/10986/32437> (accessed 9 January 2020).

²⁷ National Science Foundation (2013). *National Science Board. Science & Engineering Indicators 2012: Chapter 3. Science and Engineering Labor Force*. Retrieved from: <https://wayback.archive-it.org/5902/20170708073310/https://www.nsf.gov/statistics/seind12/pdf/c03.pdf> (accessed 14 October 2019); National Science Foundation (2018). *National Science Board. Science & Engineering Indicators 2018*. Retrieved from: <https://www.nsf.gov/statistics/2018/nsb20181/assets/nsb20181.pdf> (accessed 14 October 2019).

emergence of the phenomenon «Economy 4.0». Digital infrastructure, platform interaction and rethinking the role of consumers are accelerating innovative disruption in global markets: agreements are concluded «anytime, anywhere»; rights of use prevail over property rights; platform businesses «create the foundation for the development of others»; solving complex economic problems is realized through «trust-based interaction»; the best samples are received by the global market as a way of «bringing many to the development of a single»; consumers prefer a personalized product, without «unnecessary»; value chains are shrinking as Industry 4.0 evolves; product prices are formed as a result of the service, the «terms of use»; the product combines numerous features.

The key to competitiveness of countries in global markets is intellectual leadership, which is ensured by the effectiveness of the national intellectual ecosystem and intellectual benefits. Strategic priorities of national economies are to create an environment of intellectual comfort and improve the conditions for realizing intellectual potential. The reproduction of intellectual capital in today's economy can be represented as a spiral process: the advent of revolutionary technologies initiates a new intellectual cycle; each subsequent intellectual cycle is less time-consuming than the previous one due to the exponential development of technology.

Based on the concept of «center and periphery» of the global economy, we can assume that the spiral of reproduction of intellectual capital consists of the following elements: «intellectual center», represented by a small number of countries innovative leaders; The «periphery of intellectual uncertainty» of the country, which imitates the intellectual technologies of the «center», but due to their number and heterogeneity in the level of technological, network readiness, geographical remoteness, etc., demonstrate different speed of acquisition of intellectual products of the current cycle.

As a prospect for further scientific research, the author sees the study of factors and methods of classification of countries «periphery of intellectual uncertainty», in order to clarify the intellectual disposition of countries of the global economy.

SUMMARY

Contradictory facts of the global economy development during the recession period of 2010-2019 are revealed. Catalysts and models of innovative destruction in the modern global markets are analyzed. The

business models that emerged as a result of innovative destruction and intensification of intellectualization processes are considered. The key concepts of the process of intellectualization of the global economy have been identified. The cycle of extended reproduction in the intellectual economy is schematically depicted. The assumptions about the features of intellectual cycles in the global economy are made. The hypothesis of the size and heterogeneity of a group of countries forming the «periphery of intellectual uncertainty» has been put forward.

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CHAPTER 13
INTELLECTUAL ECONOMY:
METHODOLOGICAL BASIS FOR ECONOMIC POLICY
PROGRAM DEVELOPMENT

Orlovska Yu. V.

INTRODUCTION

The current stage of the world economic system development is characterized by intensification of the intellectual capital use and shift of public demand towards the products of creative industries, intellectual services, IT and media products, etc. In these circumstances, information and knowledge play an increasingly important role in the development of post-industrial society. Methodological issues about the country-specific factors of intellectual economy development as well as the scientific and practical tasks about relevant economic policies have been posed to the governments and scholars. The importance of these tasks has been reinforcing by the current trends in the center-peripheral development of the countries, by the development of new world «influence centers» as well as of modern drivers of growth. It is important for governments and academia not only to understand the country's existing and desirable position in the world economic system, but also to formulate basic principles and priorities for strengthening and effectively harnessing the potential of post-industrial growth. In addition, taking into account the modern course of humanity for sustainable development, economic resources and innovative products must be directed towards environmentally sound growth. All these features have fundamentally changed the structure of the modern postindustrial economic system, which is based on the development of intellectual economy.

A knowledge-based intellectual economy is becoming an economic system that provides economic growth and international competitiveness for countries, and therefore requires an additional investigation about the preconditions and current features of its development. In the other words, the peculiarities of the modern economic system of the post-industrial era should be analyzed by assessing the genesis of the development of its dominant form – the intellectual economy

13.1. Preconditions for the intellectual economy development in post-industrial society

The preconditions that led to the formation and development of the modern intellectual economy should be considered based on the method of historical analysis and, first of all, on the evolution of scientists' views regarding modifications in post-industrial society. In turn, the emergence of the concept of post-industrial society and post-industrial economy has its historical background, an understanding of which is important for the proper perception and use of modern factors of economic growth and social well-being.

The first shifts in scientific circles from material resources to intangible, namely information and intellectual, began to take place at the end of the nineteenth century. Marshall A. in 1890¹ emphasizes in his papers that knowledge itself is the driving force and the most powerful engine of production. These ideas are developed in the works of Schumpeter J. (1911)², in which the scientist notes that it is *a particular combination of knowledge* is the driving force of innovation and production process. In other words, the transition from industrialism to a new system based on intangible factors of production is gradually being realized.

As for the formation of the categorical apparatus, the term «postindustrialism» itself was introduced into scientific circulation at the beginning of the 20th century (1914) by the scientist Coomaraswamy A.³, who specialized in research on the pre-industrial development of Asian countries. Almost simultaneously the concepts of «post-industrial state» and «post-industrialism» have appeared in the papers of Penty A. 1917-1922.^{4 5} The work of Drucker P. in 1950⁶ was devoted to explaining the main reasons for the transition from industrialism to post-industrialism, in which he began to identify the innovative industries, *at the heart of which is knowledge*. His ideas were extended by Machlup F. in 1962⁷.

The term «post-industrial society» was first used by the American sociologist Riesman D.⁸ in his work «Leisure and Labor in a Post-

¹ Marshall A. (1890) *Principles of Economics. Eighth edition*. London: Macmillan and Co., Ltd.

² Schumpeter J. (1911) *The Theory of Economic Development*. Oxford: Oxford University Press.

³ Coomaraswamy A. (ed.) (1914) *Essays in Post-Industrialism: A Symposium of Prophecy Concerning the Future of Society*. London

⁴ Penty A. (1917) *Old Worlds for New: A Study of Post-Industrial State*. London

⁵ Penty A. (1922) *Post-Industrialism*. London

⁶ Drucker P. (1950) *The New Society: The anatomy of the industrial order*. NY: Harper & Brothers.

⁷ Machlup F. (1962) *The Production and Distribution of Knowledge in the United States*. Princeton N.J.: Princeton University Press.

⁸ Riesman D. (1958). *Leisure and Work in Post-Industrial Society*. Glencoe, no. 111, pp. 363–385.

Industrial Society», published in 1958. However, according to Inozemcev V. L.⁹, whose opinion is shared by most modern scholars, D. Risman cannot be considered the author of this term, since he incorporated into the concept the so-called «leisure society», which is different from today's interpretation of the concept of post-industrial society. Therefore, most scholars believe that the term «post-industrial society» was first used and justified by Bell D. in 1959 to refer to a society in which material production loses its leading role and knowledge becomes the main productive force.

In 1965, Bell D. headed a futurological commission in the United States, which developed a prognosis for human development by 2000¹⁰, and noted that post-industrialism would be the main vector of development. In the interpretation of Bell D., a post-industrial society is a society where serious shifts are taking place: in the economy, a shift from manufacturing to services, and in technology, knowledge-intensive industries begin to play a leading role. Later, this concept was reflected in the work of the scientist «The Coming Post-Industrial Society» in 1973¹¹, which gave impetus to the emergence of new theories of post-industrialism.

By the beginning of the 1980th, the point of view on the formation of an information economy in a post-industrial society began to prevail in the scientific community. A number of economists in their works began to note the growing role of information and knowledge in the production of goods and services, which gave them reason to introduce the concept of the *information society*. In particular, the American economist Martin W. J.¹² defined the information society as a society «... in which the quality of life, as well as the possibility of social change and economic development, increasingly depends on information and its use.» Stoun'er T. in 1986¹³ argued that there is a shift from material production to production of services, which is essentially information processing.

Masuda Y.¹⁴ believed that the information society is a society based on informational values rather than material values, and whose

⁹ Inozemcev V. L. (2000) *Sovremennoe postindustrial'noe obshchestvo: priroda, protivorechija, perspektivy* [Modern post-industrial society: nature, contradictions, prospects]. Moscow: Logos. (in Russian)

¹⁰ Bell D. (ed.) (1968) *Toward the Year 2000*. Work in Progress. Boston

¹¹ Bell D. (1973) *The Coming Post-Industrial Society*. N.Y.: Free Press.

¹² Martin W. J. (1995) *The Global Information Society*. Aldershot Aslieb Gower: Broofield. p.3.

¹³ Stoun'er T. (1986) *Informacionnoe bogatstvo: profil' postindustrial'noj jekonomiki* [Information wealth: the profile of the post-industrial economy]. Moscow: Progress. (in Russian)

¹⁴ Masuda Y. (1981) *The Information Society as Post-Industrial Society*. – Wash. DC: World Future Society.

economy estimates knowledge capital higher than material capital. According to another economist Kastel's M.¹⁵, the information economy can also be called the global economy. The scientist noted that the economy is informational, because «the productivity and competitiveness of factors or agents in this economy depend, first of all, on their ability to generate, process and efficiently use information ...»; at the same time, the information economy is global, because «the main types of economic activity, such as the production, consumption and circulation of goods and services, as well as their components (capital, labor, raw materials, management, information, technology, markets) are organized on a global scale, using an extensive network connecting economic agents»¹⁶.

At the same time, the other scientists fix their attention on the categories of knowledge and bring the theory of the knowledge economy (knowledge economy) to the fore. In 1994, Stehr N.¹⁷ introduced the concept of a «knowledge society» as one that actively uses knowledge not only as a resource but also as a product of the economic system. In the papers of Kelly K.¹⁸ «New Rules for the New Economy» (1998) the web of the modern economic system, which is characterized by global transformations, by the management of information, knowledge, intellectual capital and by the emergence of close interconnections between elements of the new system, has been investigated and detailed.

In general, at the end of the XX century, and especially at the beginning of the XXI century, the theory of knowledge economy was actively developed and now, in our opinion, it has become the main theoretical basis of modern concepts of intellectualization of economy. We believe that the development of the methodology of these concepts occurred mostly within the different perceptions of knowledge – whether as a factor of production or as its result (product). The main approaches of scientists, as well as the process of convergence of their thoughts are summarized in Table 1.

¹⁵ Kastel's M. (2000) *Informacionnaja jepoha: jekonomika, obshhestvo i kul'tura* [The Information Age: Economy, Society and Culture]. Moscow: GU VShJe. (in Russian)

¹⁶ Ibid. P. 81.

¹⁷ Stehr N. (1994) *Knowledge Societies*. London: Sage.

¹⁸ Kelly K. (1998) *New Rules for the New Economy. Ten Radical Strategies for a Connected World*. N.Y.: Penguin Books.

Table 1

Theoretical background of the role of knowledge in the intellectual economy development: a convergence of approaches

Knowledge as a factor of production	Knowledge as a factor of production and product
<p><u>End of the XIX century:</u> Marshall A.¹⁹ writes about knowledge as «the most powerful engine of production»</p>	<p><u>Mid-XX century:</u> P.F. Druker²⁰ and F. Machlup²¹ «Industrial economic system, innovative industries that have knowledge or information at their core»; «knowledge economy as an economy that both is based on knowledge as a factor of production and has new knowledge (information product or service) as its final product» Emphasis on education and science as areas where the intellectual product <i>is produced</i> and the intellectual services and media through which this product <i>is promoted</i>. It was during this period that the concepts of knowledge economy and knowledge based economy were closely intertwined</p>
<p><u>Beginning of the XX century:</u> Schumpeter J.²² emphasizes the combination of knowledge as the basis for innovation, which (<i>Yu.O: in turn</i>)* is the driving force of production</p>	<p><u>1990th:</u> Stehr N.²⁶ suggest the concept of «knowledge society», which became the basis of the development of the theory of knowledge economy, the main provisions of which are set out in the work «Knowledge Society» The OECD²⁷ defines a knowledge-based economy as inherently oriented towards the production, dissemination and use of knowledge or information. A similar interpretation is provided by APEC²⁸</p>
<p><u>End of the XX century:</u> unlike Skilbeck²³ and Abramowitz²⁴, who perceive knowledge as a «human factor» or «technology change» and do not see it as a separate production factor, Romer²⁵ emphasizes the need to consider knowledge as important factor of production.</p>	

¹⁹ Marshall A. (1890). *Principles of Economics*. Eighth edition. London: Macmillan and Co., Ltd.

²⁰ Drucker P. (1950) *The New Society: The anatomy of the industrial order*. NY: Harper & Brothers.

²¹ Machlup F. (1962) *The Production and Distribution of Knowledge in the United States*. Princeton N.J.: Princeton University Press.

²² Schumpeter J. (1911) *The Theory of Economic Development*. Oxford: Oxford University Press

²³ Skilbeck M. (1964) *Study Group in the Economics of Education, Residual Factor and Economic Growth*. Paris: Organization for Economic Cooperation and Development.

²⁴ Abramowitz M. (1956) Resource and output trends in the United States since 1870. *American Economic Review*, no. 46, pp. 5-23.

²⁵ Romer P. M. (1986) Increasing returns and long-run growth. *Journal of Political Economy*, vol. 5, no. 94, pp. 1002-37.

²⁶ Stehr N. (1994) *Knowledge Societies*. London: Sage.

²⁷ OECD (1996) *The Knowledge-Based Economy*. Paris: Organisation for Economic Cooperation and Development.

²⁸ AREC (2000) *Towards knowledge-based economies in APEC*. Singapore: AREC Secretariat.

Knowledge as a factor of production	Knowledge as a factor of production and product
	<p><u>Beginning of the XXI century</u>: Chartland²⁹, Brinkley³⁰, Tapscott³¹ emphasis on inclusion of IT sphere in the concept of knowledge economy. Triple concept (knowledge, network, innovation); the concept of the role of highly skilled workers who use knowledge and information to create an intelligent product. Economy virtualization concept</p>
	<p><u>2010-th</u>: White, Gunasekaran, Ariguzo³². Education, knowledge management and creativity as elements of economic structure; at the same time, all components of the structure of the economy are based on IT technologies.</p> <p>As Shahrazad³³ points out, knowledge becomes the driving force of an economy based on human, intellectual and social capital (<i>Yu.O: intellectual capital</i>) in the context of increasing the role of the economy's creativity</p>

Created by the author * here and below – initials of the author: Yuliia Orlovska – Yu.O.

It should be noted that scientists for a long time did not consider knowledge and information through the prism of the production function (except for the works of A. Marshall³⁴ and J. Schumpeter³⁵ mentioned above). For exaple, in the 1950th and 1960th Skilbeck³⁶ and Abramowitz³⁷ wrote about knowledge as a «human factor» or

²⁹ Chartland H. H. (2006) *The competitiveness of nations in a global knowledge-based economy* (PhD thesis), Saskatchewan: University of Saskatchewan (unpublished).

³⁰ Brinkley I. (2006) *Defining the knowledge economy*. London: The Work Foundation.

³¹ Tapscott D. (2014) *The digital economy. Anniversary Edition: Rethinking promise and peril in the age of networked intelligence*. New York: McGraw-Hill.

³² White D. S., Gunasekaran A., Ariguzo G. (2012) The structural components of a knowledge-based economy. *International Journal of Business Innovation and Research*, vol. 4, no. 7, pp. 504-518.

³³ Shahrazad H. (2017) Knowledge Economy: Characteristics and Dimensions. *Management Dynamics in the Knowledge Economy*, vol. 5, no. 2, pp. 203-225.

³⁴ Marshall A. (1890). *Principles of Economics*. Eighth edition. London: Macmillan and Co., Ltd.

³⁵ Schumpeter J. (1911) *The Theory of Economic Development*. Oxford: Oxford University Press

³⁶ Skilbeck M. (1964) *Study Group in the Economics of Education, Residual Factor and Economic Growth*. Paris: Organization for Economic Cooperation and Development.

³⁷ Abramowitz M. (1956) Resource and output trends in the United States since 1870. *American Economic Review*, no. 46, pp. 5-23.

«technology change», but do not see knowledge and information as a separate factor of production. The change in the perception of this concept was laid by R. Romer³⁸ in the 1980th, where he began to consider knowledge as an important factor of production, that is, the basis of a knowledge-based economy.

At the same time, a number of scientists offer knowledge not only as a factor of production, but also as a product of relevant intellectual industries. The essence of such a new structure of the economy first appears in the works of P.F. Druker³⁹ and F. Machlup⁴⁰, who perceive the knowledge economy as an economic activity based on the use of knowledge and with its final product new knowledge, or a certain information product or service. F. Machlup focuses on areas such as education and science, the fields where the intellectual product is «manufactured», and the field of intellectual services and media as such, through which the product is distributed. And it was during this period when the concepts of «knowledge economy» and «knowledge based economy» were most closely intertwined. The OECD (Organization for Economic Cooperation and Development)⁴¹ is considered to make the first attempt to define the category of a knowledge-based economy as being essentially oriented to the production, dissemination and use of knowledge or information. A similar interpretation was provided by APEC⁴².

It should be noted that quite often scientists identify these concepts. However, in our opinion, there is a fundamental difference between them. We fully share the opinion of Ivanova V. V.⁴³, who argues that a knowledge-based economy is the type of economic system, having at its core the knowledge and information that is embedded in all sectors of economic activity; instead, the knowledge economy is an sum of sectors of the economy that specialize in obtaining (*Yu.O: production and sales*) an intellectual product.

With the development of technology, the category «knowledge economy» is beginning to include the field of IT-technologies.

³⁸ Romer P. M. (1986) Increasing returns and long-run growth. *Journal of Political Economy*, vol. 5, no. 94, pp. 1002-37.

³⁹ Drucker P. (1950) *The New Society: The anatomy of the industrial order*. NY: Harper & Brothers.

⁴⁰ Machlup F. (1962) *The Production and Distribution of Knowledge in the United States*. Princeton N.J.: Princeton University Press.

⁴¹ OECD (1996) *The Knowledge-Based Economy*. Paris: Organisation for Economic Cooperation and Development.

⁴² APEC (2000) *Towards knowledge-based economies in APEC*. Singapore: AREC Secretariat.

⁴³ Ivanova V. V. (2011) Ekonomika, zasnovana na znanjah, ta ekonomika znan': adekvatnost' vykorystannja kategorij [A knowledge-based economy and a knowledge economy: the adequacy of the use of categories]. *Mechanism of Economy Regulation*, no. 3, p. 47-54.

Chartland⁴⁴ introduces three key concepts into the concept of the knowledge economy: knowledge, network, innovation. Brinkley⁴⁵, who also perceives the knowledge economy inseparable with the IT, argues that the concept of the structure of such an economy lies in the combination of highly skilled, knowledge-intensive workers and the information technology that ultimately creates the intellectual product. Another important aspect of IT-related issues, as Tapscott notes⁴⁶, is the virtualization of the economy.

The interpretation of the structure of the knowledge economy is extended by White, Gunasekaran, Ariguzo⁴⁷. Scientists complement the structure of the knowledge economy with such concepts as knowledge management and creativity. According to Shahrazad⁴⁸, information as an expression of knowledge becomes the driving force behind the knowledge economy, based on human, intellectual and social capital, in the context of enhancing the creativity of the economy, which is seen as a key aspect in building a long-term sustainable development strategy.

There are some papers of Ukrainian scientists, whose investigations are also devoted to the modern priorities and guidelines of the knowledge economy. Thus, Androshhuk G.A.⁴⁹ argues that the knowledge economy is, first and foremost, a system that aims at minimal interference with the planet's ecosystem and consequently causes minimal damage to nature and has to change an economical system of extensive type, aimed at meeting needs and material the enrichment of nations. Fedulova L. I.⁵⁰ emphasizes that economies of this type are more specialized in creating a highly intelligent product than simply using knowledge. Gaponenko A. L.⁵¹ is of the view that any economy that creates, distributes, and uses knowledge to ensure growth and

⁴⁴ Chartland H. H. (2006) *The competitiveness of nations in a global knowledge-based economy* (PhD thesis), Saskatchewan: University of Saskatchewan (unpublished).

⁴⁵ Brinkley I. (2006) *Defining the knowledge economy*. London: The Work Foundation.

⁴⁶ Tapscott D. (2014) *The digital economy. Anniversary Edition: Rethinking promise and peril in the age of networked intelligence*. New York: McGraw-Hill.

⁴⁷ White D. S., Gunasekaran A., Ariguzo G. (2012) The structural components of a knowledge-based economy. *International Journal of Business Innovation and Research*, vol. 4, no. 7, pp. 504-518.

⁴⁸ Shahrazad H. (2017) Knowledge Economy: Characteristics and Dimensions. *Management Dynamics in the Knowledge Economy*, vol. 5, no. 2, pp. 203-225.

⁴⁹ Androshhuk G. A. (2006) Prognozirovanie innovacionnoj dejatel'nosti na osnove analiza aktivnosti global'nyh firm [Predicting innovation activity based on activity analysis of global firms]. *Problems of Science*, no. 5, pp. 40-47.

⁵⁰ Fedulova L. I. (2009) *Ekonomika znan'* [Knowledge Economy]. Kyiv: NAS of Ukraine, Institute of Economics and Prediction (in Ukrainian)

⁵¹ Gaponenko A. L. (2010) Sovremennyj rynek znaniy: ponjatie, uchastniki, formy [The modern knowledge market: concept, participants, forms]. *Problems of the theory and practice of management*, no. 6, p. 55-64.

competitiveness is a knowledge economy. Azhazha M.A.⁵² notes that it is the uniqueness of people's skills and their intellectual capital that underlies the modern knowledge economy. Such approaches should be considered the foundation of the concept of intellectual economy.

In our opinion, the term «intellectual economy» includes the connection of categories of knowledge economy; service and information economies; sustainable (socio-ecological-economic) development; creative economy, etc. In our view, the intellectual economy is a type of economic system that, based on the intellectual capital of society in the conditions of development of modern information technologies and systems, *uses, transforms, creates and disseminates new information and knowledge* in order to ensure the growth of public welfare, international competitiveness of countries and formation of an extended circle of knowledge and innovations. That is, knowledge is at the heart of the development of the economic system, and is the final product of this system in each cycle of reproduction of the socio-ecological-economic system. We propose a schematic diagram of the positioning of the intellectual economy in today's post-industrial society as Figure 1.

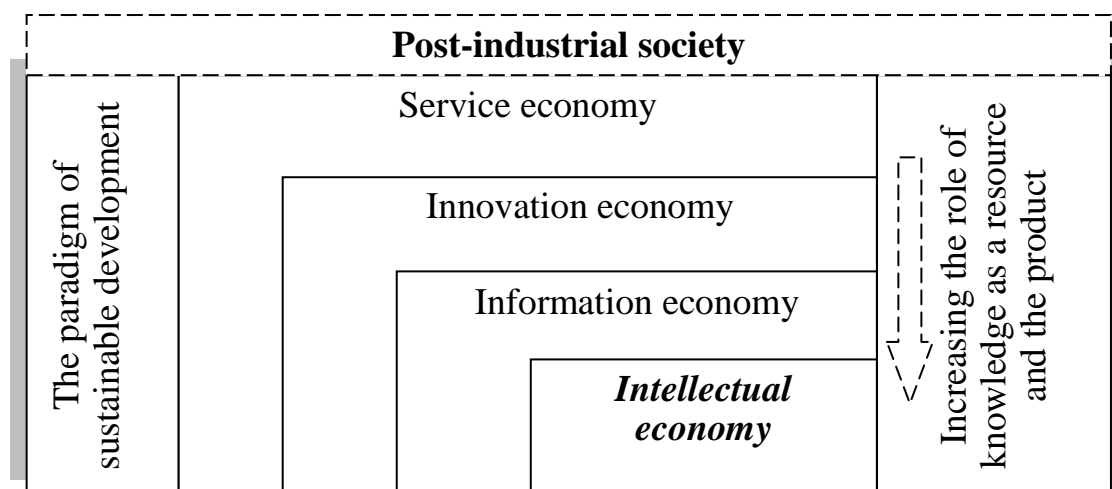


Figure 1. Positioning of the intellectual economy in post-industrial society

Created by the author

The objectivity of the process of the intellectual economy formation and the corresponding challenges to the factors of success of countries'

⁵² Azhazha M. A. (2007) Investycii' v osvitu jak faktor intelektual'nogo progresu [Investments in education as a factor of intellectual progress]. *Social Perspective and Regional Development*, no. 2, pp. 37-40.

development in modern conditions of post-industrial society requires a more detailed study about priorities and guidelines of the modern government's policy of projecting and administration the processes of formation and development of this type of economy.

13.2. Priorities and guidelines for the intellectual economy development

In view of the arguments set out in the first paragraph, it should be assumed that the intellectual economy has appeared from the intersection of concepts: the economy of knowledge; information economy; green economy (sustainable development economy); bio-economics; circular economy; SMART-economy; innovative economy; creative economy; economy of intellectual property.

As to understanding the priorities and guidelines for the intellectual economy development as a basis for an appropriate policy elaborating is primarily based on identifying the changes in the demand and production of intellectual products. Regarding to changes in the demand for knowledge as a resource and as a product, Maksimova V. F.⁵³ highlights significant changes in the structure of three types of demand: consumer, corporate and public. She argues that in today's environment, the consumer is in demand for spiritual values. The lifestyle, adequate set and quality of services provided, the organization of business climate, and leisure are important for the members of society. With regard to corporate demand, businesses and organizations are increasingly in need of workers with a wide range of competencies that enable them to meet the challenges of value-adding, labor productivity growth, the generation of new knowledge and their incorporation into production processes, to carry out innovative processes at the local and integrated levels and, as a result, to achieve the stable growth of corporation. On the part of the state the demand for rational use of material, labor, intellectual resources for solving national and global problems is firstly increasing. This refers to changing the nature of labor, enhancing its innovation component, increasing participation in the production processes of intellectual workers, the emergence of firms operating in remote access mode, outsourcing and Smart-sourcing in the commodity and resource markets.

⁵³ Maksimova V. F. (2011) Smart (intellektual'naja) jekonomika: celi, zadachi i perspektivy [Smart (intellectual) economy: goals, objectives and prospects]. *Otkrytoe obrazovanie*, (electronic journal), no. 3. Retrieved from: <https://cyberleninka.ru/article/n/smart-intellektualnaya-ekonomika-tseli-zadachi-i-perspektivy/viewer> (accessed 30 January 2020).

Mokyr J.⁵⁴, in turn, draws attention to the role of *methods of modern knowledge production and selling*. The scientist claims that the transition from traditional to an intelligent economy has arisen due to the fact that information and telecommunication technologies have radically transformed the methods of generating and disseminating the knowledge, significantly reducing the marginal cost of obtaining, storing and transmitting of knowledge.

It is obvious that the adequate use of intellectual resources plays fundamentally important role in the process of solving the problems about the qualitative modernization of the economy, expanding the production of goods and services that meet the requirements of material, labor and energy conservation, could provide innovative development, competitive advantages increasing, sustainable economic growth maintaining, etc. According to experts, the share of intangible assets in the property of large American companies exceeds 50%; the share of the intellectual capital in the pharmacist cost of production is about 99,5%⁵⁵.

In modern conditions, intellectual resources are widely used in terms of structural transformations, the creation of fundamentally new forms of entrepreneurship and innovative corporate relations, as well as to increase the competitive advantages of the company. In the USA and in the EU, many companies that practically do not use fixed capital, but only intellectual capital (they are called «knowledge companies» – knowledge companies) have been recently created. Such companies sell knowledge rather than manufacture traditional goods. In the United States, half of fast-growing companies are knowledge companies⁵⁶.

Well known professional in the field of management, Druker P.F.⁵⁷, claims that while in the 20th century the leadership in the global economy depended on the ability to achieve high physical labor productivity, in the 21st century this leadership will be transferred to countries that are able to increase the productivity of mental labor most systematically and efficiently. The term «knowledge workers» that means intellectual workers who generate new knowledge has also

⁵⁴ Mokyr J. (2002) *The Gifts of Athena: Historical Origin of the Knowledge Economy*. Princeton & Oxford: Princeton University Press.

⁵⁵ New Zealand Bank (n.d.) *Estimating the Value of Intellectual Capital in the Service Industry*. NZ: New Zealand Banks. Retrieved from: <http://aux.zicklin.baruch.cuny.edu/critical/html2/8037saharawat.html>. (accessed 30 January 2020).

⁵⁶ Nature (1999) Promises and Threats of the Knowledge-based Economy. *Nature*, vol. 397.

⁵⁷ Druker P. F. (2001) *Zadachi menedzhmenta v XXI veke* [Management tasks in the XXI century]. Moscow: Vil'jams. (in Russian)

recently appeared. Florida R.⁵⁸ in this regard wrote about the emergence of the *creative class* and the development of the *creative economy*.

We propose to consider the intellectual economy and evaluate its development through changes that occur with the main features (characteristic features) of this type of economy (Fig. 2). It is possible and necessary to assess: the share of the tertiary and quaternary sectors in the economy; the degree to which processing and recycling are used; the dynamics of the involvement of highly skilled workers in the creation of products of the intellectual economy; the speed and globalization of production and consumption of such products and other indicators. Such kind of criteria and indexes may build the methodological basis for the elaborating the special programs about the formation of intellectual economy in a country.

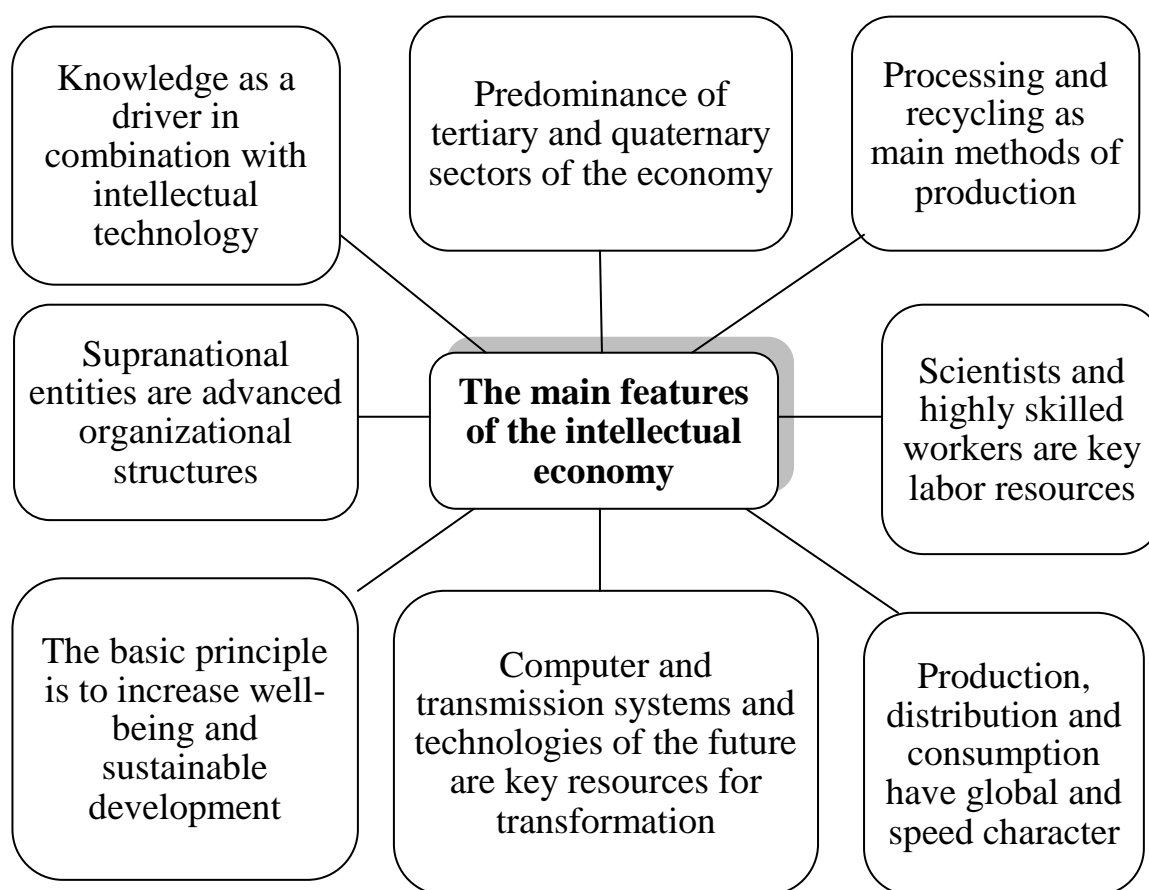


Figure 2. Main features and principles of intellectual economy development

Created by the author

⁵⁸ Florida R. (2002) *The rise of the creative class* N.Y.: The Prseus Books Group

It should be noted that in some countries such government programs have already been developed. In Ireland, for example^{59 60}, the focus is on creating a world-class research system, on ensuring economic growth through innovation and scientific research, on increasing the country's competitiveness, as well as on developing the green sector of the economy based on the transition from carbon energy using to alternative renewable energy sources using. The problems of actively attracting scientific ideas and know-how, their protection and commercialization, creation of an innovative ecosystem, as well as social protection of the population do not also stand aside. To resolve these problems, some tasks have been put: about increasing the investment into researches, about the formation of a first-class business infrastructure, about the widespread use of human and intellectual capital in the value added creating and innovative goods and services production. The Irish government program focuses on the development of a «green economy» that contributes to the preservation and protection of the environment, to the creation of new jobs in this area and the formation of a special environment for «green collars».

It should be considered that the intellectual economy is an economy in which knowledge is acquired, generated, and disseminated in order to enhance economic development. Intellectual economy should therefore be based on four pillars: the education system, information and telecommunications infrastructure, an effective innovation system and the institutional regime. Economic policy guidelines and priorities must be appropriately established. Such guidelines of the policy of intellectual economy development can be called the following:

1. Guideline of intellectualization: it involves the growth of research and development, followed by their introduction into production on an innovative basis; the development of intellectual potential of individuals and enterprises; the creation and development of intellectual needs; stimulation of creativity to the tasks resolving; the constant increase of knowledge in the process of education; the improvement of innovative technologies created on the basis of international standards

2. Institutional guideline, which means the activation of the state in the field of structural transformation of property relations; the creation of

⁵⁹ Government Publications (2008) *Building Ireland's Smart Economy. A Framework for Sustainable Economic Renewal*. Dublin: Government Publications.

⁶⁰ Preston P., Sparviero S. (2010) *Smart if Small Economies? Ireland's Strategy in Comparative Frame*. Dublin: Dublin City University.

an effective system of protection of intellectual property rights; the improvement of the legal framework governing research and innovation processes; the promotion of environmental protection of economic entities.

3. Guideline of ecologization: it is aimed at the implementation of environmental and economic interests; the ensuring the integrity of natural systems; the environment protecting its reproduction and rational nature management; the ecological infrastructure improving; the level of ecological culture of the population development.

4. A social guideline: that is aimed at achieving common welfare and collective security in an increasingly interdependent world; at socially oriented coordination of actions; at forming a set of new sociocultural and economic values that ensure the implementation of adequate relationships within civil society; at ensuring the people's confidence about getting a professional education, quality medical care, an adequate job, and access to other social benefits.

The creation and consumption of predominantly not material goods, but knowledge as a different type of intellectual property, including its materialized form with a high intellectual component, has appeared to be the determining direction transformations in the intellectual economy.

It is obvious that on the way to such kind of transformation almost every country faces many barriers which are inherent in Ukraine's regulatory policy as well. In this context, we suggest the set of tools of these barriers overcoming in Ukraine:

To increase innovation potential: the integrated programs of intellectual development (intellectualization), and of international cooperation strengthening in education and science, are required.

To ensure the growth of innovation in strategically important activities: the funding of relevant research through the grant system should be motivated; specialized research centers based on the interaction of the state, business, scientific and educational institutions as well as scientific clusters must be established. It is necessary to create conditions for the widespread use of intellectual workers in the process of innovative products and services production. For example, in the UK, at one time, the task about bringing the employment rate of intellectual workers to 40% or more was put and reached⁶¹.

To increase the level of commercialization (capitalization) of innovations: first of all the public-private partnership as well as

⁶¹ Brinkley Ia. (2008) *Knowledge economy: How Knowledge is Reshaping the Economic Life in Nations*. London: The Work Foundation.

motivating subsidies and taxation, should be developed; preferential target lending programs might be established.

To enhance the effectiveness of the innovation financing mechanism: creating the programs which could stimulate the development of the financial market and relevant financial instruments to serve the intellectual economy; the stimulating the private, public and public-private venture funds creating

For the development of intellectual small and medium-sized businesses: the system of regulation of the processes of firms creation and liquidation (in order to accelerate and simplify it), should be reformed; the information support for startups in the field of intellectual business as well as creation of relevant specialized educational platforms must be launched.

To stimulate the inflow of technology from abroad- such set of tools: the protecting investor rights; provision of state guarantees; development of public-private partnership. It is important to create the conditions for the introduction of the latest technologies, Smart-networks in all sectors of the economy to provide quick access to information and knowledge, generate new ideas with their subsequent implementation in the production of products and services with high added value and intellectual component.

To increase the demand for, and funding for, environmentally-friendly innovations – such set of tools: regulatory support for high-level environmental standards; preferential targeted lending; tax incentives, subsidies and penalties; support for sustainable green investment (green investments); state targeted investment in the development of green activities and intellectual and ecological production. As a result, we should expect the creation and provision of a productive business environment to increase the degree of innovation, and the optimum use of natural, energy and material-saving technologies.

A special role should be given to the development of education, first of all – university education. Kvasniy LG and Shcherbak O.Ya. point out⁶² that the modern man, who has the relevant knowledge, does not mechanically combine some individual elements, but seeks to ensure that everything takes its place. Therefore, the main principle of the new paradigm is the education development with the purpose not for

⁶² Kvasnij L. G., Shherbak O. Ja. (2013) Rozvytok ekonomiky znan' jak bezperervnyj proces investuvannja u ljuds'kyj kapital [The development of the knowledge economy as a continuous process of investing in human capital]. *Visnyk Nacional'nogo universytetu «L'vivs'ka politehnika». Menedzhment ta pidpryjemnyctvo v Ukraini: etapy stanovlennja i problemy rozvytku* (electronic journal), no. 767, pp. 206-211. Retrieved from: http://nbuv.gov.ua/UJRN/VNULPM_2013_767_31 (accessed 30 January 2020).

adequate reflection of the demands of life, but for a radical creative improvement of life; not for responding to the changing needs of society, but for formation of new creative, high-spirited needs, that is, the formation of a new quality of aggregate demand (both as individuals and corporations and states in general).

The modern content of the quality of education is multicomponent. Its main components are: acquisition of new knowledge throughout life; application of modern pedagogical technologies; technical and technological support of the educational process; language policy; creation of a powerful information base of the educational process; national and public education; scientific support for the functioning and modernization of education.

It should be noticed that the scientific and methodological achievements of modern processes of modernization of higher education in Ukraine are already being implemented in the effective work of the National Agency for Quality Assurance in Higher Education, which is reflected in the preparation of a whole corps of experts, consultants, experts and the results of the first accreditation examinations of educational programs. Despite some contradictions in the procedural issues and regulations, as well as the expected resistance from some university and other communities, the process of radical changes in the training of highly qualified personnel has already begun and looks inevitable.

In our opinion, due to the described measures and priorities of economic policy, it is possible to form a self-regulatory mechanism that allows for investments that stimulate the economic development due to maximize the personal consumption, which in the traditional economic theory would previously be considered the antithesis of accumulation and investment.

In the fact that humanity not only masters information as an inexhaustible cognitive resource for the development of production, but also turns the main types of consumption associated with the development of personality into a means of renewing and building up this resource, scientists see the key to the endless progress of post-industrial society. Zahodjakin I. V.⁶³ emphasizes that this progress of modern post-industrial society is ensured by economic growth, which

⁶³ Zahodjakin I. V. (2008) Postindustrial'naja jekonomika – chto znachit jeto ponjatie v sovremennom mire? [Post-industrial economy – what does this concept mean in the modern world?]. *Kreativnaja jekonomika*, (electronic journal), no. 1. Retrieved from: <https://cyberleninka.ru/article/n/postindustrialnaya-ekonomika-chto-znachit-eto-ponyatie-v-sovremennom-mire/viewer> (accessed 30 January 2020).

can continue for decades under conditions of not only low, but also a negative rate of accumulation in its traditional sense.

CONCLUSIONS

The preconditions for the development of a modern intellectual economy have been developed within the framework of post-industrial theory and practical experience in the formation of post-industrial society.

As it was predicted by post-industrial theory creators, a mass consumer society gave rise to a service economy, and within its framework, the information sector of the economy began to develop at the fastest pace. At the same time, it can be stated that the traditional concept of «postindustrial economy» is getting out of use in scientific circulation. Today, it includes more specialized categories: «knowledge-based economy»; «service economy» (since the result of labor in a post-industrial society is mostly intangible products, i.e. services); innovative economy (intangible product, in fact, is innovative, and after it innovative material products appear); information economy (since information is the main resource and product); creative economy (the creative class and creative industries are growing at the fastest pace); sustainable (socio-environmental-economic) development.

In our view, the intellectual economy is a type of economic system that, being based on the intellectual capital of society in the conditions of development of modern information technologies and systems, *uses, transforms, creates and disseminates* information and knowledge in order to ensure the growth of social welfare, international competitiveness of countries and extended knowledge and innovation cycle formation. That is, knowledge is at the heart of the development of the economic system, and, at the same time, is the final product of this system in each cycle of reproduction of the socio-ecological-economic system.

The determining direction of the transformations in the intellectual economy is predominantly the creation and consumption of knowledge as a different type of intellectual property, including its materialized form with a high intellectual component. The fact that knowledge and information are not only used as an inexhaustible cognitive resource for the development of production, but also turn into the main types of consumption associated with personal development, as a means of renewing and building up this resource, is the key to the endless progress of the intellectual economy.

SUMMARY

This research is devoted to revealing the theoretical and practical foundations of the intellectual economy formation in the conditions of post-industrial society transformation. Using the historical method of analysis, the author has made the comparative assessment of the main approaches to explaining the content, factors and features of the intellectual economy development. It has been proved that the main driving force of economic development in the intellectual economy is knowledge, which simultaneously acts as both a resource and a product, and for that product specific demand at all levels of the economic system has been formed. The special features and principles of development of intellectual economy have been explained in the paper. These features and principles have been suggested to use as criteria for the construction of national programs for the intellectual economy formation, as well as for these programs success estimation. The recommendations for overcoming the barriers to building Ukrainian intellectual economy have been elaborated.

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CHAPTER 14

RATIONALE FOR INVESTMENT RELIABILITY

Popova V. V.

INTRODUCTION

Transformation processes in the national economy have significantly changed the economic, legal and social environment of the construction sector. Currently, further development of the construction industry requires the involvement of significant investment resources, especially in the case of economic entities that are directly involved in the investment process. After all, the investment activity of the enterprise determines the prospects for its development, the level of competitiveness and renewal and growth of production resources, which, of course, affects the efficiency of its activity.

One of the relevant problems in the activity of construction companies is the problem of taking into account the potential negative consequences of adverse environmental effects and the associated uncertainties and risks that affect the reliability of the entire investment process. And since the implementation of investment of construction companies takes a long time and involves a large number of contractors and various resources, the likelihood of negative effect is increasing significantly compared to other sectors of the economy, which causes a substantive deviation of the real indicators from the planned, and reduces the reliability of investment.

The problems related to the peculiarities of the development of construction enterprises were dealt with: V.I. Anin, N.I. Verkho-hlyadova, V.T. Veчерov, V.V. Herasymov, V.F. Zalunin, Y.B. Kaluhin, V.L. Konashchuk, H.N. Lapin, V.R. Mlodets'kyy, Y.V. Orlovska, A.V. Radkevych, V.D. Rayzer, Y.I. Sedykh, V.I. Torkatyuk, R.B. Tyan, L.M. Shutenko and others. Significant contribution to solving the problems of investment activity of enterprises, strategies for investment development of economic systems and the associated risk have made by: M.V. Hrachova, P.H. Hrabovoy, V.V. Vitlinskyy, S.A. Koshechkin, A.O. Nedosyekin, L.N. Tepman, N.V. Khokhlov, R.A. Fatkhudynov and others.

However, there are a number of unresolved issues related to the quantitative characterization of the reliability of the final indicators of

investment performance and consideration of those in the economic rationale of investment reliability. In most cases, alternative methods of investing today are not comparable in terms of reliability. In some cases, the economic justification for the reliability of investing is not made at all, in others – the probabilistic nature of the environmental parameters is not taken into account.

The paper discusses the methodological approach to the economic justification of the reliability of investing at variant modeling of possible combinations of cash flow parameters using the method of sequential substitutions. The economic indicators characterizing the efficiency of investments are considered. The influence of individual factors on the economic efficiency of investment of the construction investment project is determined.

14.1. Rationale for investment reliability based on the discrete-state method

Low reliability of investment decisions has a number of negative consequences for both the enterprise itself and its associates (investors, contractors, suppliers), which can lead to the company defaulting on its obligations, its bankruptcy or reorganization.

This applies to businesses in any industry, but construction industry is the most affected by uncertainty. This industry is one of the most capital intensive and is a multiplier of investment stability and attractiveness of other sectors of the national economy. The economic justification of the reliability of investment is one of the conditions for the renewal of investment activity in the construction industry, which determines its economic sustainability, competitiveness and potential in the effective realization of economic interests of all participants of the investment process.

The proposed methodological approach to the economic justification of investment reliability is based on the discrete-state method.

As you know, cash flow consists of two parts – investment cost (I) and positive, which characterizes the return on investment (CF). Also important is the discount rate (r). If we consider each of these parameters from the standpoint of the scenario method, it is logical to enter in the calculation the values corresponding to optimistic (I_O, CF_O, r_O), pessimistic (I_{II}, CF_{II}, r_{II}) and most probable (average) (I_{CP}, CF_{CP}, r_{CP}) scenario of realization of investments. Using optimistic, pessimistic and average values of cash flow parameters, and the method of combination

analysis we determine the number of possible combinations and make $3^3 = 27$ variants of combinations or discrete states, for each of which it is calculated a system of indicators characterizing the investment performance – NPV, IRR, RI¹².

The calculation of performance indicators for different discrete states allows to determine the regularity of their change $RIf(NPV)$, $IRRf(NPV)$, $RIf(IRR)$, by constructing mathematical regression models. MS Excel Regression tool is used to set parameter values and estimate the quality of the regression model. Establishing functional interdependencies will allow moving to continuous analysis and appropriate calculation of both performance indicators and cash flow.

Next it is set the investor-acceptable performance ranges. Estimation of investor expectations of the investment's performance provides an opportunity to establish whether the performance indicators are balanced according to the terms of the implementation, otherwise the investor is invited to adjust the range of stated performance indicators. If the investor leaves the acceptable indicators unchanged, adjustments require input boundary parameters, namely finding alternative cheaper sources of financing and managing the cost of investment by changing the intensity of their distribution by stages of construction.

For the estimated net present value, corresponding to different combinations of cash flow parameters, the parameters of normal distribution are calculated and the reliability function is built and the required level of reliability of obtaining expected performance indicators (N) from realization of investments is established.

Based on the interdependence functions, the values of the RI and IRR parameters corresponding to the NPV at the established reliability level are calculated and it is determined whether the $NPV_{(N)}$; $IRR_{(N)}$; $RI_{(N)}$ indicators are within the acceptable range. If not, the investor is invited to lower the established level of reliability or revisit the range of acceptable values or input limit parameters. However, if the metrics ($NPV_{(N)}$; $IRR_{(N)}$; $RI_{(N)}$) are within the acceptable range, then cash flow parameters are determined to ensure that obtained performance data is at the set level of reliability (N). The last stage of the proposed algorithm of

¹ Hoiko A.F. (1999). *Metody otsinky efektyvnosti investytsii ta priorytetni napriamy yikh realizatsii: monohrafiia* [Methods of estimation of investment efficiency and priority directions of their realization: monograph]. Kyiv: VIRA, 320 p.

² Zdrenyk V.S. (2014). *Sutnist finansovykh investytsii yak ob'ektu obliku: problemy ta shliakhy yikh rozv'iazannia* [The essence of financial investment as an accounting object: problems and ways to solve them]. *Ukrainska nauka: mynule, suchasne, maibutnie*. Ch. 1, vyp. 19, pp. 51-59.

economic justification for investment reliability is the investment implementation itself.

For practical calculations according to the methodical approach considered, we will use the following values of flows and their parameters in the optimistic, pessimistic and average implementation scenario (Tables 1, 2, 3).

Table 1

Basic cash flow options

Values	Timeline, years				
	1	2	3	4	5
Optimistic embodiment					
Investment (I)	-100	-100			
Net operating income (CF)			200	200	200
r, %	15				
Cash flow	-100	-100	200	200	200
Discount rate	0,870	0,756	0,658	0,572	0,497
Discounted cash flow	-87,0	-75,6	131,5	114,4	99,4
NPV	182,7				
IRR	57,85				
RI	2,12				

Table 2

Basic cash flow options

Values	Timeline, years				
	1	2	3	4	5
Average embodiment					
Investment (I)	-125	-125			
Net operating income (CF)			190	190	190
r, %	17,5				
Cash flow	-125	-125	190	190	190
Discount rate	0,851	0,724	0,616	0,525	0,446
Discounted cash flow	-106,4	-90,5	117,1	99,7	84,8
NPV	104,7				
IRR	40,30				
RI	1,53				

Table 3

Basic cash flow options

Values	Timeline, years				
	1	2	3	4	5
Pessimistic embodiment					
Investment (I)	-150	-150			
Net operating income (CF)			180	180	180
r, %	20				
Cash flow	-150	-150	180	180	180
Discount rate	0,833	0,694	0,579	0,482	0,402
Discounted cash flow	-125,0	-104,2	104,2	86,8	72,3
NPV	34,1				
IRR	27,10				
RI	1,15				

Next, we calculate the performance figures of 27 combinations of cash flow parameters. Summary of these calculations at different discount rates, which are ordered by increasing value of the net present value (NPV) is presented in tables 4-6.

Table 4

Summary of the results of calculating performance figures for different combinations of cash flow parameters (discrete states) at $r = 20\%$

Values	Combinations of cash flow parameters								
	$I_{in}; CF_{in}; r$	$I_{in}; CF_{ep}; r$	$I_{in}; CF_{o}; r$	$I_{ep}; CF_{in}; r$	$I_{ep}; CF_{ep}; r$	$I_{ep}; CF_{o}; r$	$I_{o}; CF_{in}; r$	$I_{o}; CF_{ep}; r$	$I_{o}; CF_{o}; r$
NPV	34,14	48,77	63,40	72,34	86,97	101,59	110,53	125,16	139,79
RI	1,15	1,21	1,28	1,38	1,46	1,53	1,72	1,82	1,91
IRR	27,1	30	32,8	37,2	40,3	43,4	50,8	54,4	57,8
r	20	20	20	20	20	20	20	20	20

Table 5

**Summary of the results of calculating performance figures
for different combinations of cash flow parameters
(discrete states) at $r = 17,5\%$**

Values	Combinations of cash flow parameters								
	I ₁ ;CF ₁ ;r _{cp}	I ₁ ;CF _{cp} ;r _{cp}	I ₁ ;CF ₀ ;r _{cp}	I _{cp} ;CF ₁ ;r _{cp}	I _{cp} ;CF _{cp} ;r _{cp}	I _{cp} ;CF ₀ ;r _{cp}	I ₀ ;CF ₁ ;r _{cp}	I ₀ ;CF _{cp} ;r _{cp}	I ₀ ;CF ₀ ;r _{cp}
NPV	49,45	65,33	81,20	88,84	104,71	120,59	128,22	144,10	159,97
RI	1,21	1,28	1,34	1,45	1,53	1,61	1,81	1,91	2,02
IRR	27,1	30	32,8	37,2	40,3	43,4	50,8	54,4	57,8
r	17,5	17,5	17,5	17,5	17,5	17,5	17,5	17,5	17,5

Table 6

**Summary of the results of calculating performance figures
for different combinations of cash flow parameters
(discrete states) at $r = 15\%$**

Values	Combinations of cash flow parameters								
	I ₁ ;CF ₁ ;r ₀	I ₁ ;CF _{cp} ;r ₀	I ₁ ;CF ₀ ;r ₀	I _{cp} ;CF ₁ ;r ₀	I _{cp} ;CF _{cp} ;r ₀	I _{cp} ;CF ₀ ;r ₀	I ₀ ;CF ₁ ;r ₀	I ₀ ;CF _{cp} ;r ₀	I ₀ ;CF ₀ ;r ₀
NPV	66,90	84,17	101,43	107,55	124,81	142,08	148,19	165,45	182,72
RI	1,27	1,35	1,42	1,53	1,61	1,70	1,91	2,02	2,12
IRR	27	30	32,8	37,2	40,3	43,5	50,8	54,4	57,8
r	15	15	15	15	15	15	15	15	15

Next, we define regression models of the performance figures for each of the discount rates you set. The obtained interdependencies are presented in table 7.

Table 7

Functions of performance indicators interdependence

Function	Functional dependence ($r=15\%$)	Functional dependence ($r=17,5\%$)	Functional dependence ($r=20\%$)
$RI f(NPV)$	$RI = 0,0078 \cdot NPV + 0,6877$	$RI = 0,0077 \cdot NPV + 0,7681$	$RI = 0,0076 \cdot NPV + 0,8339$
$IRR f(NPV)$	$IRR = 0,2825 \cdot NPV + 6,2771$	$IRR = 0,2938 \cdot NPV + 10,765$	$IRR = 0,3057 \cdot NPV + 14,946$
$RI f(IRR)$	$RI = 0,0276 \cdot IRR + 0,5113$	$RI = 0,0263 \cdot IRR + 0,4832$	$RI = 0,025 \cdot IRR + 0,4591$

The quality of the obtained mathematical regression models can be estimated by a number of criteria.

The obtained mathematical model will be qualitative if there is a close correlation between the actual values of the resultant characteristic y_i and the corresponding theoretical values, which can be estimated by the pair correlation coefficient, which is determined by the statistical MS Excel function CORREL. In the CORREL function dialog box, the Array 1 contains the range of cells in which the resultant elements are located, and the Array 2 contains the range of cells in which the calculated values \bar{Y}_{xi} are presented³.

If the value of the correlation coefficient is close to 1, then the quality of the model is high.

The coefficient of determination (1) is used as an indicator of the bond intensity⁴:

$$R^2 = \sigma_{\bar{Y}_x}^2 / \sigma_y^2, \quad (1)$$

where σ_y^2 is the general variance (sample variance) that characterizes the variation of the y values of the observed feature near its mean value;

$\sigma_{\bar{Y}_x}^2$ the variance caused by the regression \bar{Y}_x , that is, the part of the values dispersal of the effective feature y under the influence of the factor(s).

This coefficient shows the fraction of effective feature variation in the influence of factor X. In the absence of correlation, the empirical coefficient of determination is 0, and in the case of strong functional correlation it is 1 (all observation data are on the regression line).

In addition, to evaluate the quality of the obtained regression models, we estimate the statistical significance of the regression equations as a whole and by its individual parameters. The estimation of the statistical significance of the regression equation is entirely performed using the F – Fisher test. The calculated value of the F criterion is determined by the formula (2):

³ Baraz V.R. (2005). Korreliatsyonno-rehressyonnyi analiz sviazy pokazatelei kommercheskoi deiatelnosti s yspolzovaniem prohranny Excel: uchebnoe posobyie [Correlation and regression analysis of the relationship between indicators of commercial activity using the Excel program: a training manual]. Ekaterynburh: HOU VPO «UHTU–UPY», 102 p.

⁴ Hmurman V.E. (2000). Teoriya veroiatnosti y matematycheskaia statystyka [Theory and Mathematical Statistics]. Moskva: Vysshiaia shkola, 479 p.

$$F_{PACQ} = \frac{R^2 \cdot (n - k - 1)}{(1 - R^2) \cdot k} , \quad (2)$$

where R^2 – is a coefficient of determination;

n – sample volume;

k – the number of factor traits of the linear regression model and the number of nonlinear regression model parameters related to the factorial feature.

Critical value F of Fisher criterion is determined using the statistical MS Excel function FINV by a given significance level α and the number of degrees of freedom: $m1 = k$; $m2 = n - k - 1$. It is usually accepted that $\alpha = 0,05$. If $F_{PACQ} > F$, the regression equation as a whole is statistically significant, that is it has good agreement with the observation data.

To evaluate the statistical significance of the parameters of the a_j regression model is to determine whether the factor x_j in the total population has a significant effect on the resultant characteristic y , that is, whether the parameter of the regression model can be equal to zero. To estimate the statistical significance of the parameters of the regression equations, we use the Student's t-test. We determine the critical value of t-statistics using the MS Excel statistical function TINV by the value of $\alpha = 0.05$ and the number of degrees of freedom $m = n - k - 1$.

The estimated value of the t-statistics can be obtained using the MS Excel Regression tool. If $t_{PACQ} > t$, the parameter is considered statistically significant.

Held calculations of the quality of the regression models, which reflect the dependencies, separately for each of the discount rates, confirmed that all regression equations (Table 7) and model parameters are statistically significant. The interdependencies thus obtained can be used for prediction.

Next, we set the investor-friendly performance values, which are presented as a range (Table 8):

$$NPV_{(IT)} \in [NPV \text{ min}; NPV \text{ max}];$$

$$IRR_{(IT)} \in [IRR \text{ min}; IRR \text{ max}];$$

$$RI_{(IT)} \in [RI \text{ min}; RI \text{ max}].$$

Table 8

Range of acceptable for an investor performance values

Indicator	Range of acceptable performance values	
	min	max
r=15 %	60	110
NPV c.u.	1,25	1,5
RI	30	40

With the help of the established functional interdependencies of performance indicators (Table 7), we assess the investor's expectations in accordance with the implementation of investments.

The calculation is done by successive changes of the input data. For example, we will evaluate the investor's expectations for the implementation of the investment, provided that acceptable NPV values are set as input.

1. Estimated value range for RI:

$$RI_{\min} = 0,0078 \cdot 60 + 0,6877 = 1,15$$

$$RI_{\max} = 0,0078 \cdot 110 + 0,6877 = 1,54$$

2. Estimated value range for IRR:

$$IRR_{\min} = 0,2825 \cdot 60 + 6,2771 = 23,23$$

$$IRR_{\max} = 0,2825 \cdot 110 + 6,2771 = 37,35$$

Based on the above, it is clear that the calculated values of RI and IRR exceed the acceptable values set by the investor, so requires some adjustments to the range of declared values of performance indicators.

In order to establish the required level of reliability of obtaining the expected performance indicators (N) from the investment implementation, we carry out the probability distribution of each of the calculated twenty-seven scenarios of implementation of investments. To do so, it was suggested to use the basic rules of probability theory for a normal distribution law. Table 9 shows the defined distribution parameters. The values of the normal distribution function $F_{m,\delta}(\text{NPV})$ with parameters m, σ are calculated by the formula (3)⁵:

⁵ Semenov V.A. (2013). Teoriya veroiatnosti y matematycheskaia statystyka: Uchebnoe posobyе. Standart treteho pokoleniya [Probability Theory and Mathematical Statistics: A Training Manual. Third generation standard]. Sankt-Peterburh: Pyter, 192 p.

$$F_{m,\delta} = F\left(\frac{NPV - m}{\delta}\right) \quad (3)$$

where m – is mathematical probabilistic mean;
 δ – is mean root square deviation.

Table 9

**Calculation of parameters for the distribution
of performance indicators for discrete states**

№	Indicator	Value	Distribution parameters			
			m	δ	$F_{m,\delta}(NPV)$	N
1	NPV ($I_{II}; CF_{II}; r_{II}$)	34,1	108,4	24,76	3,00	0,9987
2	NPV ($I_{II}; CF_{cp}; r_{II}$)	48,77			2,41	0,992
3	NPV ($I_{II}; CF_{II}; r_{cp}$)	49,45			2,38	0,9913
4	NPV($I_{II}; CF_O; r_{II}$)	63,40			1,82	0,9656
5	NPV ($I_{II}; CF_{cp}; r_{cp}$)	65,33			1,74	0,9591
6	NPV ($I_{II}; CF_{II}; r_O$)	66,90			1,68	0,9635
7	NPV ($I_{cp}; CF_{II}; r_{II}$)	72,34			1,46	0,9279
8	NPV($I_{II}; CF_O; r_{cp}$)	81,20			1,10	0,8643
9	NPV ($I_{II}; CF_{cp}; r_O$)	84,17			0,98	0,8365
10	NPV ($I_{cp}; CF_{cp}; r_{II}$)	86,97			0,87	0,8078
11	NPV ($I_{cp}; CF_{II}; r_{cp}$)	88,84			0,79	0,7852
12	NPV ($I_{II}; CF_O; r_O$)	101,43			0,28	0,6103
13	NPV($I_{cp}; CF_O; r_{II}$)	101,59			0,28	0,6103
14	NPV ($I_{cp}; CF_{cp}; r_{cp}$)	104,71			0,15	0,5596
15	NPV ($I_{cp}; CF_{II}; r_O$)	107,55			0,04	0,516
16	NPV ($I_O; CF_{II}; r_{II}$)	110,53			-0,08	0,4681
17	NPV ($I_{cp}; CF_O; r_{cp}$)	120,59			-0,49	0,3121
18	NPV ($I_{cp}; CF_{cp}; r_O$)	124,81			-0,66	0,2546
19	NPV ($I_O; CF_{cp}; r_{II}$)	125,16			-0,68	0,2483
20	NPV ($I_O; CF_{II}; r_{cp}$)	128,22			-0,80	0,2119
21	NPV ($I_O; CF_O; r_{II}$)	139,79			-1,27	0,102
22	NPV ($I_{cp}; CF_O; r_O$)	142,08			-1,36	0,0869
23	NPV ($I_O; CF_{cp}; r_{cp}$)	144,10			-1,44	0,0749
24	NPV ($I_O; CF_{II}; r_O$)	148,19			-1,61	0,0537
25	NPV ($I_O; CF_O; r_{cp}$)	159,97			-2,08	0,0188
26	NPV ($I_O; CF_{cp}; r_O$)	165,45			-2,30	0,0107
27	NPV ($I_O; CF_O; r_O$)	182,72			-3,00	0,0013

For the calculated NPV values corresponding to different combinations of cash flow parameters and set probabilities of their occurrence (Table 9), a reliability function is constructed.

On the basis of the interdependence functions, we calculate the values of the parameters RI and IRR, which correspond to NPV at the set level of reliability, that is $NPV_{(N=0,75)} = 91,59$ MU and determine if $NPV_{(N)}$; $IRR_{(N)}$; $RI_{(N)}$ are within the acceptable range.

We determine the cash flow parameters that provide a set level of reliability (N) and meet acceptable investment performance metrics.

Obviously, using the above logic of calculations, we can solve the inverse problem – to determine the NPV value and the corresponding level of reliability using the given basic performance indicators.

This technique can also be used to evaluate the “sensitivity” of a result to changing influencing parameters, and to determine to which of them one is more or less sensitive.

The proposed approach allows to find out at what values of cash flow parameters (I, CF, r), the NPV value provides the expected return on investment level and to determine the level of other performance indicators that meet the established reliability.

Moreover, the data obtained allow us not only to determine the likelihood of achievement of certain values of performance indicators, but also to conduct a deeper analysis of response sensitivity of the resultant indicator to changes in influencing parameters.

In our case, when the correlation between the total performance indicators is empirically established, in the sensitivity analysis it is possible to determine how much the NPV should change in order to provide a given change in other performance indicators.

14.2. Substantiation of the reliability of investment projects by the method of chain substitutions

Risk and uncertainty factors should be taken into account in calculating the effectiveness of investment projects.

Economic efficiency is estimated by standard, in terms of investment, indicators⁶:

- net present value (NPV);
- internal rate of return (IRR);
- return on investment (PI);

⁶ Antypenko E.Iu., Donenko V.Y. (2005). Pryntsyv analiza kapitalnykh vlozheniy [The principle of analysis of capital investments]. Zaporozhe: FAZAN, 420 p.

– payback period (PP).

As probability values all of them have their distribution parameters, and it is unlikely their reliability will correspond. In this case, the final reliability of the result can be considered as a compromise between the reliability of the parameters that quantify the economic efficiency of the result.

This compromise may be based on prioritizing each parameter in their designated sample. In pieces⁷, based on the method of expert analysis, priority was established and a confidence coefficient for each indicator was calculated (Table 10).

Table 10

Summary analysis of the priority of using key project performance indicators

Nomination	NPV	IRR	PI	PP
Total expert numerical assessment (absolute indicator of criterion priority)	117	81	52	32
Relative indicator of criterion priority, %	41,49	28,72	18,44	11,35
Confidence coefficient	0,975	0,675	0,433	0,267

This shows that the most significant indicator when deciding on the effectiveness of investments is the net present value (NPV) indicator. Therefore, we will accept it as an evaluation criterion.

Now, to determine the influence of individual factors on the effectiveness of the planned event (NPV), we use the chain substitution method. A condition for applying this approach is that the dependence should be strictly functional in the form of a sum, a multiplication, or a quotient from dividing some indicators by others.

The essence of this method is the successive replacement of one of the indicators, provided that all the others are unchanged. This is how a sequential change is performed until all factors correspond to the new state. The degree of influence on the function of one or another factor is determined by sequential subtraction the results of a subsequent

⁷ Mlodetskiy V.R. (2001). Operativnoe upravlenie investitsionnyim proektom na osnove integralnykh pokazateley effektivnosti [Operational management of an investment project based on integrated performance indicators]. *Visnyk PDABA*, no. 11, pp. 26-31.

calculation from the previous one. In the first calculation, all values correspond to the initial state, in the final one – to the new state⁸.

What in this case is understood as influencing factors is, first of all, the parameters that form the cash flow, as the basis of most economic calculations related to investment efficiency.

As it is known, this type of cash flow consists of two parts – investment and positive costs, characterizing the return on investment (I; CF). Also an important influencing parameter is the discount rate (r). If we consider each of these parameters from the perspective of the scenario method, it is logical to introduce the boundary values of each of them ($I_0, I_{II}; CF_0, CF_{II}; r_0, r_{II}$) into the calculation.

Consider an example of assessing the absolute and relative influence of each of the input parameters of cash flow I, CF, r on the NPV efficiency indicator in the transition from values from the optimistic to the pessimistic scenario ($I_0; CF_0; r_0$) → ($I_{II}; CF_{II}; r_{II}$).

For our input parameters, appliance of the chain setting method can be described as follows (4):

$$\begin{aligned} NPV_0 &= \{I_0; CF_0; r_0\}; \\ NPV_r &= \{I_0; CF_0; r_{II}\}; \\ NPV_{CF} &= \{I_0; CF_{II}; r_{II}\}; \\ NPV_{II} &= \{I_{II}; CF_{II}; r_{II}\}, \end{aligned} \quad (4)$$

where – $I_0; CF_0; r_0$ – optimistic values of factors influencing the general indicator of NPV;

$I_{II}; CF_{II}; r_{II}$ – pessimistic values of factors;

$NPV_r; NPV_{CF}$ – intermediate changes in the resulting indicator associated with changes in factors r, CF, respectively.

The total change $\Delta NPV = NPV_{II} - NPV_0$ is the sum of the changes in the resulting indicator due to changes in each factor for fixed values of the remaining factors (5):

$$\Delta NPV = \sum NPV(I, CF, r) = \Delta NPV_r + \Delta NPV_{CF} + \Delta NPV_{II}, \quad (5)$$

$$\Delta NPV_r = NPV_r - NPV_0;$$

$$\Delta NPV_{CF} = NPV_{CF} - NPV_r; \quad (6)$$

$$\Delta NPV_{II} = NPV_{II} - NPV_{CF};$$

⁸ Kovalev V.V. (2011). Kurs finansovoho menedzhmenta: uchebnyk [Financial Management Course: A Textbook]. Moskva: Prospekt, 480 p.

For clarity, we introduce specific conditions for optimistic and pessimistic scenarios for the corresponding cash flow parameters and calculate the efficiency parameters for the given conditions (Tables 11, 12, 13, 14).

Table 11

Calculation of efficiency parameters with an optimistic variant of cash flow parameters (I_0 ; CF_0 ; r_0)

Input parameters	Forecasting period, year				
	1	2	3	4	5
Investment (I_0)	-100	-100			
NOI (o)			200	200	200
Cash Flow (CF_0)	-100	-100	200	200	200
Discount rate (r_0)	15				
Discount coefficient	0,870	0,756	0,658	0,572	0,497
DCF	-87,0	-75,6	131,5	114,4	99,4
PV $I(o)$	-162,6				
PV NOI (o)	345,3				
NPV(o)	182,7				
RI(o)	2,12				
$r(o)$	15				

Table 12

Calculation of performance parameters with a combined variant of cash flow parameters (I_0 ; CF_0 ; r_n)

Input parameters	Forecasting period, year				
	1	2	3	4	5
Investment (I_0)	-100	-100			
NOI (o)			200	200	200
Cash Flow (CF_0)	-100	-100	200	200	200
Discount rate (r_0)	20				
Discount coefficient	0,833	0,694	0,579	0,482	0,402
DCF	-83,3	-69,4	115,7	96,5	80,4
IRR	57,5				
PV $I(o)$	-152,8				
PV NOI (o)	292,6				
NPV	139,8				
RI	1,9				
$r(\pi)$	20				

Table 13

**Calculation of performance parameters with a combined variant
of cash flow parameters (I_0 ; CF_n ; r_n)**

Input parameters	Forecasting period, year				
	1	2	3	4	5
Investment (I_0)	-100	-100			
NOI (o)			180	180	180
Cash Flow (CF_0)	-100	-100	180	180	180
Discount rate (r_0)	20				
Discount coefficient	0,833	0,694	0,579	0,482	0,402
DCF	-83,3	-69,4	104,2	86,8	72,3
IRR	50,5				
PV $I(o)$	-152,8				
PV NOI (π)	263,3				
NPV	110,5				
RI	1,7				
$r(\pi)$	20				

Table 14

**Calculation of performance parameters with a pessimistic variant
of cash flow parameters (I_n ; CF_n ; r_n)**

Input parameters	Forecasting period, year				
	1	2	3	4	5
Investment (I_0)	-150	-150			
NOI (o)			180	180	180
Cash Flow (CF_0)	-150	-150	180	180	180
Discount rate (r_0)	20				
Discount coefficient	0,833	0,694	0,579	0,482	0,402
DCF	-125,0	-104,2	104,2	86,8	72,3
PV $I(\pi)$	-229,2				
PV NOI (π)	263,3				
NPV(π)	34,1				
RI(π)	1,15				
$r(\pi)$	20				

The calculation based on the method of chain substitutions is tabulated (Table 15)⁹.

⁹ Popova V.V. (2012). Ekonomicheskaya nadezhnost parametricheskikh protsessov [Economic reliability of parametric processes]. *Ekonomichnyi prostrir*, no. 58, pp. 126-134.

Table 15

Analysis of the effect of individual cash flow parameters on the NPV value during the transition $(I_0; CF_0; r_0) \rightarrow (I_n; CF_n; r_n)$

Cash Flow Parameters	NPV Value	Variable parameter	The effect on the final result	
			magnitude	relative magnitude
$I_0; CF_0; r_0$	182,7			
$I_0; CF_0; r_n$	139,8	$r_0 \rightarrow r_n$	-42,9	-0,29
$I_0; CF_n; r_n$	110,5	$CF_0 \rightarrow CF_n$	-29,3	-0,2
$I_n; CF_n; r_n$	34,1	$I_0 \rightarrow I_n$	-76,4	-0,51
Column Summary	$34,1 - 182,7 = -148,6$		-148,6	-1

Based on the analysis of the data in the table above, it is possible to establish the degree of influence of each of the parameters forming the cash flow on the final result during the transition from optimistic to pessimistic expectation. Obviously, the reverse transition will be characterized by the same values characterizing the influence of parameters on the final result, but with their positive value.

For the analyzed parameters of cash flow formation, we can conclude that the main influence on the NPV value is exerted by the change in the present investments value – the share of influence is 51%.

During the implementation of construction projects, it is possible to manage the present investment costs value with a constant amount of their sectors mastered at the construction stages.

As part of the developed calendar plans for the facilities' construction, the types and volumes of work that are provided with needed resources, calculated for each stage in the form of an appropriate resource consumption rate, are linked in time and space (by work zones, by nodes). Thus, the volumes of work are linked with the schedules of their production.

The calculation of the present value of investment costs is based on discounting techniques. Based on the features of this process, the same amount of money, *ceteris paribus*, have a different present value – the cash amounts of later periods are smaller than the previous ones. Based on this aspect of the discounting process, it is possible to reduce the value of their present value by increasing the planned volume of work in the later stages of construction (while keeping the total cost of construction unchanged).

Obviously, the implementation of this technique is possible if this is ensured by appropriate changes in the work schedules as like any decision regarding changes to the schedule, it should be systematically interconnected with all the components of the schedule (work intensity, resource equipment, sufficient work front to increase the intensity of work, etc.).

Correction of construction plans presented in the form of linear graphs, cyclograms or network diagrams, according to the criterion of ensuring their financial feasibility, has a long history of research¹⁰.

To forecast cash flows, it estimates usage of all income and expenses over time, based on the planned movement of funds and accounts. In construction, the integrated disbursement schedule is S-shaped.

To assess the potential for financial feasibility, charts are built for the late and early periods, and the distance between the curves reflects the flexibility of the financial characteristics of the project. In this case, it is concluded that it is advisable to defer costs until such a delay causes an undesirable increase in the duration of the project. However, on the other hand, over time, it is very likely that costs will increase due to higher prices for materials and others. Therefore, in such a situation it is impossible to focus on solving a particular problem – for example, to reduce the presented cost input, move them as late as possible. It is necessary to make a comprehensive assessment of the situation, taking into account the likelihood of labour expense rising in the future, which can neutralize or worsen the expected positive result of the work in the late stages performance.

CONCLUSION

The proposed methodological approach, which in the case of option modeling of cash flow parameters possible combinations (discrete states) allows to perform the economic justification of investment reliability on the basis of established functional interdependencies of the main performance indicators. This allows to generate cash flow parameters that provide acceptable performance at a given level of reliability of their origination.

On the basis of the chain substitutions method, it was estimated the absolute and relative influence of each of the output parameters of the cash flow (I ; CF ; r) on the efficiency index in the transition from

¹⁰ Porter M. (2016). *Mezhdunarodnaya konkurentsia. Konkurentnyie preimuschestva stran* [International competition. Competitive advantages of countries]. Moskva: Alpina Publisher, 947 p.

optimistic to pessimistic values $(I_0; CF_0; r_0) \rightarrow (I_p; CF_p; r_p)$. This measure made it possible to determine that the change in the value of the investment cost has a major impact on the effectiveness of the planned event. Thus, it allows you to determine the quantitative value of adjustments, that is management of the investment costs present value with a constant sum of their parts mastered by stages of construction.

SUMMARY

The article is devoted to the development of methodological and practical tools for the economic justification of the reliability of investing in a construction company in the conditions of uncertain environment. A methodical approach was developed based on the method of discrete states. It enables any participant in the investment process to conclude that it is advisable to invest their money in a particular project. The method of chain substitutions was developed. On this basis, it was estimated the absolute and relative influence of each of the output parameters of the cash flow on the performance indicator, in the transition from their optimistic to pessimistic values. This allows to set the level of reliability when investments become inappropriate.

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CHAPTER 15

PROSPECTS OF PROVIDING FINANCIAL SECURITY OF AGRICULTURAL DEVELOPMENT

Prystemskiy O. S.

INTRODUCTION

The inconsistency of the reforms that determined the agricultural development in Ukraine, the evolutionary transformation of the international agrarian market led to the disruption of the efficiency of the industry and threatened its financial security, which necessitated a revision of the state's priorities for shaping the foundations of further successful socio-economic development in the long run. Measures to strengthen national, food and financial security of agricultural development were of particular importance. The political and economic system of Ukraine has undergone significant changes over the years of independence, complemented by the transformation processes of the last decade, which covered all sectors of the national economy. The intensifying factor for the development of agriculture and strengthening its financial security is the presence of structural changes in economic activities in Ukraine, which occurred as a result of military-political events and prevented the development of heavy industries, including the implementation of national regional programs. Therefore, taking into account the objective processes taking place in society, the positive influence of factors on the development of agriculture, such as favorable natural and climatic environment for agricultural production, fertile land, compliance with the tendency of decreasing rural population, as a prerequisite for providing the industry with skilled workers, enhancing innovation and investment technical and technological development, convenient geographical location, as well as the ancient traditions of agricultural production, we believe that the issues of strengthening the financial security of the industry in the conditions of the present cause justified both scientific and high practical interest. This leads to a steady increase in the importance of theoretical understanding of new scientific approaches to ensuring and enhancing the financial security of the state's agriculture and the development of directions for the implementation of relevant practical recommendations.

The scientific views of researchers do not fully capture the current trends in financial security in agriculture, principles, factors and patterns of its formation and strengthening. The complex and multifaceted issue of the financial security of agricultural development is considered by individual elements and levels, which complicates its comprehensive study as a single system and the establishment of existing cross-industry correlations.

15.1. Reserves to strengthen the financial security of agricultural development

The issue of strengthening the financial security of agricultural development is of national importance, as it involves addressing many key issues of the effective functioning of the existing economic system of the state.

The financial security of agricultural development must be shaped in accordance with the transformational trends of the national economy, and it is therefore advisable to target the reinforcement reserves that are produced by the very essence of the concept. We consider it necessary to systematize the reserves for strengthening the financial security of agricultural development, namely: strengthening the security of state protection, ensuring the debt safety of agriculture, increasing the security of financial solvency, ensuring the security of financial independence of agricultural enterprises, strengthening banking security, strengthening the insurance protection of agricultural producers, ensuring the security of foreign producers activities and the financial market. Each of the proposed reserves is aimed at solving certain problem areas, namely the financial security of agricultural development. It should be emphasized that the relationship that exists between the state and the financial security of agricultural development is manifested in the security of state protection of food security. At the same time, the emphasis should be on the close correlation between the financial security of agricultural development and the food security.

The product that is created as a result of the functioning of agriculture provides the necessary foodstuffs to the population of the state, and at effective work, the population of other states. Stimulating the high level of financial security of agriculture, it is possible to ensure the strengthening of the existing level of food security of the state.

The main reasons for the decline in security of state protection in the context of financial security of agricultural development are the factors of the food dependence of the state, such as:

- 1) food shortage and low level of solvent demand, which cause the imbalance of the domestic food market in supply and demand;
- 2) dependence of the domestic market on imported food supplies, the lack of competitiveness of the national agri-industrial complex;
- 3) low competitiveness of products in terms of quality or price, provided the food sufficiency for the own production;
- 4) underdeveloped foreign economic relations, closed domestic food market;
- 5) low efficiency of activity of economic entities in agri-industrial complex;
- 6) transformation of export of food products to the end in itself of development of agri-industrial complex;
- 7) increase of obligations to cover external debt at unstable exchange rate of national currency¹.

The undoubted consequences of a decline in financial and food security will be a deterioration in food security for health, a decrease in the physical, economic and social availability of food and a disruption in the balance of the population of the state.

We believe that the financial security of agricultural development still requires direct financing at the expense of budgetary funds. In most cases, only large agricultural formations show considerable efficiency of their work. On the other hand, the situation of medium and small business entities is more demanding by addressing the issue of security of state protection, because they are characterized by relatively worse performance indicators (low financial performance, profitability, etc.), limited self-financing, lack of interest in their activities of prospective investors, which cause a deterioration in the financial security of agricultural development. Accordingly, in view of the negative impact of the breach of financial and food security of the industry, the state should create favorable conditions for the functioning of this particular part of economic entities, supporting their solvency, competitiveness, reliability by indirect methods².

In our opinion, first of all, the state represented by the relevant ministry should take part in intensifying the export activity of small

¹ Zelenska O.O. (2012). Systema prodovolchoi bezpeky: sutnist ta hierarkhichni rivni [Food security system: essence and hierarchical levels]. *Visnyk ZhDTU*, no. 1(59), pp. 108-112.

² Prystemskiy O.S., Movchan A.I. (2016). Oborotni zasoby v systemi zmitsnennia finansovoi bezpeky silskohospodarskoho pidpriemstva [Working capital in the system of strengthening the financial security of an agricultural enterprise]. *Skhidna Yevropa: ekonomika, biznes ta upravlinnia*. №5. URL: <http://www.easterneurope-ebm.in.ua/5-2016-ukr>

and medium-sized economic entities in terms of product sales by facilitating the necessary information in the conclusion of relevant agreements. Therefore, it is advisable to use modern information platforms for distribution of export policy conditions of different countries, a range of products that are in high demand and so on, by manufacturers.

Another reserve to strengthen the financial security of agricultural development should be called debt safety. We emphasize that in this context, debt safety is understood by us as a certain level of ratio of external and internal, accounts payable and accounts receivable of all economic entities of the industry, which allows to effectively implement the assigned financial, economic, social and political functions of agriculture. Accordingly, the factors that determine the state of debt safety in the context of financial security of agricultural development are: the level of trust between economic entities in the industry and beyond, the state of the regulatory framework, the status of existing and potential debt obligations, prospects for differentiation of debt government liabilities, monetary policy and debt instruments.

According to systematic factors, we consider it necessary to direct resources to reinforce this aspect, in particular by facilitating factoring operations in agriculture. Projecting the concept of debt safety from the plane of the national economy into the plane of financial security of the development of agriculture, let us note the priority of the state monetary policy. The experience of functioning of agriculture in the recent period showed that the financial security of agricultural development has a direct dependence on the state of monetary policy, which is reflected in fluctuations in the value of the national currency.

The next reserve for improving the financial security of agricultural development should be referred to as security of solvency, under which it is necessary to understand the ability of economic entities to meet their financial obligations in full and within the specified time. Let us note that insufficient attention to solvency security causes a breach of debt safety. In addition, if the optimal balance of the assets structure of the enterprises of the industry is breached, excessive debt to creditors arises. This issue is of particular relevance for the financial security of agricultural development, because due to the seasonality of production processes in the industry there is no stable cash flow, and as a result, the revenue generated must accumulate to ensure solvency throughout the annual cycle.

The starting point from the previous ones is the security of financial independence, which is the ability to carry out financial and economic activities despite the circumstances of exogenous power. The fundamental difference between this reserve and financial solvency security is its orientation to the mechanism of realization of the main tasks of the industry.

In order to achieve it, it is necessary to have stable legal support, independence from counterparties, independence from clients, availability of intangible assets, reliable management, orientation towards creating a reserve money fund, optimal financial plan, etc.

Among the priority reserves for enhancing the financial security of agricultural development, one should also mention banking security, which is not directly dependent on industry impact but determines the state of security of the industry. We believe that banking security in the context of financial security of agricultural development is revealed as a state of protection of interests of the banking system (banks, bank customers) from external and internal threats.

The agrarian insurance system should develop in the following areas:

1. Promoting the development of the agricultural sector aimed at increasing its ability to influence the development of new insurance products and use insurance services.

2. Improvement of the Ukrainian legislation governing the provision of insurance services to the agrarian market and the provision of agricultural support to agricultural producers on agrarian risks.

3. Implementation of the main aspects of the Law of Ukraine "On State Support for Agriculture in Ukraine", which in particular provides:

- insurance for the risk of loss of agricultural products (part of it) and capital assets is carried out voluntarily by the agricultural commodity producer and is carried out on the basis of an agreement between the insurer and the insured;

- comprehensive insurance: insurance against the destruction or damage of an object due to a certain list (complex) of adverse events, and not all the foreseeable risks;

- types of voluntary insurance, which is licensed, are determined in accordance with the rules (conditions) of insurance, adopted by the insurer, registered by the authorized body;

– replacement of the name of the Agricultural Insurance Subsidies Fund by the State Agency for Agricultural Risk Management.

4. Institutional development aimed at increasing the capacity of the state to carry out its functions in this system.

5. Stimulating and facilitating the development and consolidation of the insurance sector aimed at enhancing its ability to provide skilled services to the agricultural sector³.

Based on the interests and capabilities of the system members, the central role in it should belong to the government, which, by implementing the state policy of support of agricultural insurance, ensures coordination of interests of other members of the system and consolidation of their efforts, directing them to achieve the main goal of the development of the system.

The full development of the agricultural risk insurance system also requires the development of subsidiary organizations (professional and public associations, expert legal structures). Central to these organizations is agricultural producers' associations. An individual farmer is virtually deprived of the opportunity to infuse the insurance conditions offered to him/her by insurance companies. Therefore, the first and foremost function to be played by agricultural associations is to participate fully in the development and decision making of new insurance products.

The security of foreign economic activity in the context of financial security of agricultural development requires special attention and should be interpreted as a condition in which agriculture is able to effectively implement export policies taking into account the interests of both the food security of the state and the need to enter the international markets of economic entities of the industry. Thus, the security of foreign economic activities contributes to: improving the state's image, ensuring foreign exchange earnings, increasing investment interest in the state's industry, improving the security of the banking sector, improving the level of industry development, improving the culture of production, expanding the structure of financial resources and more.

³ Tanklevska N.S. (2010). Finansova polityka staloho rozvytku ahrarnykh pidpriemstv Ukrainy: teoriia, metodolohiia, praktyka: monohrafiia [Financial policy of sustainable development of agricultural enterprises of Ukraine: theory, methodology, practice: monograph]. Kherson: Ailant, 376 p.

15.2. Mechanism for strengthening the financial security of agricultural development

The mechanism of formation of financial security of agricultural development should be designed in accordance with the basic provisions and principles of implementation of the overall security strategy of the state, guided by trends in the development of the financial system⁴.

The active evolution and transformation of the economic system provoked corresponding changes in the financial environment of the functioning of the agricultural sector, which necessitated the search for an effective mechanism for forming the financial security of agricultural development. The basis of this mechanism is the following basic elements: financial security, financial controlling and asset management. The formation of financial security of agricultural development should be carried out under the influence of internal and external factors that determine the general state of functioning of the industry and its inherent characteristics.

Implementation of the mechanism for strengthening the financial security of agricultural development should be carried out according to an algorithm that provides a phased operation⁵: first of all, it is necessary to determine the strategic purpose and objectives of this mechanism of agricultural development, which will depend on the formation of other steps of the algorithm. The second phase is aimed at determining the current state of financial security of agricultural development and forecasting the possible dynamics for the future. In the third phase, the possible internal and external threats to the financial security of agricultural development should be outlined and measures should be taken to neutralize them or control them. The fourth phase should include the choice of management methods and tools that should be used depending on the outcome of the previous steps. It is important to note that the use of different methods and tools for shaping the financial security of agricultural development must be integrated in order to maximize its impact. The final phase of the algorithm should cover the elements of control and monitoring of its functioning. One of the important elements of financial security development of agricultural

⁴ Prystemskyi O.S. (2015). Problemy ta elementy mekhanizmu finansovoi bezpeky silskohospodarskykh pidpriemstv [Problems and elements of the mechanism of financial security of agricultural enterprises.]. Aktualni problemy ta perspektyvy rozvytku obliku, analizu ta kontroliu v sotsialno-orientovani systemi upravlinnia pidpriemstvom: zb. materialiv Mizhnar. nauk.-prakt. konf., 15 sichnia 2015 r. Poltava: PDAA, pp. 181-183.

⁵ Kartuzov Ye.P. (2012). Analiz mekhanizmu upravlinnia finansovoiu bezpekoiu pidpriemstva [Analysis of the financial security management mechanism of the enterprise]. *Aktualni problemy ekonomiky*, no. 7 (133), pp. 118-124.

development is financial control. It should be aimed at coordinating cost-benefit processes, risk accounting, internal consulting and directions for further development of the enterprise. For agriculture, the role of financial controlling is very important as it allows most specific sectoral characteristics to be covered.

We believe that the mechanism of formation of financial security of agricultural development should be aimed at solving the following tasks: optimization of cash flows of economic entities of the industry; formation and distribution of profits; crisis management; intensification of attraction and efficiency of use of investments; estimation of cash flow in mass; optimization of capital structure; financial risk prevention.

Effective financial system of the state with available qualitative and accessible financial resources helps to increase the competitiveness of agricultural enterprises. The lack of money from agricultural entities in which the non-payment crisis manifests and on which the financial security of the industry depends, is subject not only to their economic activity but also to the rational and effective management of the cash flows created in the operating cycle. In this case, cash flow, through economic entities, ensures the reproduction of the capital of the industry, provides the opportunity to ensure the full development of operational, investment and financial activities, and in quality management it is able to reduce the risk of debt to suppliers and counterparties, increase solvency, financial condition and investment agriculture, ensuring a high level of financial security. Therefore, in shaping the financial security of agricultural development, it is necessary to focus on managing the cash flows that saturate production processes, ensure the timely conduct of financial and economic transactions and that are responsible for the state of solvency and financial independence.

Therefore, when designing the financial policy of an enterprise, it is necessary to choose a capital structure that will allow to increase the market value of the economic unit at the lowest cost of capital. It is optimal to have a capital structure that will minimize the weighted average cost of capital and, at the same time, maintain the firm's credit reputation at a level that enables it to raise new capital on acceptable terms.

The next element of the mechanism of formation of financial security of agricultural development should be called the elimination of financial risks, the factors of which are:

- lack of sufficient equity and formation of sub-optimal structure of sources;

- insufficient amount of own working capital and deterioration of the maneuverability of current assets;
- irrational allocation of attracted funds in assets; sub-optimal ratio between current assets and fixed assets; inefficient economic management, usage of land and assets, etc.

Improving the effectiveness and efficiency of measures to reduce the magnitude of financial risks that affect the mechanism of financial security formation of agricultural development at the level of economic entities is possible only on the basis of a systemic approach. The main result of this approach is to obtain a systemic impact in the form of an additional reduction in the overall level of financial risk, or in the form of a reduction in the costs of implementing preventive and compensatory measures to reduce financial threats. Therefore, this approach involves the presence in the mechanism of assessment and reduction of financial risks of the following elements: collection of information on the occurrence of systemic impacts; identification of systemic impacts; diagnostics of preconditions for occurrence of certain systemic impacts, their potential and quantitative parameters; mechanism of realization of necessary system impacts and synthesis of obtained system impacts. There are two types of systemic impacts:

- the first impact is manifested in a parallel increase (decrease) in the level of financial risks, other than those to which one or another method of influence was originally directed;
- the second impact is manifested in the form of a reduction in the costs of determining financial risks, taking into account the external diversification of financial risks, when the joint manifestation of risks leads to the opposite financial result of the entity. This is the so-called counterbalance effect.

Currently, the system of internal mechanisms for neutralizing financial risks of agricultural enterprises involves the use of the following basic methods⁶:

1. Avoiding risk.
2. Limiting the concentration of risk.
3. The risk diversification mechanism is used primarily to counteract the negative financial consequences of non-systematic (specific) types of risks.

⁶ Ekonomichna bezpeka pidpriemstva: navch. posib. / Donets L.I. ta in. Kyiv: Tsentr uchbovoi literatury, 2008. 240 p.

4. The mechanism of transfer (minimization) of financial risks involves their transition to partners during separate financial transactions.

5. The financial risk self-insurance mechanism is based on the provision of part of the financial resources to the enterprise, which allows to overcome the negative financial consequences from those financial transactions where these risks are not related to the actions of counterparties.

6. Other methods of internal risk mitigation used by an enterprise may include: securing a counterparty's claim for an additional level of risk premium for a transaction, obtaining certain guarantees from counterparties, providing compensation for possible financial losses from risks through a system of penal sanctions.

Thus, the formation of effective financial security of agricultural development should be based on the developed mechanism, which provides elemental consideration of such components as cash flow management, minimization of financial risks, attracting investments, optimization of the capital structure in balanced financing, asset management and financial controlling.

15.3. Modeling the level of financial security of agricultural development

Under current conditions, agricultural development must be in line with global trends and take into account the transformational vector of evolution of the national economy, aimed at maintaining financial security. Accordingly, it is necessary to take into account these aspects when substantiating and developing a model of strengthening the financial security of agricultural development, the formation of which involves the adaptation of agrarian, social, environmental, financial, investment-innovation and foreign economic policies.

The model of enhancing the financial security of agricultural development should include strategic management that enables the security actors to adapt rapidly to the changing environment, undesirable risks and threats, the achievement of financial interests and the long-term success of agricultural entities in the process of financial security of agricultural development⁷.

⁷ Barashian V.Iu., Vereshchaha V.Iu. (2014). Systemnyi pokhod k razrabotke stratedyy obespecheniya fynansovoi bezopasnosti predpriyatya [Systematic approach to developing a strategy for ensuring the financial security of the enterprise]. *Teoreticheskiye y prykladnye aspekty sovremennoi nauky*, no. 5 (5), pp. 20-24.

The model of enhancing the financial security of agricultural development involves taking into account possible development options, forecasting cash flow and how much to spend in the current and immediate periods. Cash flow management involves the organization of the purposeful influence of the management system on the financial and economic relations that arise in the process of movement of cash assets of the enterprise in order to achieve the desired indicators of status and development. The cash flow management strategy in our understanding is defined as an algorithm for solving the set objectives within the strategic objectives, based on the existing financial status and real potential, taking into account the possible changes of the external and internal environment in order to form the highest level of emergence of the cash flow in the long term to ensure economic development under the terms and conditions of self-financing and profitability. Another component of an effective strategy for strengthening the financial security of agricultural development is the capital structure management strategy, which is focused on establishing the optimal combination of the necessary classical and alternative sources of financing. The process of capital formation of an enterprise requires observing the following principles: taking into account the prospects of agricultural development; ensuring correspondence between the amount of capital raised and the volume of assets of the agricultural enterprise; ensuring optimal capital structure; minimizing the cost of capital formation from different sources; ensuring high efficiency of capital use in the process of functioning of the enterprise⁸.

The crisis strategy is another important element of the overall strategy of strengthening the financial security of agricultural development. The instability of the external environment requires the appropriate response of agricultural operators to the dynamics of the market and the behavior of competitors, as well as the establishment of a certain procedure for enhancing the financial security of agricultural development. The main tasks should be: to identify ways to use financial resources effectively in the long term; determination of perspective directions of financial relations of economic entities of the industry with other entities of the economic system of the state; defining a system of

⁸ Demianenko M.Ia., Zuieva O.I. (2010). *Finansovi resursy silskohospodarskykh pidpriemstv Ukrainy: teoriia i praktyka: monohrafiia* [Financial resources of Ukrainian agricultural enterprises: theory and practice: monograph]. Kyiv: NNTs IAE, 190 p.

measures to ensure financial sustainability; justification of crisis exit and crisis management methods, etc.⁹

In carrying out financial and economic activities, business entities find themselves in difficult situations that require rapid and balanced response, which is not always possible to provide the enterprise, therefore, in the area of risk is the financial security of the entire industry. Therefore, the formulation of a strategy to strengthen the financial security of agricultural development should involve the use of elements of a financial risk management strategy aimed at overcoming negative situations. Methods that can be effectively used to enhance the financial security of agricultural development can be: risk avoidance, limiting market concentration, hedging, diversification, risk sharing, self-insurance.

The formation and implementation of the model of strengthening the financial security of agricultural development should be carried out within the framework of the corresponding concept, the implementation of which envisages the implementation of key provisions of the current state target development programs and strategies. We believe that the concept of financial security of agricultural development should be aimed at enhancing the state's existing financial and agricultural security potential, including mechanisms for efficient use of financial resources to ensure agricultural development and financial security management. Mechanism of implementation of the Concept of strengthening the financial security of agricultural development will provide purposeful influence of authorities and management on financial relations in agriculture, transforming the existing agrarian, financial, investment-innovation, social, foreign economic and other policies in order to achieve the planned financial security plans for rural development farms.

It is proved that the model of strengthening the financial security of agricultural development should be based on the mechanism of strengthening the financial security, which will contribute to ensuring the financial stability and financial independence of the economic entities of the industry. In modern conditions, classic sources of resources are used to finance agriculture: business entities' own funds, credit and investment financial resources. It should be noted that the volume of own financial resources has a constant dynamics to increase and their share in the

⁹ Prystemskyi O.S., Movchan A.I. (2015). Teoretychni aspekty zahrozy finansovoi bezpeky rozvytku silskoho hospodarstva [Theoretical aspects of the threat to financial security of agricultural development]. *Naukovo-ekonomichnyi zhurnal Khmelnytskoho ekonomichnoho universytetu «Nauka y ekonomika»*, Vyp. 3(39), pp. 60-63.

overall structure of financing is quite significant. At present, this state of affairs is not a testimony to the ability of the agricultural sector to self-finance, but is rather to testify to the financing of agrarian producers at the expense of healed sources.

First of all, it should be noted that the current state of unstable functioning of agricultural sector entities causes high risk for their financing through bank credit mechanisms, which leads to excessively high interest rates on credit resources. Accordingly, the financial security of agricultural development is deteriorating because of the increase in the final cost of the financial resources that will be used in production processes.

The analysis of other possible sources of financing to enhance the financial security of agricultural development revealed the possibility of using such instruments as letters of credit, bank guarantees, overdrafts, commodity and trade finance, barter transactions, foreign currency loans from non-residents, leasing and more. The most suitable for agriculture in our opinion is leasing, which allows to take into account the peculiarities of economic activity of the industry. Also, the prospects for using IPO and venture financing are highly effective.

Strengthening the financial security of agricultural development should occur within the specified model through reinforcement reserves that are combined by elemental composition (state security, debt safety of agriculture, security of financial solvency, security of financial independence, banking security, security of foreign economic activity and security of non-banking financial market) and in line with the management model of financial security of agricultural development.

Considering the current status of the state's economy, we believe that enhancing the financial security of agricultural development can occur under two scenarios: an inertial scenario (reflecting existing trends in the state's and agricultural development) and a scenario of strengthening financial security. The introduction of a model for strengthening the financial security of agricultural development will improve the quality of agriculture and the economic system of the state.

Thus, focusing on the above, we believe that the model of strengthening the financial security of agricultural development through the introduction of appropriate reserves and management model, using the proposed strategy will contribute to: improving the financial efficiency of agriculture, financial independence of agricultural enterprises, the stability of the industry; strengthening the

competitiveness of the state's agriculture; food security; increasing the welfare of the nation; strengthening of foreign economic relations, etc.

CONCLUSIONS

The issue of strengthening the financial security of agricultural development is of national importance. It is revealed that the reserves for enhancing the financial security of agricultural development, in view of the nature and delineated security functions on a national scale, are the following: strengthening the security of state protection, ensuring the debt safety of agriculture, improving the security of financial solvency, ensuring the security of financial independence, strengthening banking security, ensuring the security of foreign economic activity and the non-banking financial market.

It is revealed that debt safety, which proposes to understand a certain level of ratio of external and internal, accounts payable and accounts receivable of all economic entities of the industry, which allows to implement its functional task effectively, is a reserve for strengthening the financial security of agricultural development and depends on business entities of the industry and beyond, the status of the regulatory framework, the status of existing and potential debt obligations, the prospects of differentiation of liabilities of monetary policy, the government debt, the rate of development of agriculture and nature and climatic factors.

It is argued that the security of the functioning of the banking system, which is not directly dependent on industry influence, determines the state of financial security of the development of the industry. We believe that banking security in the context of financial security of agricultural development is revealed as a state of protection of the interests of borrowers and creditors against external and internal threats.

It is justified that the security of foreign economic activity in the context of financial security of agricultural development requires special attention and should be interpreted as a condition in which agriculture is able to implement export policies effectively taking into account the interests of both the food security of the state and the need to enter the international markets of economic entities of the industry. Thus, the security of foreign economic activities contributes to: improving the state's image, ensuring foreign exchange earnings, increasing investment interest in the state's industry, improving the security of the banking

sector, improving the level of industry development, improving the culture of production, expanding the structure of financial resources, etc.

The necessity of introducing a mechanism for enhancing the financial security of agricultural development is justified, given the need for timely identification, prevention and neutralization of threats to the financial and economic interests of agrarian business entities and avoiding the likelihood of reducing the efficiency of functioning of the industry and the level of its financial security of development.

The proposed scientific approach to the method of assessing the level of financial security of agricultural development and the development of a mechanism for strengthening the financial security of agricultural development with a powerful block venture capital financing of economic entities of the industry have led to the construction of a model of strengthening the financial security of agricultural development. The formulation and implementation of a strategy for strengthening the financial security of agricultural development should be carried out within the framework of the proposed concept, the implementation of which envisages the implementation of key provisions of the current state target programs and development strategies.

The model of strengthening the financial security of agricultural development, based on the paradigm of financial security development of the industry, takes into account the relevant reserves of strengthening and management strategies, which will contribute to: improving the efficiency of agriculture, financial independence of agricultural enterprises, financial stability of the development of the industry; strengthening the competitiveness of agriculture; strengthening of foreign economic relations of economic entities; ensuring the food security of the state.

SUMMARY

The political and economic system of Ukraine has undergone significant changes over the years of independence, complemented by the transformation processes of the last decade, which covered all sectors of the national economy. The inconsistency of the reforms that determined the agricultural development in Ukraine, the evolutionary transformation of the international agrarian market, led to the disruption of the efficiency of the industry and threatened its financial security, which necessitated a revision of the state's priorities for shaping the

foundations of further successful socio-economic development in the long run.

The issue of strengthening the financial security of agricultural development is of national importance, as it involves addressing many key issues of the effective functioning of the existing economic system of the state. The mechanism of formation of financial security of agricultural development should function in accordance with the basic provisions and principles of implementation of the overall security strategy of the state, guided by the tendencies of development of the financial system. The model for enhancing the financial security of agricultural development should include strategic management that enables the security actors to adapt rapidly to the changing environment, undesirable risks and threats, the achievement of financial interests, and the long-term success of agricultural entities in the process of ensuring the financial security of agricultural development.

Strengthening the financial security of agricultural development should be pursued through a respective strategy, which is reflected in the model of strengthening the financial security of agricultural development.

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CHAPTER 16

BUSINESS PLAN IN MODERN BUSINESS CONDITIONS

Spiridonova K. O.

INTRODUCTION

Nowadays, the instability of external environment factors requires enterprises to forecast their current activity in detail in order to justify strategic directions of development, consider threats and opportunities for further functioning and achievement the set goals. Current conditions require any organization to be able to take management decisions in time. The role of business planning as an important strategic planning tool is therefore enhanced whereby businesses can define the purpose and mission of their functioning, develop a system of measures to improve performance or prevent threats of external environment.

Issues of drawing up business plans taking into account the current economic situation are considered in the scientific works of famous scientists: N. Krylova, V.A. Chichina, K. Kiperman, I.V. Lipsisa, M.M. Alekseeva, G.D. Lvovsky, V.D. Markova, S.F. Pokropivny. M. Mulley, O.I. Palchik, Y. Smakovskaya, G. Peters, A.R. Polyakov, H. Roseen, Y.I. Skyrko, V. Khrutsky and others. Today, there are several scientific approaches to the development of business plans at the enterprise, which are grounded by foreign economists and managers: P. Tiffany, Stephen D. Peterson, H. Roseen, R. Waterman, and others.

Many aspects of drawing up and implementing business plans must be carefully adapted to Ukrainian realities and the state of transitional economy.

16.1. The essence and the main stages of a business plan

Business planning is an effective tool in the modern business environment. Development of business plans and implementation of business planning for the enterprises' activities includes constant monitoring of the market, the state of the competitive environment, drawing up plans for implementation of any changes.

In contrast to Western countries, business planning in Ukraine has several features¹.

Ukrainian legislation does not assign obligation of a business plan development. The latter is a new document for most Ukrainian enterprises². Despite the country's desire to join the European community and raise the standards of products quality, services and business principles, there is a widespread position that denies the feasibility of developing a comprehensive business plan, as business conditions change too fast. So, one should provide an alternative technology – economic justification.

Analysis of foreign firms showed that most bankruptcies are caused by miscalculations or lack of a business plan, and entrepreneurs believe that 98% of business failures are explained by unsatisfactory management, including 45% by incompetence, 20% by poor professionalism, 18% by lack of management experience, 9% – lack of work experience in production, 3% – non-compliance with obligations, 2% – fraud, 1% – natural disaster and only 2% – reasons that do not depend on the quality of management of the company³.

A business plan is a written description of your business's future, a document that tells what you plan to do and how you plan to do it.

The business plan provides detailed explanations of how the business will be managed to ensure its profitability and return on investment. Continuous changes in the business environment in which the enterprise operates involve clarification and review of the business plan, which requires the development of a mechanism for involving management staff in such work.

In general, a business plan is drawn up for external and internal purposes. As a document aimed at external users, the business plan is intended to justify the confidence of investors and creditors, to convince them of the potential capabilities of the company, the competence of its employees, and the need to provide strategic and financial assistance. In other words, the absence of a justified business plan clarified to changing conditions indicates the inefficiency of managing the enterprise and, as a result, complicates the ability to attract financial resources and achieve long-term stability in competitive environment.

¹ Chychun V.A., Palamarchuk V.D. (2010). Biznes-planuvannia yak faktor uspishnoi pidpriemnytskoi diialnosti [Business planning as a factor of successful business activity]. *Sotsium. Nauka. Kultura*, no. 21(18), pp. 58-63.

² Aleksieieva M.M. (2011). Planuvannia diialnosti firmy: navch.-metod. posibnyk [Planning of the activity of the firm: training-method. manual]. Kyiv: Finansy i statystyka, 248 p.

³ Skibitska L.I. (2014). Antykrizovyi menedzhment [tekst]: navch. posib. [Crisis management [text]: textbook tool]. Kyiv: «Tsentri uchbovoi literatury», 584 p.

Therefore, the business plan can be considered as the basis of the planned and operational enterprise's activity. It is the most important source of strategic information accumulation and a tool of direct managerial influence on the future position of the enterprise, which describes the ways to achieve profitability. In general, the financial, operational and investment policy of an enterprise must meet the directions and strategic goals set out in the business plan⁴.

In a market economy, a business plan performs two important functions:

- External is to acquaint different representatives of the business world with the essence and basic aspects of realization of a specific business idea;
- Internal (vital for the company's activity) is to work out the mechanism of self-organization, that is, an integrated system of managing the implementation of an entrepreneurial project.

Traditionally, a business plan is considered as a tool to attract the necessary financial resources to implement a project. External investors and lenders will not invest in the business unless they are familiar with a carefully prepared business plan that must convince potential investors that the entrepreneurial project has a well-defined strategy for success and deserves financial support.

Equally important is the internal function of the business plan, within two directions of its application can be separated⁵:

- as a tool for strategic planning and the company's operational management. Development of a business plan requires not only strategic directions and goals of the activity, but also operative actions for their achievement. That is, the business plan is the basis for current planning of all the company's aspects;
- as a mechanism of the company's analysis, control and evaluation. The business plan allows to analyze, control and evaluate the effectiveness of activities in the process of implementing an entrepreneurial project, identify deviations from the plan and timely adjust the directions of business development.

Regardless of its functional orientation, a business plan provides solving the following tactical and strategic tasks:

⁴ Arsenko A. (2004). *Pidpryemnytstvo i pidpryiemtsi* [Entrepreneurship and entrepreneurs]. *Uriadovyi kurier*. 20 sichnia № 1(24), p. 6.

⁵ Perevozchikova N.O., Maslovska M.V. (2013). *Osoblyvosti protsesu biznes-planuvannia v suchasnykh umovakh rozvytku Ukrainy* [Peculiarities of the Business Planning Process in Modern Conditions of Ukraine's Development]. *Efektivna ekonomika*. №11.

- financial-economic and organizational-managerial assessment of the company's current state;
- identifying potential business opportunities without hiding weaknesses and focusing on strengths;
- formation of investment and project goals of this activity for the planned period.

The business plan justifies:

- specific and general details of the company's operations or activities in a specific market;
- choice of strategy and tactics (methods) of competition;
- estimation of financial, material and human resources necessary to achieve the set goals.

Business plan is used:

- a) by the company's management personnel:
 - to determine the range of problems that an enterprise will face while achieving its intended purpose;
 - assessing the financial and economic state and competitiveness of an enterprise in the existing and new markets of goods and services;
 - development of the concept and strategy of the company's activity in the conditions of competitive struggle with other producers of similar goods and services;
 - formulating and providing solutions to these problems.
- b) by potential investor (creditor) and partner:
 - to evaluate the economic efficiency of business projects, the feasibility of obtaining planned profit;
 - repayment to the creditors of the funds invested in this project.

The process of drawing up a business plan is specific in each case. Therefore, it is almost impossible to provide a single scheme for its development. Generalization of entrepreneurial experience allows to distinguish three stages in the process of developing a business plan. They are an initial, preparatory, basic stage.

When designing a business plan for starting some business, all the above stages of business plan development must be completed. If a business plan is being developed to expand an existing business, then there is no need for the initial stage of its development.

The initial stage. When starting some new business, development of a business plan begins with the development of a concept, that is, the fundamental decisions that form its basis. Within the framework of work on the concept of future business, the search for an entrepreneurial idea is carried out, the field of activity is selected, the appropriate form of

business organization is substantiated, and a decision is made about the way to start a business.

Finding an attractive business idea is a difficult and responsible task for the entrepreneur. The sources of ideas may vary from special research and development, but most often they come from consumers; already working firms; parliaments and governments.

The consumer is the starting point for the idea of a new product or service. Therefore, it is necessary to search for formal and informal ways of expressing his opinion, which can lead to the consumer's initiation of a promising business idea.

A detailed analysis of the working firms' activities allows to find new opportunities for improving products, services, etc. and to substantiate the concept of their own business.

In the process of finding and choosing an entrepreneurial idea, it is necessary to evaluate the chances of success with practical implementation. Evaluation of a new idea should be complex, that is, the idea should be viewed from different positions⁶:

- the level of competition in the market of relevant goods and services;
- availability of consumers and knowledge of their needs at the present stage and in the future;
- company's production capabilities to produce the necessary market goods;
- real possibilities of raising funds (if necessary – foreign investments);
- stability and flexibility of current legislation in the field of business management;
- competencies, experience and managerial abilities of businessmen, etc.

The main stage is the direct elaboration of the business plan. The main purpose of this stage is to prove the economic feasibility of setting up this business, convincingly uncovering how exactly the potential investor's funds will deliver the expected result. At this stage, the scope and purpose of the activity, the purpose of the

Three rules for writing a business plan:

1. Keep it short.
2. Know your audience.
3. Don't be intimidated.

⁶ Velychko V. (2012). Etapy rozrobky biznes-planu pidpriemstva [Stages of business plan development]. *Ekonomika Ukrainy*, no. 5, pp. 42-48.

Number of private companies in Ukraine during the period of 2013-2017 years is given in Figure 1⁷.

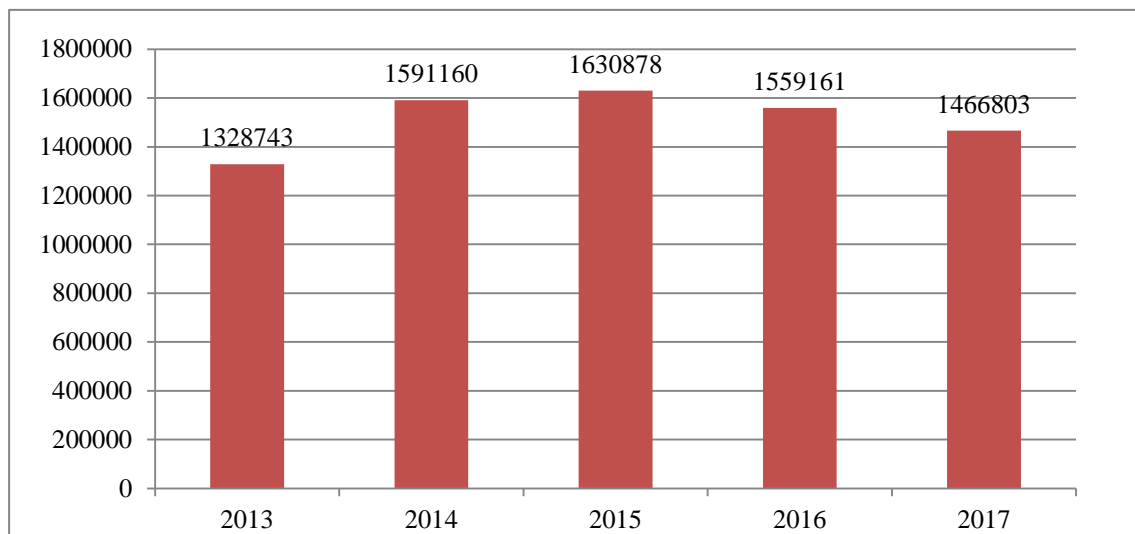


Figure 1. Number of private entrepreneurs in Ukraine during 2013-2017

According to the data presented, there is an increase in the number of private entrepreneurs during 2013-2015. In 2016 and 2017, there was a gradual decline in the number of business entities, indicating that many entrepreneurs were not prepared for the real business conditions. Many new players in the market rely on their intuition, which is often not objective. After all, many businessmen in Ukraine in 2016 and 2017 ceased their operations, due to inefficient management and organization of their activities, which led to the loss of competitiveness. That is why it is so important to develop a business plan in order to understand all aspects of business and its main purpose which is to make a profit.

16.2. Informational basis for a business plan

The process of business plan development begins with gathering information regarding the future business. Such information includes marketing, production and financial information, information on economic and sectoral factors.

The business plan information field is a set of documents or data of legal, political, economic, commercial, scientific, technical, foreign

⁷ Ofitsiynyi sait Derzhavnoho komitetu statystyky Ukrainy. Operatyvna statystychna informatsiia [Official site of the State Statistics Committee of Ukraine. Online statistical information]. URL: <http://www.ukrstat.gov.ua/>

economic and social nature that provide information needs of the entrepreneur in the process of developing a business plan⁸.

In order to develop a business plan, information about general economic and sectoral factors that influence the project implementation process, the general economic situation in the country, social and political conditions of the project implementation, legislative restrictions, industry development trends, etc is necessary. The main sources of information for business plan development:

- own experience of practical activity;
- direct contacts with future consumers and suppliers;
- information about competitors;
- statistical information on the status and trends of the industry;
- ongoing analytical reviews of the economic and market situation;
- advertising materials, information and commercial materials of exhibitions, fairs and scientific and practical conferences;
- publications on entrepreneurship.

The value of a business plan depends on the usefulness of the information it contains. Therefore, in the process of forming the information field of a business plan, special attention is paid to the quality of the basic information. The main indicators of information quality are⁹:

- 1) objectivity, that is characterized by assessment of completeness, accuracy and consistency of information;
- 2) relevance, which implies the correspondence of information to its specific information needs;
- 3) timeliness, reflecting the ability to meet information or need within a specified time;
- 4) communicativeness that clarifies the comprehensibility of information for the relevant user;
- 5) clarity.

It should be noted that information on a business plan can not consist only of factual data, so when developing it, there is always an element of uncertainty – predictions and assumptions. Such predictions and assumptions can be to forecast production and sales; market share; possible prices; business development rates and etc.

⁸ Smakovska Yu. (2009). Kryterii ekspertnoi otsinky biznes-planu pidpriemnytsikoho proektu [Criteria for peer review of the business plan of an entrepreneurial project]. *Formuvannia rynkovoï ekonomiky v Ukraini*, no. 19, pp. 434-438.

⁹ Kozlovskiy V.O., Lesko O.I. (2008). Biznes-planuvannia: Navchalnyi posibnyk [Business Planning: A Tutorial]. Vydannia 2-e, dopovn. ta pererobl. UNIVERSUM-Vinnytsia, 359 p.

An entrepreneurial idea embodied in any product can only be successful when it finds a consumer, and therefore the effective implementation of a business idea is only possible if there is marketing information that contains information about:

- potential consumers of future business products, their requests and unsatisfied needs;
- technical, operational and consumer qualities of similar types of products and their prices;
- peculiarities of promotion of this product group on the consumer market, other information that characterizes the market of the future business;
- purchasing power of potential clients;
- the number of potential buyers by region and age group;
- dynamics of income of the population (clients);
- dynamics of total demand for similar products on the market;
- the number of entrepreneurs engaged in a similar type of business activity.

As a rule, most of the information in an operating enterprise comes from internal sources, using operational and accounting data, planning, and so on. Information is collected on a constant basis (within accounting and statistical reporting periods) or temporarily (if necessary). Gathering episodic information requires development of specific survey procedures, individual and group assessments.

The sources of internal information include: accounting data and reporting; statistics and reporting; operational data and reporting. Accounting data give an objective quantitative description of various business transactions, a generalized description of the entire set of means of production in composition and placement, by sources of formation and purpose. For this purpose, the methods of continuous observation, exact documentation, systematization of accounts, grouping in the balance sheet and other reporting tables are used.

In addition to accounting data, statistical data are used to evaluate the implementation of plans (monthly, quarterly, annual), which reveal certain economic patterns.

Especially a lot of information can be obtained on labor and production organization, financial and economic status. In practice, managers at different levels perform their own operational analysis, keep records of critical processes and operations, estimate estimates, plan appropriate activities. In this way, each decision-maker becomes both a user (informant) and a source of information (informant).

External planning information is information about suppliers, the competitive environment, buyers and more. The sources of such information may be: the legal framework, official accounting and statistical reporting, publications, other enterprises, the information industry and independent marketing research. Gathering production information is necessary to study the technology of production of this product, machinery and equipment, the market of raw materials, determine the need for production facilities, establish contacts with suppliers and partners, determine the need for specialists and their qualifications, etc.¹⁰

For the successful implementation of an entrepreneurial idea, the issue of providing the necessary financial resources is important. Therefore, it is necessary to collect financial information regarding the starting capital, the level of profitability of similar products, features of taxation, insurance, conditions of short and long-term lending. Financial information is required to evaluate the overall financial aspects of an entity's activities, on the basis of which potential investors will determine the profitability of the project, the feasibility and sources of its financing.

One of the most difficult tasks in developing a business plan is to analyze the prices of competitors' products, because in a market economy, this information is a trade secret of the manufacturer. When forming prices for products (works or services), you must take into account the various methods of state limitation and regulation of price levels and their dynamics.

Important for the preparation of a business plan is also information about the economic and industry factors that influence the process of implementation of the entrepreneurial project. This is an analysis of the general economic situation, social and political conditions, legal and regulatory framework, favorable opportunities and threats to business and more.

16.3. Structure of a business plan

A business plan is a universal planning tool that allows to solve a large number of different tasks. Therefore, business plans can vary greatly in form, content, structure, and scope. A business plan can be developed for the whole enterprise or for individual business lines

¹⁰ Danik N.V. (2015). Biznes-planuvannia yak instrument zdiisnennia finansovoho menedzhmentu v suchasnykh umovakh rozvytku Ukrainy [Business planning as a tool for implementing financial management in the current conditions of development of Ukraine]. *Naukovyi visnyk Mykolaivskoho natsionalnoho universytetu imeni V.O. Sukhomlyns'koho. Seriya: Mizhnarodni ekonomichni vidnosyny ta svitove hospodarstvo*. Vyp. 2, pp. 81-84.

(strategic units, products (services), technical solutions). In the former case, the business plan may relate to a new, existing or reorganized enterprise.

The business plan is designed to meet the needs of potential investors and business partners. It contains a number of mandatory sections, and the figures given in them must be reliable, reasonable, based on documents and calculations. The size of the business plan depends on the specifics of the project and does not exceed 50 pages. The structure of a business plan depends on the specific goals, objectives and object of the business.

Nowadays there are no obligatory methods for preparing a business plan, but its general structure according to UNIDO investment standards, should include the main components presented in Table 1¹¹.

Summary is an independent final document, because it contains the main points of the entire business plan. This is actually the only part to be read by most potential investors, so the summary should contain the most important information for the investor: the volume of the investment, the purpose, the expected repayment period, guarantees, other investors, assets of the company¹².

Description of the company and the industry. The purpose of the chapter is to show and prove the viability of this business or idea by describing the form of practical action, taking into account the real situation in the chosen field of business. This chapter should clearly and briefly explain two main points:

- the company as a means of profit gaining;
- in what sphere the company is better than its competitors.

This chapter should contain the following information:

- the company's sphere, description of the product (services), the main customers;
- description of the current situation in the selected business area (the current state in this area, assessment of development prospects);
- organizational and legal form of the company, organizational structure, founders, staff and partners, date of foundation;
- financial and economic indicators of the enterprise;

¹¹ Riznyk V.V., Riznyk N.A. (2017). Bazovi protsedury, metodolohiia biznes-planuvannia ta yoho rol u stratehichnomu upravlinni diialnosti pidpriemstva [Basic procedures, business planning methodology and its role in the strategic management of the enterprise]. *Ekonomichnyi visnyk universytetu*, no. №35/1, pp. 67-72.

¹² Dzhella A.N. (2010). Stratehichne planuvannia diialnosti pidpriemstva [Strategic planning of enterprise activity]. *Aktualni problemy ekonomiky: naukovyi ekonomichnyi zhurnal*. Kyiv: Natsionalna akademiia upravlinnia, pp. 23-26.

Table 1

Structure of business plan (according to UNIDO standards)

UNIDO international standards	
Chapter	Contents
1) Resume	The chapter should contain general information about the business plan: brief information about the project, the volume of investments needed, own funds, terms of implementation and financial indicators of the project.
2) Company and industry	General information about the company, key performance indicators, human resources, management structure, products and services produced, partnerships, industry characteristics and the role of the company in the industry.
3) Products (services)	For each type of goods and services manufactured, the following information should be provided: name of the product, photographs, purpose and application, key characteristics, competitiveness, copyright, availability or need for licensing, degree of readiness for production and sale, availability of quality certificate, safety and environmental friendliness, conditions of delivery and packaging, guarantees and service, requirements for conditions of use, methods of disposal.
3) Marketing plan	Results of marketing research, description of the market and prospects for its development, description of competitors, principles of pricing for manufactured products, distribution and promotion system.
4) Manufacturing plan	Calculation of fixed and variable costs depending on production volumes, calculation of production cost, information about the company's production facilities.
5) Organizational plan	Description of the company's organizational structure and stages of project implementation, management and composition of technical staff, ways of motivating employees.
6) Financial plan	Basic financial calculations, costing and cost estimates for the project, description of financial sources, table of costs and revenues, cash flows. The chapter should include: preparatory period expenses, main period expenses, calculation of receipts, expenses related to loan servicing, tax payments, other receipts and payments, profit and loss statement, cash flows, forecast balance.
7) Risks and guarantees	Analysis of the company's sensitivity to external factors. Description of potential risks and project payback guarantees.
Appendix	All details that are not in the main chapters can be described in the appendices. This will unload the main part from extra tables and graphs.

- location of the enterprise (address, characteristics of the house or premises, property or lease, need for reconstruction, etc.);
- specificity of work (seasonality, hours of work (hours and days of the week), and other features related to the business area or resources used).

If an enterprise is only being created, this chapter should additionally provide justification for the company's success in the field of business selected. In particular, references to contracts or prior arrangements with suppliers or consumers are desirable. If the project is implemented in the framework of individual entrepreneurial activity, the description of the business should be given. The chapter should convince the investor of the reliability and prospect of the project company.

Description of products (services). This chapter should identify and describe the types of products or services to be offered on the market. Some aspects of the technology required to produce products or services should be clarified here. It is important to write this part in clear language. The chapter provides description of the product characteristics, while paying attention to the advantages that products bring to potential buyers.

It is important to pay attention to the uniqueness of products or services: new technology, quality of goods, low cost or some special characteristic that meets the customers' needs. It is also necessary to emphasize the possibility of improving this product (service). Existing patents or copyrights for inventions are described, or other reasons that might prevent competitors from invading the market. Such reasons may be exclusive distribution rights and trademarks¹³.

Marketing. Marketing plan is necessary to turn potential customers into the real ones. This plan should show why customers will buy these products or use these services. It is necessary to evaluate and explain to potential partners or investors the main elements of their marketing plan: pricing, distribution scheme, advertising, sales promotion methods, organization of after-sales support, image formation. The main aspects of this chapter include:

- description of consumer's requirements for products (service) and the possibility to satisfy them;

¹³ Lytvynenko S.L. (2011). Kompleks biznes-planuvannia vantazhnykh aviakompanii [Business Airlines Business Planning Complex]. *Aktualni problemy ekonomiky: naukovyi ekonomichnyi zhurnal*, Vyp. 2 (116), pp. 89-95.

- description of the competition. Identify competitors and analyze their strengths, weaknesses, and the company's capabilities;
- description of the market for the sale of products (services);
- description of the delivery of goods from the place of production to the place of sale or consumption;
- strategy of attracting consumers, based on certain opportunities. Price and volume of sales of products. It is the selling price of the product (service) that determines the amount of profit and profitability of the project. Price-quality-profitability parameters must be linked.

Production plan. This chapter should describe all manufacturing or other workflows that occur in the enterprise. Here all issues related to the premises, their location, equipment, staff should be considered. The planned involvement of subcontractors should also be examined, and it is necessary to explain how the system of production (services) is organized and how control over production processes is exercised¹⁴.

It is necessary to pay attention to the location of production areas and equipment. Finally, issues related to terms of delivery, number of the major suppliers, and how quickly output can be increased or decreased should be presented in this chapter.

Organizational plan. This chapter explains how the management group is organized and describes the main role of each member. It shows the project management team and leading experts, legal support, available or possible support and benefits, organizational structure and timetable for project implementation. This chapter should provide information about partners, their capabilities and experience. It is necessary to highlight the mechanism of support and motivation of top executives, to show how you can motivate them to achieve the goals set in the business plan. It is necessary to specify how their work will be paid (salary, bonuses, share participation in profit, etc.).

Financial plan. The purpose of the chapter is to show the main financial data. It provides standards for financial and economic calculations, provides direct (variable) and fixed costs for production, costing products, cost estimates for the project, the need and sources of financing, the table of costs and income, the flow of real money (cash flow) forecast balance.

¹⁴ Teoretyko-metodolohichni osnovy biznes-planuvannia u vitchyznianskykh vantazhnykh aviakompaniiakh: Monohrafiia [Theoretical and methodological bases of business planning in domestic freight airlines: Monograph] / za zah. red. O.V. Martiakovoi. Donetsk: DVNZ «DonNTU», 2010. 118 p.

Risks and guarantees. Entrepreneurial risks and possible force majeure are presented, guarantees are given to partners and investors.

Project effectiveness. The chapter indicates the performance of the project, analyzes the sensitivity of the project, calculates the life cycle of the project, break-even sales.

Appendices are an important part of the business plan, facilitates the unloading of the main text from the details and gives the potential partners and investors various additional materials:

- confirm information about the company (copies of the registration certificate, charter and constituent agreement of the enterprise, available licenses and certificates, honorary diplomas and certificates, copies of press materials about the company's activity, feedback from customers and partners in joint activities, etc.);

- characteristics of the products (photos, drawings, patent, reviews, test results and product certification, other information);

- convince the demand for products (marketing research materials, comparative data on competitors, contracts, protocols of intentions and applications for the supply of products);

- show production possibilities (a photograph of the enterprise, its leading sites, equipment, copies of production certification documents, etc.);

- disclose the organizational and legal readiness of the project (schemes of organizational structure, mechanism of project implementation, extracts from regulatory documents);

- substantiate financial and economic calculations (calculations, tables, etc.);

- confirm the focus, significance (scale) and effectiveness of the project (decisions, programs, plans, acts, letters, references);

- confirm the feasibility of risk prevention measures, neutralization of force majeure and feasibility of loan repayment guarantees (letters of guarantee, contracts, composition and value of pledge, extract from legislative and regulatory documents, other materials).

It is necessary to avoid common mistakes frequently made while developing a business plan for obtaining a loan¹⁵:

- reassessment of sales opportunities, inefficient marketing strategy and sales forecasts;

¹⁵ Puhachevska K.I., Pliut T.S. (2011). Znachennia biznes-planuvannia yak chynnyka hospodarskoi diialnosti v rynkovii ekonomitsi [The importance of business planning as a factor of economic activity in a market economy]. *Naukovyi visnyk NLTU Ukrainy*, no. 21.1, pp. 256-260.

– overestimation of the final selling price of the product, which leads to formally high financial and economic performance of the credit project.

There are two possible explanations of the reason for such overestimation. On the one hand, it is possible that it is the result of self-deception when the client either used incorrect information about the market he had not previously worked in, or used as a benchmark the price of a single batch of goods that he managed to sell.

There is also an option when the entrepreneur consciously changes the pricing parameters in order to misuse the loan.

Reduction of costs is associated with the implementation of the submitted project, from raw material prices to transportation and wage costs.

Therefore, professional investment justification significantly reduces the risk of loss of own funds and increases the opportunities for attracting funds from investors in a business project.

CONCLUSION

The investor clearly understands that if the company cannot make a high-quality, well-founded business plan, then invested investments can be used unprofessionally.

Therefore, the conducted research gives grounds to argue that a business plan is the basis of any company's work, along with property security and it is a part of minimum guarantees for attracting investment. However, the absence of a grounded business plan, carefully adjusted according to changing conditions of external and internal environment, which is especially relevant in conditions of the current financial crisis, is a significant drawback, reflecting the weakness of the company's management, complicates the ability to attract financial resources and achieve long-term stability in the competitive environment.

The investor clearly understands that if the company cannot make a high-quality, well justified business plan, the invested investments can be used unprofessionally.

SUMMARY

The article deals with the problem of forecasting the activity of an enterprise due to instability of environmental factors. It is quite difficult for Ukrainian companies to work in such conditions and therefore the role of business planning as an important strategic

planning tool by which enterprises can determine the purpose and mission of their operation, develop a system of measures to improve performance or prevent threats to the environment is increasing.

Most foreign investors invest in Ukrainian enterprises only through a detailed analysis of their activities, but when an enterprise is trying to attract external financing, a business plan is an ideal indicator of strategic and operational planning.

Studies have shown that despite the rapid growth in the number of operating private enterprises from 2013 to 2015, in 2016 and 2017 there is a decrease in the number of enterprises. This situation proves the need for detailed development of the business plan as one of the key elements of the strategy of the enterprise. The considered way of creating a business plan, according to the UNIDO standard, is optimal and most common. The information contained therein will be clear to banks, investors and other financial institutions where the business plan owner may want to take the investment capital on his idea.

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CHAPTER 17

PROVISION OF ECONOMIC SECURITY OF CONSTRUCTION INDUSTRY ENTERPRISES: INDUSTRIAL FEATURES AND INDICATOR SYSTEM

Fisunenko P. A.

Introduction

In the context of economic and political instability, imperfect reforms and the security situation in Ukraine, construction companies operate in a complex environment characterized by constant dynamics and a large number of external and internal threats.

The construction industry is one of the main drivers of economic development in the country. But its functioning is characterized by a number of specific features that are reflected in the activities of industry economic entities and cause some difficulties in identifying threats to construction enterprises and ensuring their economic security.

The assessment of economic security in general, and in construction in particular, is being investigated by V. M. Heiets, N. M. Bohdan, T. H. Vasylytsiv, O. B. Zhykhor, T. V. Momot, M. O. Kyzym, T. S. Klebanova, A. O. Kushniruk, A. B. Melnykov, S. P. Mishchenko, O. O. Molodid, Yu. V. Pynda, I. V. Piriatska, S. A. Terenchuk, O. V. Tofaniuk, I. O. Filatova, O. V. Fedosova, O. I. Cherniak, M. V. Chorna and others. At the same time, there is an imperfection of approaches to considering ways of ensuring the economic security of construction enterprises, taking into account specific types of threats affecting the economic security of construction industry enterprises.

Modern approaches to the effective functioning of construction companies, regardless of their specialization, should be based on maintaining an adequate level of economic security. Ensuring the safety of a construction company is a complex process of shaping the conditions and mechanisms for the stable operation of a particular entity, which is influenced by a large number of external and internal factors. Identification of these factors that generate threats and development of a system of indicators characterizing the level of economic security of enterprises in the construction industry is a topical and urgent task of modern economic science and practice.

17.1. State of construction industry enterprises as a basis for economic security

The state of construction and its prospects are determined by the general state of the Ukrainian economy. The main problem of the development of construction still is the increase in the cost of work due to the rise in price of the main components of construction. In order to maintain the level of profitability, construction companies are forced to increase the cost of works and services, which adversely affects the dynamics of demand from customers as a result. The loss of construction reduces its investment attractiveness. As of January-September 2019, the number of unprofitable companies exceeded 21% of the total number of enterprises in the industry ¹. The slow growth of long-term lending also restricted opportunities for increased financing for investment projects. The main priority areas of structural reorganization of construction will be the expansion, reconstruction, re-profiling and technical re-equipment of existing objects.

According to experts, the construction economy, as well as the entire economic mechanism of the country, is in a constant state of serious change. The field of construction is quite important and relevant, since its development depends on many factors, among which are:

- people's provision by housing, cultural, educational and scientific institutions;
- availability of industrial and commercial facilities;
- organization and carrying out of general and specialized works on construction and reconstruction of industrial enterprises and constructions, housing construction, objects of cultural and household purpose;
- timely implementation of the listed objects etc.

The construction complex is a collection of industries, industries and organizations characterized by close established economic, organizational, technical and technological ties in obtaining the end result, i. e., ensuring the production of fixed assets of the national economy. The final result is organizationally combining construction organizations and industries, as well as organizations of other industries into a single whole ².

¹ Derzhavnyi komitet statystyky Ukrainy [State Statistics Committee of Ukraine]. URL: www.ukrstat.gov.ua

² Safonov YU.M., Kravets V.R., Oliukha V.H. (2014). Ekonomiko-pravovi osnovy kapitalnoho budivnytstva : navch. posib [Economic and Legal Foundations of Capital Construction: tutorial. tool]. Kyiv : Tsentр uchbovoi literatury, 239 p.

Based on the logic of development of construction enterprises, it can be argued that any research in this field is clearly expressed sectoral and regional character, as it is evidenced by world experience. Therefore, for the prosperity of industries and regions, the regional authorities set the task of pursuing an active urban policy of the region and the industry, creating favourable conditions for the formation of regional construction complex, its composition and structure – both technological and by ownership of the means of production. These measures, their development and their use in the construction are of paramount importance for the region.

The introduction of new construction methods (prefabricated structures, upgrading of the technical level, application of the current method of entering works, etc.) will significantly improve the efficiency of construction production technologies and adjust the cost. Construction organizations independently formulate their goals and objectives, develop a strategy and tactics of their development, seek the financial resources they need, form a labour collective, deal with the acquisition of funds and objects of work, solve many organizational issues in creating an organizational management structure, etc. That is, construction organizations conduct their activities independently, and state influence on their economic and functional behaviour can be mediated indirectly with mandatory legislative support ³.

The relationship between the state of the construction industry and the development of the national economy can be demonstrated by looking at the key performance indicators of these enterprises.

Thus, according to the State Statistics Service of Ukraine, the volume of manufactured construction products (construction works performed) by Ukrainian enterprises amounted to UAH 26.5 billion in January-March 2019. Information about previous periods is shown in Figure 1.

As we can see, the construction industry is showing a tendency to increase the volume of construction works, which should have a positive impact on the state of construction enterprises and the state of the national economy.

³ Fedorenko V.H., Tuhai A.M., Hoiko A.F., Dzhabeilo V.B. (2007). Kontsepsiia stratehii rozvytku budivelnoho kompleksu Ukrainy na period do 2015 roku [Concept of strategy of development of construction complex of Ukraine for the period up to 2015]. *Ekonomika ta derzhava*, no. 1, pp. 3–7.

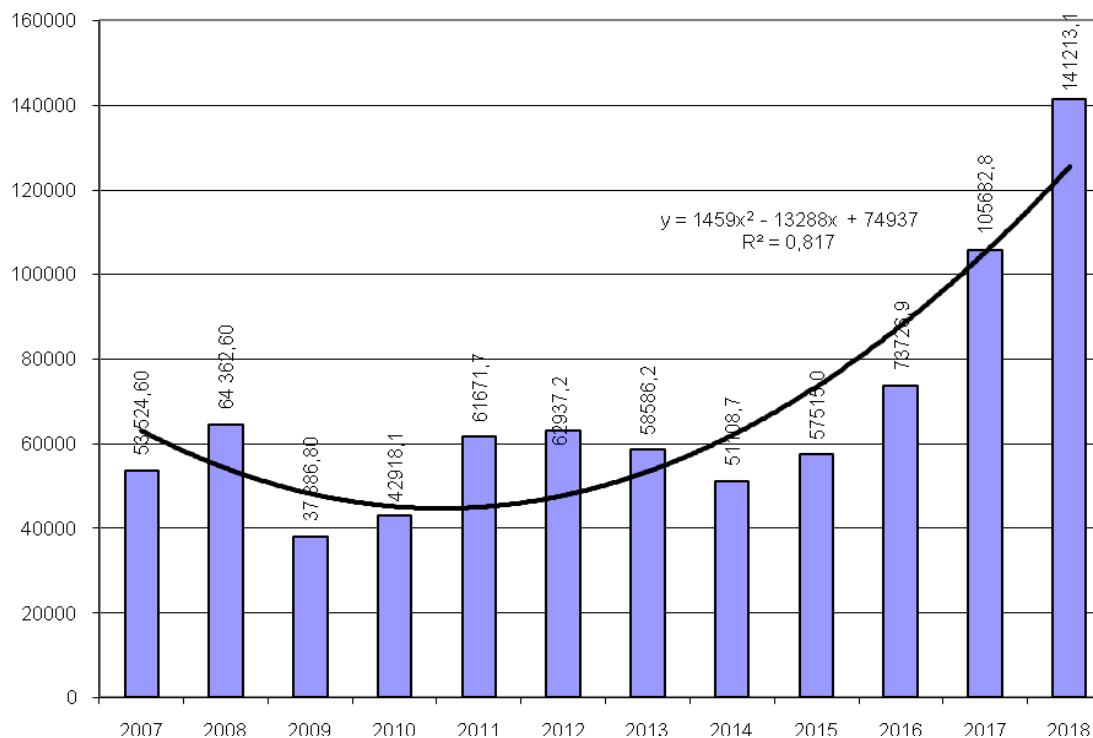


Figure 1. The volume of completed construction works for the period 2007-2018, UAH billion

High growth rates of fixed capital investment are needed to significantly upgrade the fixed assets, which should be implemented in the coming years, as the moral and physical depreciation of fixed capital in Ukraine in recent decades has reached a level where only accelerated growth in the production of productive industries can provide a significant increase production and growth of living standards. The main source of financing for the manufacturing sector of the economy is the equity of enterprises, so to stimulate their investment, it is necessary to strengthen both the state's participation in the investment process and the enterprises. In conditions of stimulation by the state of investments into the economy of the country and annual increase of the volume of investments sustainable economic growth is possible ⁴. Regardless of whether or not the above conditions are fulfilled, the problem of economic security of enterprises is one of the most important. In the case of its achievement, enterprises have the opportunity to effectively realize

⁴ Orlovska Yu.V., Fisunenکو P.A., Levchenko V.F. (2013). Analiz stanu ta tendentsii rozvytku budivelnykh pidpriemstv u konteksti doslidzhennia yikh ekonomichnoi bezpeky [Analysis of the state and tendencies of development of construction enterprises in the context of the study of their economic security]. *Teoretychni i praktychni aspekty ekonomiky ta intelektualnoi vlasnosti: Zbirnyk naukovykh prats*. Mariupol: DVNZ «PDTU», Vyp. 1, T. 1, pp. 248–252.

their production and economic potential, and when creating more favourable conditions enterprises can realize fully the strategic goals.

As the construction industry is one of the key sectors of the economy, the efficiency of construction companies is an indicator of the economic development and economic security of the country. It will be interesting to consider the results of the calculation of the level of economic security in general and by individual components, conducted by the Ministry for Development of Economy, Trade and Agriculture of Ukraine in accordance with the Methodological Recommendations for the Calculation of the Level of Economic Security of Ukraine from 29.10.2013 No 1277⁵ (Table 1).

Table 1

Economic security level: integral and separate components, %

Year	Components of economic security (ES)									Integral indicator of the level of ES
	Manufacturing	Demographic	Energy	Foreign Economic	Investment and innovation	Macro-economic	Food	Social	Financially	
2007	61	41	32	40	43	48	85	58	64	52
2008	56	44	34	36	43	38	83	56	51	48
2009	52	46	31	38	34	44	84	58	42	46
2010	50	47	35	41	35	38	90	57	44	47
2011	55	56	32	36	36	48	92	59	47	50
2012	49	45	34	29	37	38	93	64	46	47
2013	49	46	39	35	35	39	86	62	50	48
2014	51	45	47	35	30	33	94	57	36	45
2015	47	43	45	37	35	31	92	55	35	44
2016	57	46	58	40	30	36	92	56	38	48
2017	58	40	54	40	33	34	91	59	40	48
I half-year of 2018	60	41	54	40	30	41	90	56	43	49

As the integral indicator of the level of economic security of Ukraine is in the range 40÷52 %, the situation is characterized as a dangerous level of economic security.

If we compare the integral indicator of the level of economic security and the volume of construction work performed (Figure 2), we

⁵ Metodichni rekomendatsii shchodo rozrakhunku rivnia ekonomichnoi bezpeky Ukrainy vid 29.10.2013 roku № 1277 / M-vo ekonomichnoho rozvytku i torhivli Ukrainy. URL: <https://zakon.rada.gov.ua/rada/show/v1277731-13/stru> (accessed 18.09.2019).

can see some common trends, in particular, a decrease in these indicators from 2012 to 2014 and their growth from 2016 to 2018.

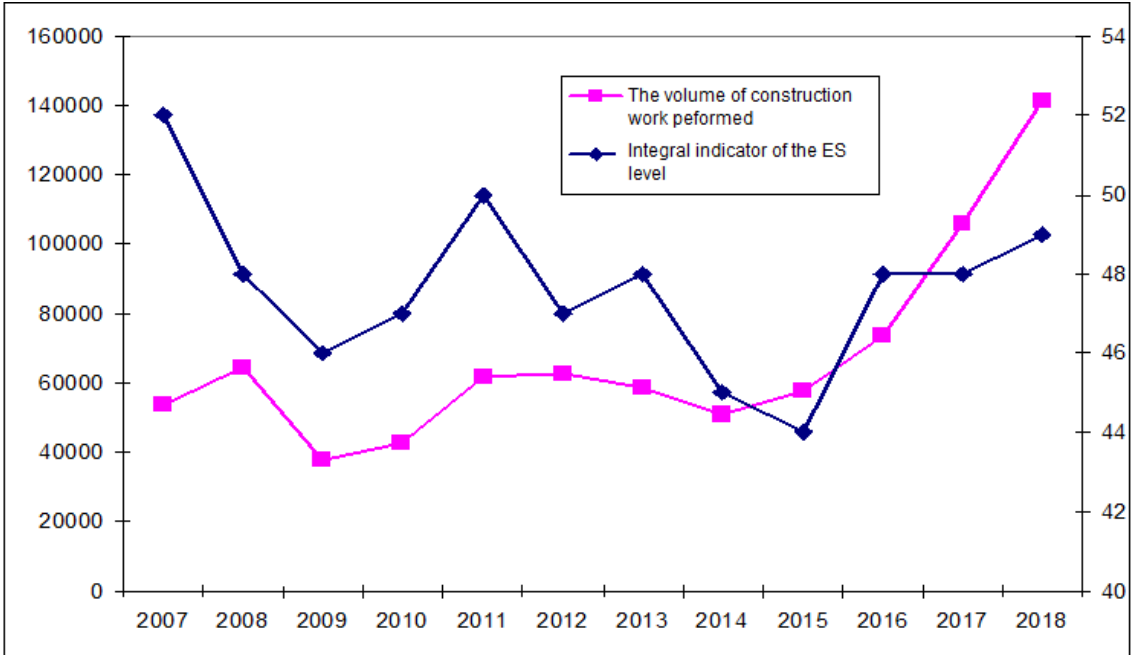


Figure 2. Comparison of the volume of construction works performed and the integrated indicator of the level of economic security

In order to ensure effective functioning, the modern enterprise of the construction industry needs not only to constantly monitor the level of economic security, but to respond promptly to changes in the environment, the emergence of potential and real threats, taking into account the peculiarities of socio-economic development, its tendencies and prospects. Formation of a system of effective economic and organizational measures to counteract their possible negative impact and timely response to them is aimed at providing maximum opportunities for realizing the economic interests of enterprises on the one hand, and ensuring a sufficient level of their economic security, in particular with regard to external threats. That is, prompt response of construction companies to changes in the environment, counteracting the negative impact from the outside, developing effective tools, must take into account a wide range of factors of socio-economic development of the country, as well as industry and regional specificity, based on a certain sufficient level of economic security.

Based on the analysis of the state of the construction industry, we can conclude that the development of construction enterprises in modern

conditions to overcome the effects of crisis phenomena is possible only on the basis of effective management of their economic security.

17.2. Features of ensuring the economic security of construction industry enterprises

According to Economic Code of Ukraine, ensuring the proper level of economic security is to maximize profit, but from the point of view of the enterprise its main purpose is to provide guarantees of stable and maximally effective functioning at the present stage of management and to provide high potential for development in the future⁶. Based on the main purpose of the enterprise, the main functional goals of the enterprise are formed: ensuring high efficiency of work, financial stability and independence of the enterprise; ensuring technological independence of the enterprise; achievement of high competitiveness of the technical potential of the enterprise; achievement of high level of qualification of staff and their intellectual potential; ensuring effective management at the enterprise; minimizing the destructive impact of the production and economic activity of the enterprise on the environment; patent purity of all aspects of the enterprise; ensuring the protection of the information field, trade secrets and achieving the required level of information support for the work of all units of the enterprise; effective organization of safety of the personnel of the enterprise, its capital and property, and also commercial interests⁷. The main and functional goals determine the formation of the necessary structure-forming elements and the general scheme of organization of economic security. As it was mentioned earlier, the economic security of an enterprise is influenced by factors both internal and external. Functional components of economic security are set of basic directions of its economic security, significantly different from each other in content⁸.

The construction industry is one of the most important industries on which the efficiency of the entire economic system of the country depends. The importance of this industry for the economy of any country can be explained as follows: capital construction creates a large number of jobs and uses the products of many branches of the national economy. Production of building materials and related equipment, machine-

⁶ Hospodarskyi kodeks Ukrainy vid 16.01.2003 № 436-IV [Commercial Code of Ukraine dated 16.01.2003 № 436-IV]. URL: <http://zakon1.rada.gov.ua/laws/show/436-15>

⁷ Molodid O.O. (2009). Kharakterystyka zahroz ekonomichnoi bezpeky budivelnoho pidpriemstva [Characterization of threats to the economic security of a construction company]. *Teoriia i praktyka budivnytstva*, no. 5, pp. 54-58.

⁸ Ekonomika pidpriemstva : pidruch. / za red. S. F. Pokropyvnoho. Kyiv : KNEU, 2001. 526 p.

building industry, metallurgy and metalworking, petrochemicals, woodworking industry, transport, energy, etc. are developing with the development of the construction industry. Also, construction more than other sectors of the economy contributes to the development of small and medium-sized businesses. The development of the construction industry inevitably causes economic growth in the country and the solution of many social problems. At the present stage, it is quite difficult to talk about any competitiveness of this industry. At the regional level, the tendency of the supremacy of the construction organizations of the central districts and large cities in connection with their considerable capacities and investment attractiveness is clearly observed, at the global level the construction industry of Ukraine is far behind due to the lack of necessary financial and organizational transformations⁹.

In order to identify the threats to construction enterprises, a number of factors affecting these enterprises must be taken into account. First of all, the nature of the construction work often does not allow us to determine in advance the final cost of the work on the object, which creates a number of threats:

- competition in the order market (unfair competition in all its manifestations);
- monopolization of the market by large construction companies;
- corruption relations in the distribution of state and municipal orders;
- internal fraud.

Construction is a technically complex process that creates the following types of specific threats to economic security:

- causing damage to the object of construction, equipment, damage to inventory;
- personal injury (occupational injuries);
- threat of a product defect (including hidden ones) for works performed by subcontractors, as well as the low quality of used construction materials;
- threat of a product defect caused by the poor quality of work of the project organizations, as well as the general contractors.

Even a slight product defect or lack of technology can lead to serious financial losses for a construction company.

⁹ Byba V.V., Hatash V.S. (2013). Stan ta perspektyvy rozvytku budivelnoi haluzi Ukrainy [State and prospects of development of construction industry of Ukraine]. *Haluzeve mashynobuduvannia, budivnytstvo*, Vyp. 4(39), T. 2. pp. 83-89.

Workplace safety and personnel issues in the economic security system should be given greater attention. Many construction business entities involve a number of employees, usually construction workers, without proper legal registration. As a rule, their salaries are not officially paid; the procedure for issuing it to unformed employees is not guaranteed and remains a matter of employer integrity. The salary of such employees is substantially smaller than that of full-time employees. Such employees are usually not qualified enough. Thus, the problem of informal personnel carries a number of threats to the economic security of the enterprise:

- reducing the quality of work performed;
- increasing the level of injuries;
- needing for illegal financial transactions to obtain officially unaccounted cash in cash for payment, with all financial and other risks inherent in such transactions.

It is noteworthy that almost all of these threats occur both when using unformed employees, the construction company itself, and its general contractor, subcontractor.

Seasonality and arrhythmicity, which is a feature of construction work, increase non-production costs, creating the following threats:

- weather risk factor;
- economic loss caused by planning errors;
- aggravation of the staffing problem: the company is forced to either have a larger staff of employees with forced downtime during periods of low load, or to attract additional employees during periods of high workload.

The remoteness and territorial separation of objects creates the following threats to the economic security of construction companies:

- reducing the level of control of the construction process on the site;
- increasing transport risks;
- theft of technically tangible assets at object warehouses and objects.

It is possible to summarize the composition of the factors affecting the economic security of construction industry enterprises (Figure 3).

The above listed threats cause the existence of a number of sectoral features of economic security of construction enterprises, which must be taken into account by economic security specialists. In order for construction organizations to be able to do this, they need to set up their

own economic security services or involve specialists from companies that specialize in providing economic security services to businesses.

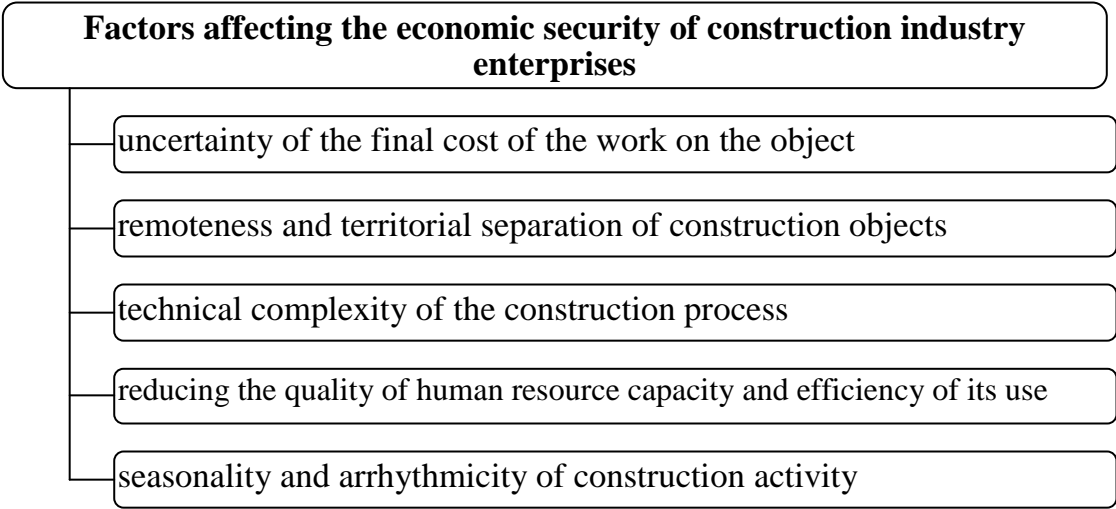


Figure 3. Classification of factors affecting the economic security of construction industry enterprises

Large construction companies have their own security services in one way or another. The drawbacks of their work are that such units cannot evaluate and analyze the situation in the industry as a whole, the maximum they are doing now is evaluate one or the other contractor with whom the project work is planned. Specialized companies providing economic security services have a more global nature of information coverage. In addition, specialized companies for economic security have a large staff of specialists who have the knowledge and practical skills in the organization of business, accounting, and economy as a whole. They analyze all the documentation of the various services of the enterprise, while the security services at the enterprise (and their organization is often reduced to hiring a lawyer who only has to protect the interests of the company in the courts) are unable to do so. But it is better not to bring the case to the court, to resolve controversial and problematic issues in the process of work. But this is often not possible for the lawyer of the company, and sometimes for its management. In today's environment, only that company can stay in the market for a long time and have competitive advantages, in which the costs and results of activities will be fully determined by the level of management efficiency, volume and quality of work of each unit and each employee. Therefore, when the company is invited by specialists of specialized

companies for providing economic security services, they should first of all get acquainted with its structure, services, etc. External experts help to check that the organizational units are rationally organized and, if necessary, to help them properly coordinate their work across the enterprise.

Thus, the specificity of construction enterprises allows concluding the complexity and ambiguity of determining the economic security of enterprises in the construction industry. As the construction industry is one of the key sectors of the economy, the efficiency of construction companies is an indicator of economic development. To ensure the effective functioning of the modern enterprise of the construction industry, it is necessary not only to constantly monitor the level of economic security, but to respond promptly to changes in the environment, the emergence of potential and real threats, taking into account the peculiarities of social and economic development, its tendencies and prospects. Formation of a system of effective economic and organizational measures to counteract their possible negative impact and timely response to them is aimed at providing maximum opportunities for realizing the economic interests of enterprises on the one hand, and ensuring a sufficient level of their economic security, in particular with respect to external threats. That is, prompt response of construction companies to changes in the environment, counteracting the negative impact from the outside, the development of effective tools, must take into account a wide range of factors of socio-economic development of the country, as well as industry and regional specificity, based on a certain sufficient level of economic security.

17.3. Analysis of the system of indicators of economic security of enterprises of the construction industry

At the present stage of economic development, construction industry enterprises have suffered significant losses due to lack of financing, freezing of investment activity, outdated material and technical base and inability to prevent, neutralize internal and external threats and quickly adapt to environmental instability. That is why the development and functioning of business objects depends to a large extent on a reliable, high-quality and sound system of economic security of the enterprise, based on relevant indicators of its level assessment.

Despite the great interest of domestic and foreign scientists and practitioners in the problems of economic security assessment, it

should be noted that the existing developments mainly focus on various aspects of national and regional security and, to a lesser extent, on the economic security of enterprises. Efficiency of functioning and existence of enterprises directly depends on the degree of protection of their economic interests.

For construction companies, the assessment of economic security is important, first of all, because their potential is a significant factor for development, a guarantor of economic growth and support of the country's economic independence¹⁰.

The attention to the research of theoretical problems of estimation of the level of economic security of enterprises and the system of indicators was paid by such economists as I. A. Blank, T. H. Vasylytsiv, S. B. Dovbnia, N. Yu. Hychova, M. M. Zatserklianyi, S. V. Kavun, O. A. Kyrychenko, M. O. Kyzym, T. S. Klebanova, A. H. Temchenko, N. O. Podluzhna, O. V. Cherniak, S. M. Shkarlet, O. F. Melnykov, R. A. Rudenskyi, N. P. Kapustin and others.

In their works, the authors consider the problems of managing the economic security of the enterprise as a whole and in its constituent elements. Considerable attention is paid to substantiating the essence of economic security, its elements, the need for a comprehensive study of this phenomenon, approaches to assessment are offered.

The well-known concept of economic security of the enterprise includes financial, intellectual, personnel, technical, technological, political, environmental, information and power components¹¹. To calculate the level of economic security of enterprises a system of indicators is used. It can be divided into four groups (Figure 4).

Based on the study of the works of scientists, let us consider the list of indicators for each group in more detail.

According to experts, the state of security of the enterprise in the financial sphere characterizes the financial security of the enterprise. This component shows how effectively corporate resources are used. The main indicators used in assessing this component of economic security are:

– absolute liquidity ratio is the ratio of absolutely liquid assets to an entity's current liabilities. The ratio shows how much of an enterprise's debt can be paid immediately;

¹⁰ Vasylytsiv T.H. (2008). *Ekonomichna bezpeka pidpriemnytstva Ukrainy: stratehii ta mekhanizmy zmitsnennia*: Monohrafiia. Lviv: Aral, 384 p.

¹¹ *Ekonomika pidpriemstva* : pidruch. / za red. S. F. Pokropyvnoho. Kyiv : KNEU, 2001. 526 p.

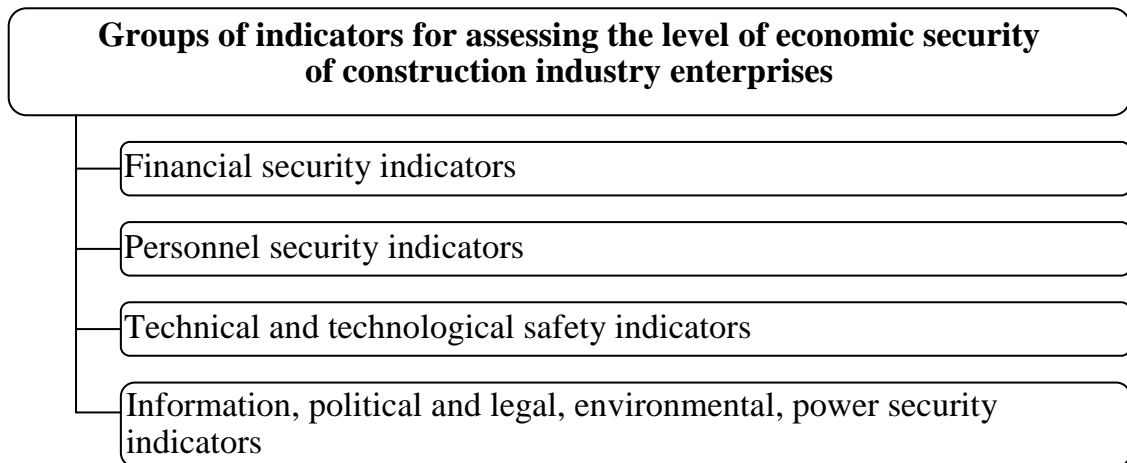


Figure 4. Groups of indicators for assessing the level of economic security of the enterprise

- quick liquidity ratio. It reflects the company’s current payment ability to pay its current liabilities, provided that payments to customers are timely. It is calculated as the ratio of current assets of high (urgent) liquidity to short-term liabilities;
- overall liquidity ratio is the ratio of current assets to short-term liabilities;
- autonomy (financial independence) ratio. It shows the proportion of equity in the total amount of funds advanced in its activities. It is calculated by dividing the equity by the balance sheet of the enterprise;
- financial stability ratio. It characterizes the ability of the enterprise to attract external sources of financing. It is calculated by dividing the cost of borrowed funds by equity;
- financial leverage ratio is determined by the ratio of debt to equity. This ratio reflects the structure of capital: the greater its value, the greater the share of borrowed capital, the greater the risk and dependence on external sources of financing;
- current assets ratio. This is an indicator of the number of turnover of current assets of the enterprise for a certain period. It is found by dividing the proceeds of all activities of the enterprise (net income) by the current assets of the enterprise;
- fixed assets ratio;
- return on assets. It characterizes the efficiency of use of all available assets of the enterprise and is found as the net income ratio of the enterprise to the average value of assets;

– return on margin. It characterizes the efficiency of costs for its production. It is determined by the ratio of profit on sales for a certain period (net profit) to the cost of sales;

– return on sales. It characterizes the efficiency of costs for production and sales. It is defined as the ratio of the profit from the sale of products for a certain period (gross income) to the total (net) income of the enterprise.

The state of security of the enterprise in the technical and technological sphere characterizes the degree of conformity of the applied technology and technology applied at the enterprise to the modern world analogues with regard to the optimization of the cost of resources. It is often suggested to consider the following indicators:

– fixed asset turnover that reflects the efficiency of the use of fixed capital and characterizes the amount of products that account for one hryvnia of the value of fixed assets. Striving for this indicator to the maximum under other equal conditions is regarded as a positive phenomenon in the economy of use of fixed assets of the enterprise. Fixed-asset turnover is calculated as the ratio of the value of fixed assets to the volume of sales;

– capital-labour ratio is an indicator of the equipment of labour with basic means of production. It is determined by the ratio of the average annual book value of fixed productive assets to the average number of employees;

– fixed asset disposal ratio is defined as the ratio of the value of the fixed assets retired in the accounting period to the initial value of the fixed assets;

– fixed asset upgrade ratio is calculated as the ratio of the value of fixed assets acquired in the accounting period to the value of fixed assets at the beginning of the accounting period;

– capital intensity is the inverse of fixed asset turnover. This indicator also reflects the efficiency of fixed assets. It shows what part of the cost of fixed assets is UAH 1 of sales. Indicator of capital intensity is calculated as the ratio of the value of fixed assets to the volume of output;

– return on fixed assets. This indicator informs on the return of fixed assets of the enterprise on profit, on how much profitably used fixed assets during the analyzed time.

The security situation of the company in the personnel sphere is characterized by the following indicators:

- staffing ratio is determined by the ratio of the actual number of employees to the number of employees in accordance with the staff list;
- labour turnover characterizes employee loyalty. It is calculated by the ratio of the number of dismissed employees for all reasons to the average number;
- labour productivity (workforce productivity) is an indicator of employees' work activity. It is calculated by the ratio of output to the average number of employees.
- intelligence level of employees is the ratio of the number of highly skilled workers to the average number of employees.

The security status of an organization in the information, political and legal, environmental, power fields is characterized by the following indicators:

- the level of information component of economic security may be determined by the proportion of incomplete, inaccurate and contradictory information used in the management decision-making process, as well as the cost of information used by the enterprise in the course of its activity. Typically, information productivity ratio is calculated as the ratio of output to the cost of acquiring information resources;
- political and legal security is determined by the level of legal protection of the interests of the enterprise in contractual and other business documents, the level of observance of the legal rights of the enterprise and its employees, the level of preservation of commercially important information, the level of observance of the rules of patent law. The following indicators can be used: payment discipline ratio, legal services quality ratio;
- environmental component is characterized by compliance with environmental standards of technology and production, minimizing the losses of the enterprise from environmental pollution. Environmental pollution factor is calculated as an element of environmental safety (the ratio of the amount of ecotaxes to the costs of the enterprise);
- power component of economic security can be characterized by the amount of physical and moral actions directed at individuals, especially the managers and leading specialists of the enterprise, with the aim of harming their health (physical and psychological), as well as reputation and material well-being, which is a threat to normal activity of the enterprise. Also actions that damage the property of the enterprise, threaten to reduce the value of its assets and loss of economic independence (access to confidential information of the enterprise,

industrial espionage, misinformation, destruction of information, etc.) should be evaluated for this component. For this component, the factor of protection of property and personnel of the enterprise is calculated as the ratio of the costs of business protection to the amount of net income of the enterprise.

The main purpose of forming a system of indicators for assessing the level of economic security of the enterprise is to ensure the effective functioning and use of available resources, to ensure a certain level of working life of staff and quality of economic processes of the enterprise, as well as to constantly stimulate the increase of existing potential and its stable development. In most cases, each element of an enterprise's economic security system can exist only because it receives support or some properties from other elements, that is, it is constantly interconnected and interdependent with all elements of the system.

Based on the study of the existing system of indicators, we can conclude that the problem of determining the level of economic security of the enterprise is poorly structuring, which has a pronounced hierarchical, multi-level structure. When calculating the level of economic security, there is a difficulty in selecting the most appropriate indicators for each component and avoiding duplication of indicators. Thus, it is necessary to improve the existing system of indicators by eliminating "duplicate indicators" and creating a basic system of economic security for construction enterprises to further form the system of integrated assessment for a more effective assessment of economic security.

CONCLUSIONS

The research allowed us to draw the following conclusions.

The condition of the enterprises of the construction industry, as one of the main branches of the economy of Ukraine, is an indicator of the development of the economy and economic security of the country. Comparison of the dynamics of the integral indicator of the level of economic security, calculated by the Ministry for Development of Economy, Trade and Agriculture of Ukraine, and the volume of construction works performed (according to the State Statistics Service of Ukraine), allowed to establish certain common trends over the analyzed period of time (from 2007 to 2018), which may testify to the relationship of these phenomena.

The established specificity of the activity of the enterprises of the construction industry revealed the complexity and ambiguity of the

process of determining and ensuring their economic security. In order to ensure proper economic security, a modern enterprise must constantly monitor its level of economic security; respond promptly to changes in the external environment, occurrence of potential and real threats, taking into account the peculiarities of the functioning of the industry and specific threats identified.

The study of the existing system of indicators for assessing the level of economic security of construction industry enterprises has identified a number of problems, including the presence of a large number of indicators that sometimes duplicate each other, the difficulty in selecting the most relevant indicators and preparing an information base for calculating them. There is a need to improve the system of indicators by eliminating “duplicate indicators” and creating a basic system of economic security of construction enterprises to further form the system of integrated assessment.

SUMMARY

The article is devoted to the consideration of industry peculiarities and system of indicators of ensuring the economic security of construction industry enterprises. The state of the construction industry enterprises as a basis for ensuring economic security has been investigated. Common tendencies in the dynamics of the indicator of the level of economic security of Ukraine and the volume of construction works are established.

Specific factors that affect the economic security of construction industry enterprises have been identified. The identified threats cause the existence of a number of sectoral features of economic security of construction enterprises, which should be taken into account by economic security specialists.

The existing system of indicators for assessing the level of economic security of construction industry enterprises has been investigated. The task of improvement of this system for the further formation of the integral estimation of level of economic security of the enterprises of the construction industry is set.

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CHAPTER 18

ACCOUNTING IN THE DIGITAL ECONOMY: CONVERGENCE OF APPROACHES

Yatsenko V. F.

INTRODUCTION

Global information and communication networks (Internet, Intranet, Extranet, others), with unlimited possibilities of operations with different types of information (text, audio, video, etc.) in the virtual space, contribute to the emergence and development of innovative technologies. Based on it, respective type of relations is formed at an enterprise between business processes and with participants (contractors) of the external business environment. The rapid growth of digital information, use of E-money, transformation of business operations to the electronic environment have led to significant change of international economics, traditionally oriented only to economic growth, towards new «digital» format of social being in information space, where global information networks are dominant communicational channels.

OECD (Organization for Economic Cooperation and Development) indicates basic components of digital economy such as¹ supporting infrastructure (hardware and software, telecommunications, networks, etc.), e-business (conducting business activities and any other business processes via computer networks); e-commerce (goods distribution via the Internet).

The great majority of modern enterprises in any way is connected with information systems and technologies based on global networks use. In light of this, not accession into global digital space, but creation of digital information space reflecting real activity, at the enterprise has a strategic impact.

Modern accounting continues to evolve as it has a high degree of adaptability to constantly changing external environmental conditions. On the other hand, accounting can be indicated as one of the most conservative sciences, which try to maintain their fundamental

¹ The Global Competitiveness Report 2016-2017, World Economic Forum.

principles and require a long period of transformation. It causes complexity of making qualitative changes in accounting approaches and accounting system of the enterprise to synchronize evolutionary changes in accounting with the digital economy emergence, complicating of economic relations according to the integration of national economies, increasing user requirements for the quality of accounting information, emergence of new economic theories and concepts of management, formation of global information and communication environment, rapid development of technical systems and information systems.

Investigations of scientists underlie the modern stage of accounting development for justification new updated paradigm according to Ukrainian society, which is at the interface of economic, humanitarian, cultural, and information bases. At the present time Ukrainian business demonstrates examples of successful practices in many sectors of the economy, which allows to state the final and irreversible reformatting of human consciousness and the transformation of the traditional accounting system focused on strict control and centralized management, on the analytical accounting system designed for the management process informational support²

Therefore, setting of objectives dictates to think through a range of categories and concepts of accounting, applied research on the construction and operation of the enterprise accounting system in the digital economy, aimed at addressing emerging issues and focused on adequate results.

18.1. The evolution of the accounting system: historical issue

Fundamental patterns of social development based on of a wide range of factors from human consciousness to the production organization, economic activity, scientific and technological progress, social and cultural relations, determine direction of evolutionary transformations of the enterprise accounting system. Let's present a theoretical substantiation of the enterprise accounting system evolution.

The idea of mechanization-automation-informatization-digitalization of accounting appeared simultaneously with information technologies and transformed into a single option of reality of digital economy. In the Soviet period, from 50-ss of the XX century, machine

² Yatsenko, V. (2018). Ukrainian Company Cost Accounting System Development from the Evolutionary Theory Position. CEUR Workshop Proceedings, pp. 207-221.

accounting was born, based on the theory of complex mechanization and accounting automation. According to the requirements of centrally planned economy, the system of accounting was strictly regulated and fully standardized, which had made possible to achieve large-scale implementation of the tabular-punch card form of accounting and the use of numerical engineering in accounting. In the Western world, vice versa, the technical means were improved to solve many multifaceted tasks by algorithmizing the search for a solution.

Pre-industrial society had existed for more than 10,000 years and accounting focused mainly on agricultural. Two centuries of industrial society preceded the emergence of management accounting at the end of XIX century. Within 100 years of management accounting, many methods and techniques emerged and proved their effectiveness, however the subject area of accounting did not go out the internal processes of the enterprise.

Since the mid-50s of the XX century, two obvious tendencies appeared in international economics. Firstly, coal mining, machine and shipbuilding and other industries were being moved to developing countries. Secondly, radical new industries, mainly science-intensive such as computer, space, communication and others came up in developed countries. Consequently, scientific and technological progress accelerated, employment structure was changed, new mentality of the great majority of people was formed. In the 1970s it started a conversation about new post-industrial economy.

At that time, automation was the main focus of accounting improvement, meant processing of accounting information by technical means³.

Professor Y. Kuzminskyi thinks: «Due to the automation of accounting, first of all, the qualitative characteristics of this management area are improved, in particular accuracy of accounting, reliability, analytical accounting information, errors reduction»⁴.

The advantages of automation include a database that displays all the necessary information about the operation of the enterprise in real time; easy, fast and clearly differentiate access to information for any employee; simplicity and accuracy of reporting; ability to quickly obtain

³Sopko V.V. (2011). Informacijni tehnologiji v orghanizaciji oblikovogho procesu.[Information technology in organizing a regional process]. *Actual problems of economics*, vol. 1, pp. 205–211.

⁴ Kuzminskyi Yu. (2011). Otsinka efektyvnosti vprovadzhennia informatsiinykh tekhnolohii u bukhhalterskyi oblik [Evaluation of the efficiency of introduction of information technologies in accounting]. *Accounting and Auditing*, vol. 7, pp. 27–31.

information allowing management to make more reasonable decisions; improving general performance of the enterprise⁵.

Automation of accounting of the enterprise will allow: to use a database that reflects all necessary information about the activity of the enterprise; clearly distinguish access to information for any employee; to form reliable reports on the enterprise activity; quickly obtain information for its further processing by management to make more reasonable decisions; increase the efficiency of the enterprise in general⁶.

After personal computers jointly with related software appeared and became widespread, people started talking about computerization of accounting. Background of digital economy included: further implementation of high-end technologies, including computer and communication technologies, in all aspects of life; increasing of economic and social value of information due to growth of volume of information and requirements for its retention and transfer; transformations in infrastructure caused by globalization processes. In recent years, concept of E-accounting has been actively discussed as the main direction of information support improvement of the management system⁷.

Banks are traditionally at the forefront of developing new items, offering e-banking services to businesses – a modern, multifunctional remote service system that allows to manage accounts for 24-hour in real-time from anywhere in the world, using information and communication technologies and networks.

State strategy for the development of electronic administration of all relationships between business entities with State Fiscal Service, the Pension Fund, the State Statistics Service and others has been developed and is being implemented.

It is possible to carry out effectively marketing research of supply of inventories (works, services) in the market, place information about the needs of the enterprise, conduct electronic auctions, set up contracts, discuss terms of delivery and terms of payment, draw up primary documentation for payment and receipt of production inventories

⁵ Gharkusha S.A. (2012). Avtomatyzacija oblikovykh procesiv: vprovadzhennia ta perevaghv roboty systemy [Automation of accounting processes: implementation and benefits of the system]. *Bulletin of Sumy National Agrarian University. Series: Economics and Management*, vol. 4, pp. 60–65.

⁶ Tkalj Ja.S. (2014). Osoblyvosti vykorystannia informacijnykh system i tekhnologij v obliku [Features of using information systems and technologies in accounting]. *Bulletin of Berdyansk University of Management and Business*, vol. 2, pp. 127–130.

⁷ Neskhodovsijvi I.S. (2010). Elektronnyj oblik yak osnovnyj napriam udoskonalennia informacijnogho zabezpechennia systemy upravlinnja [Electronic accounting as the main direction of improvement of information support of management system]. *Bulletin of Zhytomyr State Technological University. Series: Economics, Management and Administration*, vol. 3 (53), pp. 73–77.

(works, services) through web pages, e-mail, social networks using interpersonal communications of the company with suppliers.

E-commerce allows to expand the geography of the delivery and selling to the international (mega) level, find the necessary supplier (buyer) even if it is the only one in the world; establish transparent, democratic relationships with counterparties; exclude commercial and government intermediaries; optimize both purchase prices for raw materials and prices for final products.

The study of modern enterprise characteristics allows us to identify the creation of a radically new model of economic activity, which focuses on the external (macro-, mega-) and internal (micro-) environment. In this case, information and communication technologies and networks as unique and basic means of virtual space, are connecting links between internal and external environment aimed at enhancing effectiveness of existing and / or development of new market elements for the greatest socio-economic impact.

Nowadays, information systems of new generation offer two work in modes: off-line and on-line. In fact, off-line mode reflects the computerization of accounting, because it performs primary documentation, generates, processes, stores electronic data sets, defines the reporting performance of the enterprise. However, the transfer of documents through external storage does not require legal confirmation. Document created in the information system in off-line mode, acquires a legal state only in printed copy with signatures and stamps.

To make information systems work on-line, except computer and software, it requires technical equipment and provider for an access to the global networks, usually the Internet. It creates fully functional e-accounting system, since the documents are transmitted and have legal status in electronic form due to electronic signature, reference to electronic databases or by other means.

Second difference between e-accounting and computerization is geography and time of access to electronic databases. E-accounting provides real-time operation of the information system from anywhere in the world.

The interest in analyzing of information and computerization levels at domestic enterprises has still been popular over a long period^{8, 9}.

⁸ Titova O., Borodina O. (2014). Analiz obgruntovanosti informatyzatsii ta kompiuteryzatsii diialnosti silskohospodarskykh pidpriemstv [Analysis of the validity of informatization and computerization of agricultural enterprises]. *Ekonomichniy analiz*, vol. 18 (2), pp. 262–268.

⁹ Levytska S., Romaniuk A. (2010). Avtomatyzatsiia bukhhalterskoho obliku yak vyznachalniy faktor efektyvnosti oblikovoi systemy vitchyznianykh pidpriemstv [Automation of accounting as a determining

Thus, the transition of the economy to the next stage of development – digital, means integration of e-accounting not only in the general accounting and analytical system of the enterprise, but also in the global virtual space. Moreover, the evolutionary transformations within the economic and social structures associated with globalization processes, large-scale computerization, rapid development of computer and communications technologies, the increase of e-business, determine direction of deep transformation of accounting and the formation of accounting data in respect with digital requests of the economy. The scientific community has a dominant opinion about the need to transform enterprise accounting in line with the electronic environment, but scientists estimates the impact of computer technologies, information systems and communications technologies on the accounting system in different way.

18.2. Accounting model in digital economy

In this study, we will specify digital economy as economic activity which, contrary to traditional one, is defined by network consciousness and dependent on virtual technologies.

Hura N. (2011). proposed a structural model of the accounting system at the enterprise with main components such as accounting objects, method elements, information in primary documents, accounting registers and reports. Moreover, he attributes theoretical and methodological elements to the components of the system, namely purpose, task, object, axioms, principles, functions, elements of the method, techniques. Meanwhile, the author refers to the organizational elements items such as document flow, form of accounting, the use of computer technologies, the organization of work. Relevant specialists are considered as relevant elements of the enterprise information system¹⁰.

Charles Hoffman (2017) mentions that teaming humans and computers together and leveraging the strengths of each is how work will get done in the future¹¹.

factor of the efficiency of the accounting system of domestic enterprises]. *Visnyk Natsionalnoho universyte tu vodnoho hospodarstva ta pryrodokorystuvannia*, vol. 50, pp. 156–163.

¹⁰ Ghura N. (2011). Bukhghaltersjkyj oblik jak skladna informacijna systema [Accounting as a complex information system]. *Bulletin of Taras Shevchenko National University of Kyiv. Economics*, vol. 130, pp. 12–15.

¹¹ Hoffman. Ch.: Accounting and Auditing in the Digital Age. <http://xbrl.squarespace.com/journal/2017/6/28/accounting-and-auditing-in-the-digital-age.html>. (accessed 28 Marc 2019)

Information software complexes have become the main component of the accounting process at enterprises, which are impossible to imagine modern accounting. Software and data support are as important for accounting as the organization of the accounting process, highly skilled workers, the system of workflow, etc.

Well-defined and well-chosen software systems for automation of accounting provide the highest efficiency of enterprise management as a whole and organization of accounting process in particular. The use of computer technologies in the accounting process ensures its reliability, clarity and efficiency. This makes possible to monitor the status of settlements, assets and liabilities at any time¹².

The great majority of scientists from different countries considers accounting as a system¹³.

Overall, system approach as a methodology of systems research creates a base of systems theory in general, the basics of cybernetics, information theory, and the concept of system management meaning the enterprise as a whole organism in which the accounting system is part. At the same time, systematicity considers accounting as a set of elements in a set of relations between them.

Domestic practice traditionally uses a structured Plan of accounts a hierarchical structure for system (for example, assets accounting, intangible assets and capital investments accounting, inventory records, payroll accounting, etc). This approach is used in almost all well-known textbooks on accounting (financial) accounting and the structure of the enterprise accounting system. For accounting systems of majority of enterprises, reflecting business activity on synthetic and analytical accounts is standard, and similar accounting procedures are clear and regularly used in practice.

The accounting system differs significantly from other systems primarily in the Plan of Accounts. In case of keeping records by several standards simultaneously (national, IFRS, US GAAP), will mean creation of accounting systems within the a single accounting system of the enterprise. Each accounting system will be based on the relevant standards of the Plan of Accounts.

¹² Polishchuk O. (2014). Osoblyvosti zastosuvannia kompiuternykh tekhnolohii dlia avtomatyzatsii bukhhalterskoho obliku na pidpriemstvakh [Features of computer technology to automate accounting in enterprises]. *Economic sciences. Series: Accounting and Finance*, vol. 11 (2), pp. 287–293.

¹³ Balanjuk, I. (2015). Bukhghaltersjkyj oblik v informacijnij systemi upravlinnja pidpryjemstvom [Accounting in the enterprise information management system]. *Scientific Bulletin of Kherson State University. Ser.: Economic Sciences*, vol. 17 (1), pp. 146–149.

A functional (functional-structured, functional-oriented) approach of the organization and management of the enterprise has been dominant since its introduction by Taylor and is already considered as a classic. He identified the creation of the enterprise accounting system as a functional subsystem. The purpose of an accounting system is to perform a management function, namely to provide the necessary information for management of accounting information. On the other hand, it is the distribution of actions, functions, rights and responsibilities of accounting staff with their consistent approval and recording in service instructions, workflow schedules, etc. As a result, the structure of the accounting system is focused on a hierarchical structure on the one hand and its functional integrity on the other.

For example, merging businesses into Groups, corporations, and holdings requires corporate accounting, which, as an accounting system, supports the accounting data formation in general and individually for each enterprise, division, workshop, service, etc. In other words, individual stable elements, the relationships between them, and capabilities are identified in the system. Therefore, the hierarchical structure characterizes the corporate accounting system in statics. It allows to evaluate the internal state of the system and system communications. Each element (subsystem) of corporate accounting performs its own specific functions and at the same time, focuses on systemic (informational, control, analytical). A functional approach allows to explore a complex accounting system in dynamics while interacting with the external environment.

Concept of responsibility centers, which was perceived as a successful practice of foreign firms, has made significant influence on the views of domestic scientists and accountants on the organization of accounting and accounting system. The concept allowed to take into account original organizational and technological structures of particular enterprise through allocating appropriate centers to assign responsibility for executives of different levels of management. The concept allowed to monitor the implementation of approved revenue and cost budgets, as well as the distribution of authorities, functions, rights and responsibilities among the supervisors who are responsible for control and performance.

To organize and keep records of responsibility centers in a single accounting system of an enterprise, it is sufficient to structure synthetic and analytical accounting in a certain way. This model allows to implement the concept of deviation management, which involves the

assessment of each responsibility center as an element of the financial structure of the enterprise by comparing two main indicators: income and costs, and the quality of work of the head of the center. However, the division of activities into separate areas limits the ability to evaluate the achievement of tactical and strategic goals of the enterprise as a whole. Consequently, decision-making is limited by one unit and has rather partial than a holistic character, in other words system interaction is absent. Outside the area of control and motivation, there is only a direct performer who provokes inertia, formalism, and dishonest performance of his duties.

The process approach is based on the term of «business process» (BP), which is defined as a set of actions and categories. A set of interconnected actions jointly with a particular technology transforms input into output, which has value for the consumer. The categories include: process owner, entry, exit, resources, actions, actors, time, and end result.

The idea of transferring the cybernetic process approach to corporate management is attributed to the end of the 80-ies of the XX century. M. Hammer and J. Champa understood business process (BP) as a set of actions, based on one or more outputs, produces a value for the customer. M. Hammer and J. Champi as developers of reengineering indicates BP as a refusal of established procedures, a fresh perspective on the work of creating a product or service and presenting value to the customer¹⁴. J. Harrington interprets this term as a logical, consistent, interdependent set of measures that consumes the supplier's resources, creates value and delivers results to the consumer¹⁵. The definition of business process is closely related to reengineering.

The process approach, as a fundamental basic of modern management concepts, must be reflected in accounting frame of the management system. However, scientists in accounting have not received a clear assessment and practical use of this concept. In the modern accounting theory, a functional approach to the structure of the accounting system is dominated in the framework of business transactions by objects of accounting (fixed assets, inventories, production, means and payments, equity, etc.). Most accounting scholars

¹⁴ Hammer M and Champy J (1993) Re-engineering the Corporation: A Manifesto for Business Revolution. Harper Business, New York.

¹⁵ Harrington, H.J., Esseling, E. K., Nimwegen, V., & van Nimwegen, H. (1997). Business process improvement workbook: documentation, analysis, design, and management of business process improvement.. McGraw-Hill, New York.

specify the process approach as «technical» alien, which hinders the development of modern accounting.

There is an alternative position to the use of process approach in accounting. Based on investigation of the process approach, T. Zyryanova and Y. Tarnowska¹⁶ defines management accounting as an integrated information system for effective management of business processes, based on timely planning, correct financial and management accounting, economic analysis and control over all aspects of the enterprise.

The process approach and the use of business processes are better known as design tools of information systems for automation of accounting procedures. Thus, V. Osmjatchenko¹⁷ proposed a methodological approach to the design of accounting information systems, which contrary to the traditional approach focused on functionally closed organizational charts, involves the rejection of autonomous logic in favor to mechanism of adaptation, orientation to progressive engineering business processes.

The results of the study of P. Kutsuk and V. Shevchuk¹⁸ include the development of a theoretical model of regulation of business processes accounting, reporting processes (at three detail levels) and the model of business process «Management of resources and accounting function». The authors' model can be a basis for building a coherent structure of internal regulations that determine the order and requirements for the implementation of BP «Management of resources and accounting function of the company», that is, the main business process within which accounting and reporting are formed.

Functioning of accounting as a process at the enterprise information system is described in paper of B. Zasadnyi¹⁹. Accounting records and registers information on the facts of business activity in the input, reflects it in the accounting registers, performs the processing of information in certain forms of accounting and provides for information

¹⁶ Zyryanova T.V., Tarnovska Ju.S. (2012). Modeljuvannja procesnogho pidkhodu dlja cilej upravljinskogho obliku [The model of the process approach for the management of the oblas]. *Mizhnar. bang. region*, vol. 44 (242), pp. 15–28.

¹⁷ Osmjatchenko V.O. (2010). Bukhghalterskyj oblik v umovakh zastosuvannja informacijnykh tekhnologij [Accounting in the conditions of application of information technologies]. Kyiv: KNEU. (in Ukrainian)

¹⁸ Kutsik P.O., Shevchuk V.O. (2016). Procesnyj pidkhid do rozrobky korporatyvnykh rehlyamentiv obliku i zvitnosti [A Process Approach to Developing Corporate Accounting and Reporting Regulations]. *Economic Analysis*, vol. 23 (1), pp. 174–182.

¹⁹ Zasadnyi B. (2016). Bukhghalterskyi oblik v informatsiinii systemi upravlinnia pidprijemstvom [Accounting in the information management system of the enterprise]. *Scientific Bulletin of Kherson State University. Ser.: Economic Sciences*, vol. 17 (1), pp. 146–149.

as a finished product in the outputs. At the same time, accounting is a complex information system that integrates all the features of the system.

The results of a significant study, including the purpose of accounting as an imperative basis, allowed the authors J. Dankov and M. Yatsko²⁰ to assert the dominant role of the process approach to understand accounting. They believe that accounting is a process, a transition from one stage to another, aimed at passing on information through financial reporting. However, we can not buy into the idea of such explanation of accounting, since it does not show its boundaries and answer the questions where the science of accounting begins and ends, and where there are limits to other economic disciplines. The authors' analysis of the relationship between the process approach and the systematic approach proves the relevance and perspective of this area of research.

Scheer AW. (1998) firstly proposed architecture of Integrated Information Systems (ARIS) in the form of information pyramid and described relation between its levels²¹.

Lim F. P. C. gives an example of General Model for Accounting Information System. The elements include end users, data sources, data collection, data processing, database management, information generation and feedback²². The author also presents the general flow of the accounting process. The four basic steps involved are analyze transactions, record the effects of transaction, summarize the effects of transactions and prepare records. There is one important conclusion for our investigation, says that computers have improved the accounting processes but computers can't replace the role of man in the accounting systems.

Taiwo J.N. believes that accounting systems include the computer hardware and software fundamentals in recording accounting information²³.

The Financial-Accounting Information System integrates the assembly of information resources of economic-financial nature created

²⁰ Dankiv J., Jacko M. (2015) Bukhghalterskyj oblik ta finansova zvitnistj v Ukraini: procesnyj pidkhid [Accounting and Financial Reporting in Ukraine: A Process Approach]. *Accounting and Auditing*, vol. 12, pp. 10–17.

²¹ Scheer, A. W. (1994). Architecture of integrated information systems (ARIS). In *Business Process Engineering* (pp. 4-16). Springer, Berlin, Heidelberg. DOI https://doi.org/10.1007/978-3-662-03615-0_1

²² Lim, F. P. C. (2013). Impact of information technology on accounting systems. *Asia-Pacific Journal of Multimedia Services Convergent with Art, Humanities and Socialgy*, 3(2), 93-106.

²³ Taiwo, J. N. (2016). Effect of ICT on accounting information system and organisational performance: The application of Information and Communication Technology on Accounting Information System. *European Journal of Business and Social Sciences*, 5(2), 1-15.

on the level of all the organization structures and which are processed for the substantiation of the management decisions and fulfillment of scopes²⁴.

The process-based accounting information system combines systematic and functional approaches, creating high-level integrity. The model supports the complexity of functions and organizing the interaction of all system elements (Figure 1).

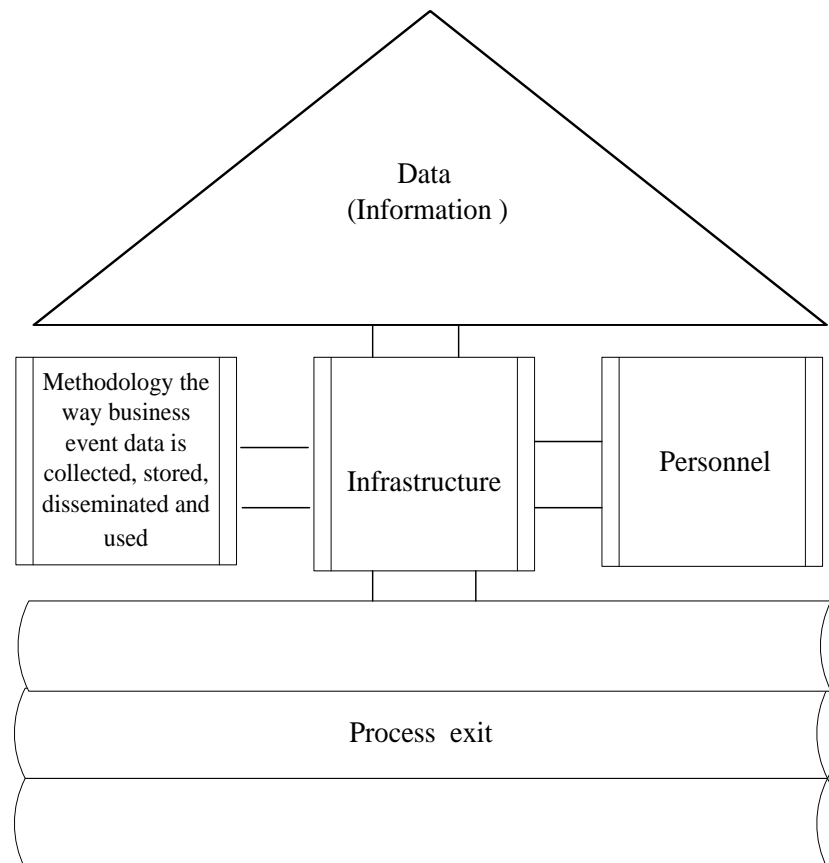


Figure 1. Model of accounting information system at the enterprise

1. Data (Information)

The first component is information about business operations of the enterprise connected with inventories, production and sales of goods (services), as well, with activity of Production, Engineering, Purchasing, Sales/Marketing and Personnel Placement departments.

The second component is information of external business environment.

²⁴ Niculae, M. (2017). The role of the financial-accounting information system in the matrix of the entity functions. *Academic Journal of Economic Studies*, 3(3), 19-23.

2. *Methodology the way business event data is collected, stored, disseminated and used*

Rules and industry-wide regulations, Regulations (standards) of accounting, instructions, procedures, methods and techniques.

3. *Infrastructure*

Technical means, hardware, information and communication technologies, software package.

4. *Personnel*

Employees of accounting department are the users of the system. The quality of employees performance is determined by the professional competencies, traditions and culture of the enterprise.

5. *Process exit*

Data on operations, documents, registers, journals, books, reports, data for management decisions, internal control (audit), information security.

An interconnected accounting system reflects an integrated set of tasks and functions, operations and actions, which are necessary for informational support of management of enterprise. Particular attention should be paid to the development of business process regulations for each individual operation. A regulation is a document that describes the order for performing certain procedures. The regulation provides a sequence of steps that a participant or group of participants must use to carry out business processes, usually with an indication of the limited time and specific dates. For the information system, appropriate infrastructure is should be selected.

The description of the business process, that realizes the accounting function, significantly differs from other similar processes, primarily because of the specific characteristics of accounting:

- accounting method and its elements;
- standardized document flow of parallel movement of material resources and financial flows;
- a high degree of standardization of methodology, especially as a result of its reforming and harmonization with the provisions of IFRS (IAS);
- path dependency exacerbated by the requirement to reflect the facts of economic activity after their performing;
- the complexity of changing of the methodology and organization of the traditional accounting process (primary, current, final accounting).

When accounting overlaps the main business processes, it remains the main aspects of accounting:

- each major business process is served by one or more business accounting processes;
- document flow (paper and / or electronic);
- each business transaction reflects two accounting events, etc.

The process approach transforms the focus from software to the user. In other words, the accountant does not acquire and adapts the program to the activities of a particular enterprise, but rather determines the criteria and parameters of the accounting system which information technology must implement. Therefore, the enterprise's accounting system in digital aspect is a combination of the basic elements: actors (owner, participants, performer), interactive business processes, communications, information systems and technologies.

The construction and operating of the accounting system in the light of process approach are based on the concept of the quality of information systems. In other words, all processes (actions, operations) between system elements require accurate and reliable algorithms of execution, simple visual ordering of objects, practical metrics (descriptions) and regulations. Modeling of the accounting system based on the process approach does not change the methodology and fundamental principles of accounting, however, it technically formalizes the context of concepts and the identification of objects and procedures.

Special software, represented by a separate program or set of integrated software, or customized software, or combinations of them, allows to expand use of the process approach in practice. In any case, IT products are just tools for implementing the concept of business process management in a digital environment.

CONCLUSIONS

Thus, the evolution of accounting in Ukraine should be closely linked to changes of the economic situation in the country and meet current scientific trends, focus not only on improving the traditional methods of recording the results of economic activity for further generalization in reports, but also on the tools of relation of accounting functions with management functions based on different scientific approaches.

The effectiveness of the accounting system depends on many factors, but under certain conditions, assume a critical importance, which leads to an update of existing approaches or the emergence of new ones.

The evolution of already known approaches confirms the statement of the dialectic about the spiral movement of development. In other words, we can consider the transformation of approaches as a transition to certain levels created from the previous under the influence of society changes. So, as a result we get a synthesis of approaches for studying the accounting system of enterprise. Thus, the philosophy of the digital economy provides the critical importance to the human factor (human capital) and the development of communication (social capital).

There are two opposite opinions of scientists on the assessment of the impact of the digital economy on the methodology (paradigm) of accounting. The first argues that the transfer of accounting systems in the virtual space should lead to radical changes. The second one, justifies the invariance of the basic foundations of accounting, whereas information and communication technologies are considered only as elements of the implementation of the accounting functions.

The scientific community has a dominant opinion about the need to transform enterprise accounting in line with the electronic environment, but scientists estimates the impact of computer technologies, information systems and communications technologies on the accounting system in different way.

Special software, presented by a separate program or set of integrated software, or customized software, or combinations of them, allows to expand use of the process approach in practice. In any case, IT products are just tools for implementing the concept of business process management in a digital environment.

The architecture of the accounting system is a tool to achieve its goal, namely to provide users with complete, reliable and in time information. First of all, the construction of the accounting system corresponds with national accounting system. At the same time, theories, approaches, principles and methods evolve, leading to abstraction from a particular enterprise and the formation of universal practices that become successful for most businesses. Process approach is one of practices to build an accounting system.

Business management requires the accounting system based on the latest scientific approaches, innovative IT solutions, successful international and domestic practices. The system of accounting of the enterprise within the process approach, is a business process that implements the function of management. Accounting system provides accounting at the enterprise within the methodology the way business

event data is collected, stored, disseminated and used, by means of infrastructure and personnel.

SUMMARY

Different approaches of the identification of the enterprise accounting system are presented in the article. The first part is devoted to analyzing the stages of accounting evolution in Ukraine in order to highlight the national features that have influenced the formation and development of modern accounting. The views of Ukrainian scientists were formed by the influence of crucial changes in the economic system of the country, the rapid development of information technologies and the latest theories and concepts of foreign authors. The second part explores the functional, systemic and process approaches to the formation of the accounting system. The presented accounting information system model demonstrates the convergence of these approaches within the digital economy.

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CHAPTER 19

PROCESS-ORIENTED MANAGEMENT OF ENTERPRISES: THE ESSENCE, CONTENT AND FEATURES OF APPLICATION

Cherchata A. O.

INTRODUCTION

Traditional management methods in current economic environment no longer provide the ability to make strategically correct decisions. In order to create lasting advantages over competitors, a modern enterprise needs to have an effective system of managing its activities, which can be implemented under certain methodological and organizational approaches. In current difficult economic environment, purposeful management of the enterprise should be realized on the critical selection of the best achievements of scientific schools and approaches to management. In the context of globalization and European integration, modern management concepts are oriented towards a process-oriented approach to the formation of a management system. This means that the main management object is the process. The experience of implementing business process management (BPM) concepts by leading world enterprises gives grounds to assert the emergence of a progressive theory of enterprise management, which has an ability to achieve the desired result even in the conditions of radical changes in the internal and/or external environment. Business processes are the essence of BPM methodology. On their basis financial efficiency of activity is determined, business culture is formed and transition to a qualitatively new organizational structure is made.

Process management differs from the functional one first of all in the way of business process' formation as a sequence of actions aimed at achieving measurable end result. In this case, the emphasis is shifted from the management of individual resources and the cost centers to the management of business processes, which together link the activities of all interacting units of the enterprise. This increases not only the level of coordination of production and economic operations, but also the level of productivity and quality of work. It concentrates management on obtaining the end result of the business process. Thus, the improvement

of the performance of the enterprise is determined by the efficiency of business process management. The use of process approach is the basic principle of formation of quality management system and total quality management (TQM), implementation of concepts such as business process reengineering, continuous improvement of business processes, Balanced Scorecard (BSC).

19.1. Analytical characterization of development tendencies of management approaches and substantiation of expediency of process oriented management implementation at enterprises

In the second half of the XX century, such approaches to management as system, structural, functional, process were developed and became widespread.

Scientists^{1,2} define the system approach as a methodology for researching and managing objects as systems. Thus, an organization is seen as a system of interrelated elements (people, structure, tasks, technologies) focused on achieving a specific goal in a changing environment. The main task is to establish a predetermined state of operation of the system provided by the planning. However, it is difficult to implement a systematic approach because large-scale systems are complex enough. It is difficult to track the interaction of multiple subsystems within an enterprise and set system boundaries, which can lead to the accumulation of unnecessary and inappropriate data or partial resolution of problems.

The structural approach is focused on determining the importance, priorities, methods, principles and other tools in their union in order to establish rationality of the validity of resource allocation increase³. This approach is based on the use of different types of organizational structure of the enterprise, usually hierarchical. In this case, the organization and management of activities is carried out by structural elements (departments), and their interaction – through officials (heads of departments) and higher-level structural units. There are several disadvantages of the structural approach:

¹ Ansoff I. (1989) *Strategicheskoye upravleniye* [Strategic Management]. Moscow: Economic. (in Russian)

² Redchenko K. I. (2003) *Stratehichnyi analiz u biznesi* [Strategic analysis of business]. Lviv: The New World – 2000. (in Ukrainian)

³ Gershun A. (2006) *Tekhnologii sbalansirovannogo upravleniya* [Technologies of the balanced management]. Moscow: Olimp-Biznes. (in Russian)

- splitting technologies of workflow into separate fragments can assign them to different elements of organizational structure;
- it is difficult to fully describe the technologies of workflow, basically there is only a fragmentary (at the level of structural elements) description;
- lack of responsibility for the end result, orientation towards the end consumer;
- significant time spent for transferring results between units.

The functional approach is based on the decomposition of the production process into tasks in order to further improvement⁴. Alternative options are those that require minimum total cost. With a functionally oriented approach, a number of functions are assigned to each structural unit and responsibility is described, the performance criteria are formulated. Horizontal linkage between structural units is weak. The vertical structure «chief – subordinate» is quite strong. Functional-structural model is based on the universal principle of division of labor between units, with the fixation of certain functions (operations). The main disadvantage of this structure is that the functions are assigned to the units often by different methods, and in the course of the enterprise activity there is an increase of these functions. In addition, this structure has significant costs for the maintenance of the administrative apparatus. In view of the above, a number of scientists^{5, 6} believe that in the present conditions there are objective prerequisites for reorientation from functional to process management.

According to⁷, the process approach adequately reflects the production structure of the enterprise as a structure of business processes. It contains a systemic vision of the management object, its structural construction, functional orientation of barriers that impede the optimal promotion of business processes. Mescon M.H.⁸ stated that process approach refers to «an approach to management theory based on the concept that management is a continuous series of interrelated actions or functions.» In this approach, the enterprise management

⁴ Tompson A., Stryklend A.Dzh. (2005) *Strategicheskyj menedzhment: koncepcyy y situacyy dlja analiza* [Strategic Management: Concepts and situations for analysis]. Moscow: Williams. (in Russian)

⁵ Albrekht N. A. (2007). Sistema korporativnykh standartov: praktika razrabotki i vnedreniya. Reglamentatsiya biznes-protsessov [The system of corporate standards: the practice of development and implementation. Regulation of business processes]. *Management Accounting and Finance*, no. 2, pp. 144-152.

⁶ Jeston J., Nelis J. (2006) *Business Process Management: Practical Guidelines to Successful Implementations*. Amsterdam: Elsever.

⁷ Ibid.

⁸ Meskon M., Albert M., Hedouri F. (2005) *Osnovy menedzhmenta* [Fundamentals of Management]. Moscow: Delo, p. 48. (in Russian)

system is focused on managing both each business process individually and all business processes as a system. The essence of the process approach is that each employee ensures the functioning of specific business processes. Responsibilities, areas of responsibility, success criteria for each employee are formulated and only make sense in the context of a specific task or process. The horizontal connection between structural units is much stronger. Unconditional priority of the vertical communication «chief – subordinate» weakens because of importance of horizontal cooperation between divisions of the enterprise.

The concept of a process approach originated within a classical school that described management functions but as independent of one another. A. Fayol identified five output management functions; in his opinion, «to manage means to foresee and plan, organize, dispose, coordinate and control»⁹.

Contrary to these views, the later development of a process approach leads experts to consider management functions as interrelated. Modern principles of process management are based on the modeling of business processes, which describe how different management functions are performed and interact with each other. According to M. Mescon, the management process consists of four interrelated functions: planning, organization, motivation and control¹⁰. Authors¹¹ define process approach as orientation of activity on business processes. Therefore, systems of enterprise management should focus on each business process individually and also consider them as a system at the enterprise level within the framework of certain projects.

However, a number of scientists, in particular^{12, 13}, state that the process approach is not the opposition to functional one.

For this purpose, there is a need to analyze the concepts of «process» and «function».

⁹ Fayolle A., Emerson G., Taylor F., Ford G. (2002) *Menedzhment – eto iskusstvo* [Management – is art]. Moscow: Unity, p. 12. (in Russian)

¹⁰ Meskon M., Albert M., Hedouri F. (2005) *Osnovy menedzhmenta* [Fundamentals of Management]. Moscow: Delo. (in Russian)

¹¹ Repin V. V., Yelifirov V. G. (2008) *Protsessnyy podkhod k upravleniyu. Modelirovaniye biznes-protsessov* [Process approach to management. Business process modeling]. 6th ed. Moscow: Standards and quality. (in Russian)

¹² Albrekht N. A. (2007). Sistema korporativnykh standartov: praktika razrabotki i vnedreniya. Reglamentatsiya biznes-protsessov [The system of corporate standards: the practice of development and implementation. Regulation of business processes]. *Management Accounting and Finance*, no. 2, pp. 144-152.

¹³ Jeston J., Nelis J. (2006) *Business Process Management: Practical Guidelines to Successful Implementations*. Amsterdam: Elsevier.

In the great encyclopedic dictionary a function is defined as: activity, work, the external display of the properties of any object in a given system of relations, as the role played by a particular social institution or process in relation to the whole¹⁴. From the point of view of management, classical management theory defines the function in terms of organizational structure of management and treats it as a series of interrelated actions, united by features to achieve the goals of the enterprise¹⁵.

In the modern economic dictionary, the process is defined as a sequential change in the states in the development of something, a set of sequential actions to achieve any result¹⁶. The founders of a process approach define a process (business process) as a set of different activities within which one or more types of resources are used at the «input», and as a result of this activity at the «output» the value to the consumer is created¹⁷.

Based on the results of the analysis of these definitions, it should be noted that the main difference between a business process and a function is that the process includes a time category, changing the state of the object in its motion to the final state. At the same time, with the help of functional approach the answer to the next questions can be stated: who does and what does. With the help of process approach the next questions can be answered – who, what, how, in what sequence and with what result.

Despite all the advantages of the process approach, it should be emphasized that functional specialization provides the least costs for individual operations within the business process. In view of the above, it is believed that functions and processes are equivalent to management concepts and cannot exist separately.

The result of both functional and process approaches is the simultaneous design of the organizational structure (functional areas) and the order of interaction within that structure (processes). These approaches should be applied simultaneously. The main difference between the process and functional approach is that the first is primarily

¹⁴ Azriljan A. (ed.) (2010) *Bol'shoj jenciklopedicheskij slovar'* [The Great Encyclopedic Dictionary]. Moscow: Knizhnyj mir. (in Russian)

¹⁵ Meskon M., Albert M., Hedouri F. (2005) *Osnovy menedzhmenta* [Fundamentals of Management]. Moscow: Delo. (in Russian)

¹⁶ Rajzberg B. A., Lozovskij L. Sh., Starodubceva E. B. (1999) *Sovremennyj jekonomicheskij slovar'* [Modern Economic Dictionary]. Moscow: INFRA-M. (in Russian)

¹⁷ Andersen B. (2003) *Biznes-protsessy. Instrumenty sovershenstvovaniya* [Business processes. Improvement tools]. Moscow: Standards and Quality. (in Russian)

focused not on the organizational structure of the enterprise or the functions of units, but on business processes whose ultimate goal is to create goods or services that are of value to external or internal consumers. In this case, the enterprise management system is oriented both at managing each business process individually, and all business processes as a system.

Recently, the process approach has become increasingly important due to the development of information technology and the need for enterprise restructuring. The methodology of enterprise restructuring, according to¹⁸, is intended to solve the following tasks: to provide strategic planning of activities; to implement a process approach to enterprise management, which will allow to concentrate resources on restructuring and to use them more effectively in further operation of key business processes; implement knowledge management at all stages of restructuring.

A number of scientists^{19, 20, 21, 22, 23} determine the main reasons for the implementation of the process approach in the enterprise. Firstly, in today's uncertainty, national businesses need to respond quickly and efficiently to all kinds of changes, in a timely manner, and sometimes with anticipation, to make changes to management decisions in the changing circumstances, possibly through changes in regulations of business processes. Secondly, the attitude of consumers and stakeholders to the quality category has recently changed: if the quality of the finished product was the priority, now it is the quality of all processes, from development and production to end-of-life processes. Thirdly, the representation of the production structure of the enterprise through the interconnection of business processes more accurately reflects the real structure of the enterprise. Moreover, the organizational structure is reorganized with respect to business processes. That is done by

¹⁸ Totskiy V.I., Lavrenenko B. I. (2005) *Orghanizacijnyj rozvytok pidpryjemstva* [Organizational development Enterprise]. Kiev: KNEU. (in Ukrainian)

¹⁹ Abdelkafi N., Täuscher K. (2016) Business models for sustainability from a system dynamics perspective. *Organization and Environment*, vol. 29, no. 1, pp. 74-96.

²⁰ Antunes P., Mourão H. (2011) Resilient business process management: Framework and services. *Expert Systems with Applications*, vol. 38, no. 2, pp. 1241-1254.

²¹ Cherchata A. (2016) *Formuvannja pokaznykiv rezul'tatyvnosti ta efektyvnosti biznes-procesiv na osnovi koncepciji Balanced Scorecard (BSC)* [Formation of Indicators of Resultativity and Effectiveness of Business Processes on the Basis of the Balanced Scorecard (BSC) Concept]. *Scientific Bulletin of Ivano-Frankivsk National Technical University of Oil and Gas*, vol. 14, no. 2, pp. 137-143.

²² Cherchata A., Popovychenko I., Andrusiv U., Simkiv L., Kliukha O., Horai, O. (2020) A methodology for analysis and assessment of business processes of Ukrainian enterprises. *Management Science Letters*, vol. 3, no. 10, pp. 631-640.

²³ Kratzer S., Lohmann P., Roeglinger M., Rupprecht L., zur Muehlen M. (2019) The role of the chief process officer in organizations. *Business Process Management Journal*, vol. 4, no. 25, pp. 688-706.

eliminating those functional units that do not fall into the group of ancillary processes and do not have a significant impact on the value chain to meet consumer demands. And, fourth, the enterprise simultaneously operates a large number of processes that implement the functions of the enterprise.

When analyzing the scientific works related to enterprise management based on the process approach, it has been noted that much attention is paid to the approaches and problems of implementation of the process approach, on which the effective functioning of the enterprise depends^{24, 25, 26, 27}. The results of the study allowed to distinguish the main stages of process approach implementation:

- definition and identification of business processes and the order of their interaction in the overall network of business processes of the enterprise;
- a clear division of responsibilities and powers for each business process of the enterprise;
- defining criteria and methods for evaluating the effectiveness and efficiency of business processes;
- development and approval of regulations that formalize business processes;
- managing resources and regulations in case of deviations in products, business processes or changes in the external environment.

Thus, the process approach not only describes the business as a network of interconnected processes, but also its continuous monitoring, management and improvement of business processes.

19.2. The process of improving business processes through reengineering

In order to ensure effective process management, considerable attention is paid to business processes optimization which support the activity of enterprises and are carried out with the aim of timely delivery of material, financial, information resources at the beginning of business

²⁴ Trkman P., Mertens W., Viaene S., Gemmel P. (2015) From business process management to customer process management. *Business Process Management Journal*, vol. 2, no. 21, pp. 250-266.

²⁵ Lederer M., Kurz M., Lazarov P. (2017) Making strategy work: A comprehensive analysis of methods for aligning strategy and business processes. *International Journal of Business Performance Management*, vol. 18, no. 3, pp. 274-292.

²⁶ Becker J., Kugeler M., Rosemann M. (2010) Process management. Berlin, Germany: Springer.

²⁷ Andersen B. (2003) *Biznes-protsessy. Instrumenty sovershenstvovaniya [Business processes. Improvement tools]*. Moscow: Standards and Quality. (in Russian)

processes and timely delivery of the newly created value of a product or service to the end consumer at the final stage²⁸.

The majority of scientists consider reengineering as the main tool of improvement of business processes in modern conditions. It is defined as a fundamental rethinking and radical redesign of business processes in order to achieve significant changes in the main indicators of enterprise activity^{29, 30}. One of the main features of business process reengineering (BPR) is the orientation of this tool not on function but on process. At the theoretical level, it should be noted that there is a great variety of interpretation of the concept of business process reengineering, but the only point of view for this process has not been determined. Business process reengineering is a new approach to the formation of a management system and organizational structure based on the transition from functional units to teams of specialists responsible for a particular business process³¹. The management of material resources on the basis of BPR means strengthening the process approach to its organization, shifting the focus from functional to process management. The concept of «business process» is introduced as a set of sequential actions aimed at achieving a specific result, coordinated with the results of other business processes.

The analysis of theoretical achievements of scientists who investigated the problems of reengineering theory^{32, 33} has shown that this is a continuous process. It is important to clarify that this is not about redesigning different business processes, but about the continuous improvement of this business process, which was subjected to this change. Summarizing the above definitions, characterizing and integrating the views of the scientists^{34, 35}, it can be concluded that reengineering is a tool for identifying the «bottlenecks» of the studied business processes and improving them through coordinated integration

²⁸ Mizyuk B. M. (2006) *Stratehichne upravlinnya [Strategic management]*. Lviv: Magnolia plus. (in Ukrainian)

²⁹ Davenport T. (1993) *Process innovation: reengineering work through information technology*. Boston: Harvard Business School Press.

³⁰ Johansson H., McHugh P., Pendlebury J. (1993) *Business process reengineering. Break-point strategies for market dominance* / H. Johansson. N.Y.: John Wiley & sons.

³¹ Manganelii R. L., Klein M. M. (1994) *The reengineering handbook: a step-by-step guide to business transformation*. N.Y.: Amacom.

³² Davenport T. (1993) *Process innovation: reengineering work through information technology*. Boston: Harvard Business School Press.

³³ Johansson H., McHugh P., Pendlebury J. (1993) *Business process reengineering. Break-point strategies for market dominance* / H. Johansson. N.Y.: John Wiley & sons.

³⁴ Manganelii R. L., Klein M. M. (1994) *The reengineering handbook: a step-by-step guide to business transformation*. N.Y.: Amacom.

³⁵ Vinogradova O. V. (2006) *Reinzhyrnyng torgivel'nyh pidprijemstv: teorija ta metodologija [Reengineering of trading enterprises: theory and methodology]* (Doctoral thesis), Donetsk.

of the studied business processes in order to optimize the organizational structure of the enterprise. The degree of the level of improvement of business processes depends on their initial state and the industry in which the enterprise operates.

The stages of business process reengineering at the enterprise are shown in Figure 1.

Thus, the selection of business processes that require reengineering is carried out in the following sequence:

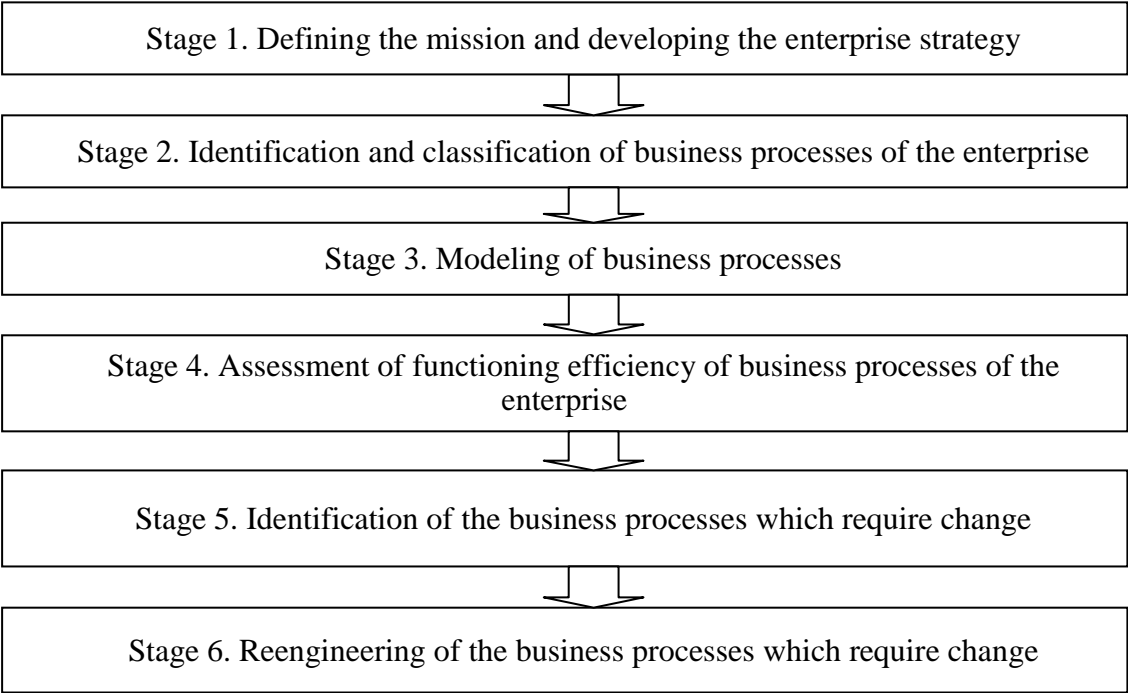


Figure 1. Stages of reengineering of business processes of the enterprise

Source: created by the author

1. Defining the mission and developing the enterprise strategy is an important stage. Changes that take place in the enterprise must be consistent with its mission, which is defined as provision of quality products or services. Taking into account the mission of the enterprise, its strategy is developed.

2. Identification and classification of business processes of the enterprise. It identifies business processes that are related to a particular business activity.

3. Modeling of business processes allows to describe graphically business processes with the definition of tasks, responsibilities, inputs and outputs of certain business processes.

4. Assessment of functioning efficiency of business processes of the enterprise, allows to identify problematic business processes and those that are performed effectively.

5. Identification of the business processes which require change, that means ineffective processes.

6. Reengineering of the business processes which require change.

Enterprise management reveals the influence of external and internal events on the parameters of business processes. Such type of management requires purposeful regulation of these parameters to achieve the set goals. Accordingly, the performance of the enterprise is the evaluation criteria for the effect of managerial influence on business processes.

Correct identification and rational organization of business processes, timely research and assessment of the impact of business processes on the results of enterprise activities allow to identify problem areas and make effective management decisions.

It is suggested to use indicators that characterize the status of existing business processes as quantitative measures of the analyzed factors.

It should be noted that the enterprise is a complex economic object, which is described not by one criterion, but by a set of criteria characterized by different properties. It is important to note that in order to ensure the objectivity and reliability of the business process evaluation, it is necessary to use several interrelated criteria that would characterize different aspects of the activity.

In analyzing and evaluating the business processes of an enterprise, it is necessary to evaluate the effectiveness and efficiency of their implementation, since efficiency determine the various aspects of the functioning of business processes.

Effectiveness is determined by ISO 9000:2008 standards as a measure of achieving the intended results^{36, 37}. Thus, the effectiveness of the business process shows the degree of compliance with the actual

³⁶ ISO 9001-2008 Quality management systems. Fundamentals and vocabulary [электронный ресурс]. Retrieved from: <http://www.iso.org>

³⁷ ISO 9004-2008 Quality management systems. Guidelines for performance improvements [электронный ресурс]. Retrieved from: <http://www.iso.org>

results obtained to the stated goals, it means the degree of achievement of the expected state of the management object.

In accordance with the above standard, effectiveness is the ratio between the results achieved and the resources used. This is practically in line with the modern definition: «efficiency is the relative effect of a process, defined as the ratio of the effect (result) to the costs that led to (ensure) its receiving»³⁸.

When identifying the criteria for evaluating the effectiveness of business processes, it is advisable to start with their goals and objectives, which are developed taking into account not only the strategic goals of the company, but also the specifics of business processes and consumer requirements for its results.

In order to substantiate the criteria and indicators for evaluating the effectiveness of the business processes of the enterprise, it is necessary to develop the stages of formation of these criteria (Figure 2).

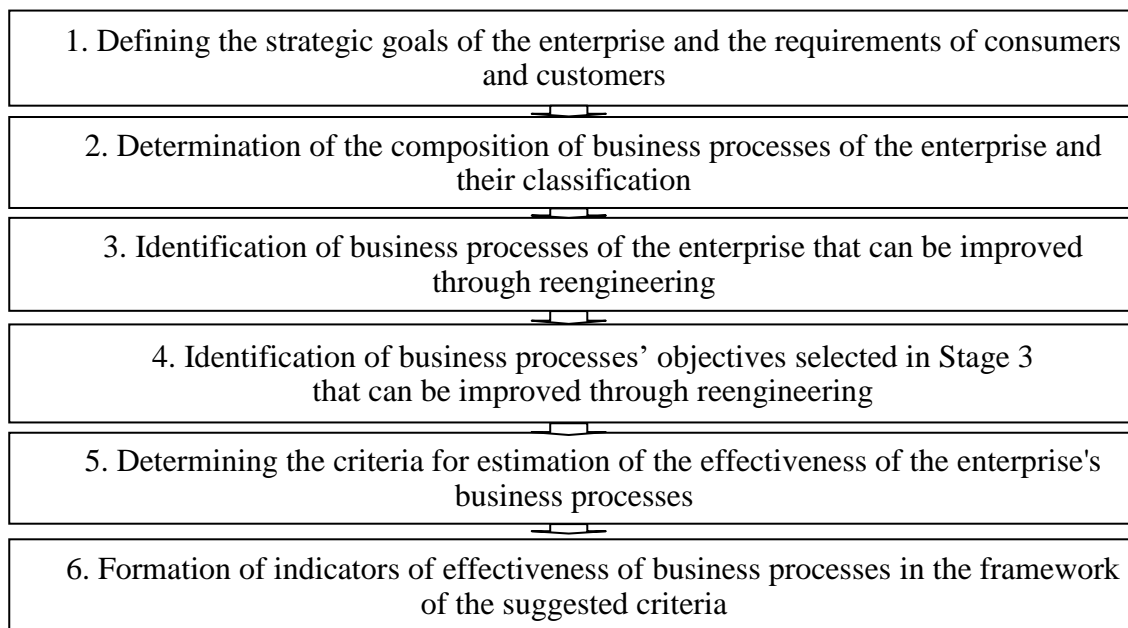


Figure 2. Stages of formation of criteria and indicators of estimation of effectiveness of enterprise's business processes

Source: created by the author

The first stage. Determination of strategic goals of the enterprise and requirements of consumers. This stage is the development of long-term plans based on the maximum use of scientific, technical, industrial

³⁸ Azriljan A. (ed.) (2010) *Bol'shoj jenciklopedicheskij slovar'* [The Great Encyclopedic Dictionary]. Moscow: Knizhnyj mir. (in Russian)

and human resources. The implementation of strategic plans depends on the level of development and management of business processes.

The second stage. Determining the composition of business processes, their classification and interaction. Enterprises carry out on average from 6 to 40 different business processes. Their classification contributes to their orderliness and helps to ensure the quality.

The third stage. Identification of enterprise business processes that can be improved through reengineering. At this stage, the coherence of business processes is carried out according to certain directions of activity of the enterprise.

The fourth stage. Identification of business processes' objectives selected in Stage 3. The strategic goals are achieved in the process of functioning of the enterprise through the implementation of business processes. For each business process, goals and objectives must be defined, the achievement and realization of which are determined by obtaining results.

When formulating the tasks of business processes, in addition to the strategic goals of the enterprise, the following aspects must be considered:

- business process opportunities, due to the technology of input conversion;
- available business process resources;
- requirements of internal and external consumers for the quality of output;
- balance of tasks of business process.

Stage Five. Determining the criteria for estimation of the effectiveness of the enterprise's business processes. The effectiveness of the enterprise's business processes is evaluated on the basis of revealed criteria characterizing such aspects of the enterprise's activity as financial-economic, production (resource), organizational, inter-firm (external integration). The maximum approximation of the actual value of the indicator to the planned is thought to be a positive feature. The system of indicators within the proposed criteria should be periodically reviewed in order to provide accurately reflection of the enterprise's effectiveness.

The sixth stage. Formation of indicators of effectiveness of business processes in the framework of the suggested criteria. Performance indicators characterize the degree of accomplishment of the business process objectives and the intended results. Effectiveness indicators reflect how optimized the resources are and how much loss is made in

achieving the desired result. The number of indicators depends on the specifics of each business process, the goals and other factors.

In order to obtain reliable information on the functioning of business processes, it is necessary to determine the monitoring methods. Monitoring refers to the methodology and system of observation of the state of a particular business process, the ability to observe it in development, which gives the opportunity to evaluate and identify the results of various factors.

Properly organized business process monitoring allows you to:

- identify the weaknesses of business processes where the occurrence of problems and disruptions in work is the most likely to happen;
- identify business processes with potential opportunities to save time and reduce costs;
- check compliance with the scheduled time of business processes;
- check the compliance of the real level of costs in business processes to the planned;
- determine the required amount of resources to perform business processes.

CONCLUSIONS

The analysis of the theoretical foundations of the process approach revealed that business processes are the basis on which process-oriented enterprise management is based. The process approach requires management to take action to adapt to change and, as a consequence, improve business processes.

Business process reengineering is defined as one of the effective tools of enterprise management. The suggested procedure is a further development of applied aspects of reengineering, taking into account the industry specificity of enterprises. Therefore, in the future, it is necessary to involve mechanisms of diagnostics of business process efficiency, which will allow timely identification of «bottlenecks» in the activity of the enterprise and the reasons for their appearance, as well as stimulate employees' initiative to participate in the development and implementation of reengineering projects and to support the concept of constant changes in economic activity. These factors will improve the effectiveness of the enterprise and ensure its competitiveness.

The enterprise management system should be aimed at improving effectiveness, that requires the creation of a system of activity analysis and decision-making, which not only isolates and eliminates the causes of existing discrepancies, but also determines their possible occurrence. In order to effectively manage business processes, it is necessary to evaluate their status, since any changes in the conditions or results of business processes can only be determined when there are appropriate criteria and methods for measuring them. In this regard, the primary task in this aspect is to formulate a system of indicators of business process effectiveness, taking into account the specific activity of the enterprise. Based on measuring and analyzing the effectiveness of existing business processes, measures are being developed to improve them with appropriate mechanisms and tools.

Thus, the analysis data will allow to quantify business processes by defined indicators, in order to find problems and make effective management decisions to improve the business processes.

SUMMARY

The main issues related to process-oriented management of enterprises have been revealed. The development of scientific research on traditional management concepts has been investigated. The most significant advantages of the process approach in comparison with the functional one have been conducted by the author. The comparison criteria have been identified and argued. Emphasis is placed on functional and process management, as modern principles of process management which are based on modeling business processes that describe how different management functions are performed. The main reasons for implementing the process approach at the enterprise have been identified. The main stages of implementation of the process approach have been distinguished, which indicate that the process approach includes not only the description of business as a network of interconnected business processes, but also continuous monitoring, management and improvement of business processes.

The expediency of using reengineering to improve business processes has been substantiated. The author's vision of the definition of «reengineering» has been given. The procedure of selection of business processes to be reengineered at the enterprise has been developed and the stages of formation of evaluation criteria as well as the indicators of business processes have been formed.

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CHAPTER 20

MODERNIZATION OF STRUCTURE OF FINANCIAL SYSTEMS WITH THE DEVELOPMENT OF FINTECH

Lomachynska I. A.

INTRODUCTION

In a general sense, the financial system is a collection of financial instruments, markets, institutes that provide a redistribution of financial resources between economic agents who have a scarcity or surplus of funds. The basic functions of the financial system are the accumulation of temporarily redundant funds and their transformation into investments; risk management; information function; monitoring; reduction in business expenditures¹. Their effective implementation creates favorable conditions for growth of well-being. However, the functions of the financial system are relatively stable in time and space, while financial institutes are transforming and their functions are changing². The sphere of their activity – the financial system – remains unchanged. This is due to the fact that under the influence of globalization, technological change and innovations, the financial system acquires new characteristics, properties, elements, as new financial instruments and innovations appear in the financial environment, and shifts in demand for them occur. As a result, competition between financial instruments and financial innovations leads to the expansion of functionalities of the financial system, increases the efficiency of its functioning and modifies the role of the financial system in the economy.

Features of the implementation of the functions of the financial system determine the nature of its functioning, which depends on structural and organizational characteristics. The structure characterizes the composition of the financial system, the nature of the relationships of its segments and the elements that ensure its integrity, the preservation of

¹ Stiglitz, J. (1998) More Instruments and Broader Goals: Moving toward the Post-Washington Consensus. *WIDER Annual Lectures 2*. Helsinki, NU/WIDER.

² Merton, R. C., Bodie, Z. (1995) A conceptual framework for analyzing the financial environment. In Crane, D. B., Froot, K. A., Mason, S. P., Perold, A., Merton, R. C., Bodie, Z., Sirri, E. R., Tufano, P. (Eds.), *The global financial system: A functional perspective*. Boston, MA: Harvard Business School Press.

properties in internal and external changes. Organization of the financial system reflects the differentiation of its components, their functioning and behavior. This is the internal structure of the financial system, a form of organization of financial relations through financial institutes. Financial institutes are heterogeneous and they dynamically change under the influence of technological, economic, political, social, socio-cultural, and environmental factors. Today, digitalization and the transformation of values in the context of sustainable development have a significant impact on the development of financial institutes. The transformation of financial institutes changes the functions they perform, which transforms the financial system as a whole.

Traditionally, the architecture of a national financial system reflects its internal structure regarding the economic nature and role of the stock market and banking institutions, as well as the nature of information asymmetry that determines the economic behavior of agents³. However, different financial institutes will differently ensure the implementation of the basic functions of the financial system and will differently affect the financial and economic decisions of the entities, dynamics and structure of the economy as a whole⁴. Nevertheless, the traditional approach to defining the architecture of the national financial system in modern conditions needs clarification. This is due to the fact that as a result of global instability and uncertainty, rapid development of information technology (IT), a new financial ecosystem is formed. It is a system of interaction between financial service providers, regulators, consumers on the basis of competition and cooperation in order to meet the needs of the customer-consumer. However, both financial and non-financial institutions, such as FinTech companies or BigTech companies, can act as of financial service providers.

Thus, it should be noted that there are fundamental changes in the usual nature of the functioning of financial systems based on digital transformation and decentralization of major financial processes. Accordingly, the issue of research into the development of national financial systems under the influence of technological change and the rapid spread of the latest information and communication technologies is relevant and needs further research.

³ Boot, A., Thakor, A. (1997) Financial System Architecture. *Review of Financial Studies*, vol. 10, pp. 693–733.

⁴ Lomachynska I. A. (2011) Arkhitektura finansovoi systemy Ukrainy: teoretychni osnovy optymizatsii v suchasnykh umovakh [Architecture of the financial system of Ukraine: theoretical basis of optimization in modern conditions]. *Socio-Economic Research Bulletin*. 41(2). P. 244–249.

20.1. The evolution of financial technologies and the development of the financial system

Financial Technologies (FinTech) are one of the meaningful forms of financial innovations that describe the outcome of an innovative process on the creation of new products, services, technologies for making profit, reducing risk, improving the efficiency of financial operations. Although it should be noted that financial technologies are the basis for the development of other forms of financial innovations, such as financial products, financial services, organizational forms, etc.

A survey of 200 specialized works has made it clear that FinTech is an industry that uses information technologies to improve its financial performance⁵. These include new applications, processes, products, business models in the financial services industry, consisting of one or more additional financial services and are provided as a comprehensive process over the Internet. The main distinctive features of FinTech compared to technological or scientific innovations are legal unpatentability, short lead time, decomposability and adaptability, multiple stakeholder involvement but with limited customer involvement⁶. As a rule, FinTech is introducing new ways of doing financial activities or changing existing ones. This, in turn, contributes to convenience, speed, cost reduction, and creates networks that can easily connect people with common interests, in particular those who have something and those who are looking for, or those who are looking for partners for total consumption (for example, the sharing economy). In addition, the emergence and spread of FinTech lead to a reduction in operational risks, their diversification, increased liquidity, an increase in sources and instruments of financing, etc. In terms of economic theory, FinTech is the result of market players trying to overcome such constraints as transaction costs, information asymmetry and other forms of market misunderstandings in addition to shareholder profit motives⁷. In our opinion, beyond the technological capabilities, the expansion of FinTech is driven by customer expectations, especially given that millennials are growing their share. Nevertheless, the leading role in the spread of FinTech is played by the development of IT, which forever changed the principle of interaction between financial entities,

⁵ Schueffel, Patrick. (2017) Taming the Beast: A Scientific Definition of Fintech. *Journal of Innovation Management*, 4 (4), pp. 32–54.

⁶ Khraisha T., Arthur K. (2018) Can we have a general theory of financial innovation processes? A conceptual review. *Financial Innovation*, 4, doi: <https://doi.org/10.1186/s40854-018-0088-y>

⁷ Ibid.

contributing to the simplification of everyday life of ordinary consumers and the activities of large corporations. A feature of modern IT is that it partly dictates the future direction of improvement and development of innovations.

Despite the rapid spread of FinTech, there is mixed opinion in the specialized literature. FinTech supporters widely acknowledge its benefits, while others point to abuse or misuse of financial technologies, leading to instability and financial shocks (such as the 2008 global crisis)⁸. In addition, it should be acknowledged that financial technologies complicate transactions, and this may adversely affect financial transaction participants. However, it should be noted that today the distribution of FinTech is an irreversible process.

Although the term «financial technologies» appeared in the early 1990s, FinTech has a long history of development. There are three stages of evolution: FinTech 1.0 (1866–1967), FinTech 2.0 (1967–2008), FinTech 3.0 (2009 – present)^{9,10}.

Stage FinTech 1.0 began with the commercial use of the telegraph in 1838 and the laying of the first transatlantic telegraph cable in 1866 that connected Western Europe with North America, as well as the creation of a telecommunication payment processing system Fedwire (Federal Reserve Wire Network) in the USA (1918). This made it possible to instantly link the major financial markets of London and New York, which subsequently spread to other financial centers in Europe and Asia over the decades.

The period of 1867-1914 is marked as the first period of financial and economic globalization, marked by the formation of the basis of technological infrastructure. The development of telegraph, railroads, canals and steamships has facilitated the rapid completion of payments and transactions, and the exchange of financial information worldwide. On the other hand, the financial system needed to provide development of these technologies with the necessary resources. This contributed to the rapid development of financial technologies during this period. But the First World War and the collapse of the stock market in 1929, and

⁸ Boz E., Mendoza E. G. (2014) Financial innovation, the discovery of risk, and the US credit crisis. *Journal of Monetary Economics*, vol. 62(C), pp. 1–22, doi: 10.1016/j.jmoneco.2013.07.001

⁹ Douglas W. Arner, Janos Barberis & Ross P. Buckley. (2016) The Evolution of FinTech: A New Post Crisis Paradigm? *University of Hong Kong Faculty of Law Research Paper*, no. 2015/047.

¹⁰ Lomachynska I. A. (2018) Finansovi tekhnolohiyi ta yikh vplyv na rozvytok finansovoyi systemy [Financial technologies and their influence on the development of the financial system]. *Innovative Economics: Theoretical and Practical Aspects*. Iss. 3. Kherson: OLDI-PLUS, pp. 188–201.

then the Great Depression, halted further development over the next 25 years.

The next milestone in FinTech's development was associated with the onset of the Second World War, when a significant number of codes were developed for secure communications, primarily for military operations.

The major boom in innovation in the financial sphere took place until the second half of the 20th century, when large financial centers (New York, London) were in rapid evolution. It was the period of a significant diversification of existing and emergence of new operations, services, tools, and later rapid improvement of computer technologies. All this was a response to the current situation in the markets: unsteadiness and volatility of exchange and interest rates, constant reformation of tax rules and regulation of financial activity, unpredictable changes in inflation and other macroeconomic indicators. In 1967, the digitalization of analog systems in digital environments started, which was the beginning of the second stage of FinTech development (FinTech 2.0).

An important invention was the automated teller machine (ATM), which was based at Barclays Bank (the United Kingdom). Another important invention was Texas Instruments' portable calculator TI 2500 Data Math, released in 1972, which was the forerunner of the modern smartphone. In 1967, the digitalization of analog systems started. In 1968, the Inter-Computer Bureau (the basis of today's BACS (Bankers' Automated Clearing Services)) was created in the UK, and in 1970, the United States created the CHIPS (Clearing House Interbank Payments System). During this period, the early FinTech technologies, which are widespread today, are progressively developing.

One can also note the following trends from the early 1970s to the late 1980s¹¹: the creation of domestic and international payment systems, in particular, SWIFT (Society for Worldwide Interbank Financial Telecommunications), which provides a communication channel between financial institutions that facilitates high volume of cross-border payments between them; in 1971, NASDAQ, the world's first digital exchange, was created; by the 1980s, paper documents were replaced by electronic documents, internal risk management IT technologies were being developed and implemented; the 1980s marked the beginning of

¹¹ Douglas W. Arner, Janos Barberis & Ross P. Buckley. (2016) The Evolution of FinTech: A New Post Crisis Paradigm? *University of Hong Kong Faculty of Law Research Paper*, no. 2015/047.

the Internet banking in parallel with the advent of the Internet; in the early 1980s, Michael Bloomberg developed a computerized information analysis system for traders, and later launched an online stock trading service; In the 1990s, Internet giants such as Amazon, Google, and Alibaba began to emerge, introducing FinTech to optimize their work.

In the period of 1987-2008, traditional digital financial services are being developed, and financial markets are being liberalized and deregulated. More and more financial transactions are carried out over the Internet. By the beginning of the 21st century, internal processes of financial institutions, interaction with outsiders and retail customers have become fully digitalized. By 2005, the first direct banks without physical branches (ING Direct, HSBC Direct) appeared in the United Kingdom.

Particularly rapid development of FinTech occurred in the third era of FinTech 3.0 after the 2008 global crisis, as it is during the crisis that problems start to be solved with startups. The crisis caused massive job cuts in the financial sector, forcing people to seek new opportunities. At that time the FinTech startups, led by highly skilled unemployed people, began to emerge. A feature of FinTech 3.0 is that financial services are starting to be provided by non-financial institutions, including BigTech companies. At the same time, the level of trust in BigTech companies has been higher than that of traditional financial institutions and it is increasing¹².

Modern FinTech, which is driven by the fact that the Internet (including the mobile Internet, particularly, 4G) has become widespread, social networks are rapidly evolving, mobile devices and mobile applications are expanding, there is a need for new alternative payment systems, funding sources, areas of investment, characterized by the latest principles of operation through information technology. At the same time, New Tech creates many prospects for using FinTech. As a result, you can automatically collect, organize and process large amounts of information, easily connect people with common interests to the network, such as virtual mini-markets, closer and more convenient to link private demand and private supply, etc. Consequently, the transformation of economic and financial relations on the basis of digitalization and decentralization of financial processes, personification of financial services, which provides the development of new ways of

¹² MEDICI. (25 June 2015) Survey shows Americans trust technology firms more than banks and retailers. Retrieved from: <https://gomedici.com/survey-shows-americans-trust-technology-firms-more-than-banks-and-retailers/> (accessed 12 October 2019)

interaction of manufacturers of financial products with consumer demand in real time, are performed.

The center of financial relations and processes modernization as a result of FinTech's development is the consumer. FinTech is changing the way it produces, distributes, exchanges, consumes financial services, the business model in the financial sector, consumer expectations and behavior, which generally leads to a modification of the financial system's functions and essentially to business models in all areas related to financial transactions, changes to the financial regulation system, etc. The role of traditional financial institutions is diminishing, their strategies and business models are increasingly customer oriented, and the design of financial products is determined on the basis of aggregated personalized values, historical trends, including non-financial, cognitive calculations.

Initially, the term FinTech applies only to the back-end system of financial institutions, however, with the passage of a more consumer-oriented service, they have extended to any technological innovation and automation of the financial sector, including financial literacy, consulting, education; capital management; lending and borrowing; retail business; fundraising, money transfers / payments; investment management, etc. FinTech enhances the efficiency of existing processes, launches brand new ones, creates systems of customer loyalty and interest.

Today, you can see FinTech improves traditional financial services and shapes the new landscape of the financial ecosystem, which is not based on traditional banks, investment and insurance companies, stock exchanges as those that transform savings into investments, but on the only technology platform on the basis of Blockchain and DLT, Machine Learning and Artificial Intelligence (AI) algorithms, online and offline access to financial services, effective remote communication (smartphone, biometric identification, cloud storage, mobile applications, chatbots, online assistants, social networks). This technologic platform should become a viable manager of a new financial ecosystem that balances the supply of financial products with demand for them in real time. Current trends show that the priority segments of the ecosystem today are the small business ecosystem, the family ecosystem, the incubator ecosystem (servicing startups and young entrepreneurs), the ecosystem focused on well-being and more.

Therefore, it can be stated that new digital technologies are being developed every day, which are gradually changing the behavior of

customers and traditional business models. FinTech also helps financial institutions meet regulatory requirements by providing data verification and protection, reporting automation, etc. As a result, specialized regulatory technologies RegTech and supervisory technologies SupTech appeared. RegTech is a set of technologies that optimize the bank's compliance, that is, its system of control over compliance with regulatory requirements. SupTech is a set of technologies used by supervisors and market regulators (including central banks) to perform their functions and administrative tasks.

20.2. Major challenges of the digital transformation of the financial sector

According to the Fintech Adoption Index¹³ global FinTech adoption doubles every two years: in 2015, 16% of consumers in the world use two or more financial technologies, in 2017 – 33%, and in 2019 it is two-thirds (64%). In 2019, 99% of consumers know about at least one money transfer and payments FinTech service, 75% use a money transfers and payments FinTech service, 48% of consumers use an insurance FinTech service. The most popular FinTech services are online payments, auto and health insurance services, investing and capital raising applications, online loan platforms, financial planning tools. On average, consumers demonstrate a high level of global awareness of FinTech services: money transfer and payments – 96%, budgeting and financial planning – 71%, savings and investment – 78%, borrowing – 76%, insurance – 86%. The high level of FinTech adoption is demonstrated by SMEs – 25%. In this case, 56% of SMEs use a banking and payments FinTech service, 46% of SMEs use a financing FinTech service. China and India lead by Fintech services – 87% of the digitally active population, Russia and the Republic of South Africa – 82%, the Netherlands – 73%, Ireland and the United Kingdom – 72%, Hong Kong, Singapore, South Korea – 67%.

If in 2017, the main factor in consumer choice of FinTech services was its simplicity, then in 2019, the main one is attractive fees or prices. According to experts, this is a sign of the maturity of the FinTech market. In addition, consumers increasingly trust FinTech services. 33% of FinTech adopters, when considering a new financial product before

¹³ EY. (2019) Global FinTech Adoption Index 2019. As FinTech becomes the norm, you need to stand out from the crowd. Retrieved from: <https://eyfinancialservicesthoughtgallery.ie/wp-content/uploads/2019/09/ey-global-fintech-adoption-index.pdf> (accessed 10 December 2019)

turning to their main bank or insurer, consider proposals from other institutions. 46% of FinTech adopters are ready to share their banking information in exchange for better terms for receiving financial services or products.¹⁴

Therefore, the process of digital transformation of financial markets is proceeding fairly quickly, and is affected by global instability, technological, social, behavioral, demographic changes, the increase of interconnection between developed and emerging markets, the rise of state-directed capitalism, the increase of competition for natural resources, etc. In this case, digital transformation will be successful only when it is customer-oriented, that is, personal interests, priorities, consumer opportunities will be taken into account. Therefore, the growth of financial institutions depends on attracting new customers and the growth of the range of products. But their ROEs remain stubbornly low, customers expect lower prices for services and higher quality, and competitive advantages identify the factors that require significant investment: innovation, new product development, staff talent development, etc.

Among major threats to the growth of financial institutions the following were identified¹⁵: the speed of technological change (85%), consumer behavior change (69%), staff shortages (72%) (81% in the insurance industry), cyberattacks (73%), customer retention and confidence building in the conditions of fast spread of digital technologies (70%) (in particular, 76% in banking services and the capital market, 72% in insurance). 54% of top-level managers of the large US, European and Asian financial institutions believe that market leadership will remain with major banking institutions in 2020, and 55% believe that unconventional financial service providers are a threat to traditional banks.

Changing consumer behavior in the financial market in today's context is influenced by a variety of factors, including social, behavioral, demographic. Thus, behavioral changes, in particular, are manifested as more and more women control consumer spending, being the primary breadwinner of families, the top executives of big companies, including financial and investment. In addition, a growing share of wealth and

¹⁴ EY. (2019) Global FinTech Adoption Index 2019. As FinTech becomes the norm, you need to stand out from the crowd. Retrieved from: <https://eyfinancialservicesthoughtgallery.ie/wp-content/uploads/2019/09/ey-global-fintech-adoption-index.pdf> (accessed 10 December 2019)

¹⁵ PwC. (2018) Further and faster Accelerating workforce transformation – Key findings in the financial services sector. 21st CEO Survey. Retrieved from: <https://www.pwc.com/gx/en/ceo-survey/2018/deep-dives/ceo-survey-financial-services-talent-report-web.pdf>

capital goes to millennials. Both the groups are not interested in impetuous investments, and the vast majority of them regard investing as a way of expressing their social, political and environmental values. Women investors are twice as inclined to socially oriented investments and Impact investment than men [¹⁶]. An increasing proportion of consumers and the workforce are the generation Z, for which impressions are important and they are well aware of the real brand; their daily lives are the Internet, instant wireless multi-channel communication, e-commerce with next-day delivery, voice assistants, social networks, etc. They worry about their future, including their careers; money is one of their biggest stresses; however, they love human relationships and family and friends are important to them. At the same time, they prefer simple technologies that work efficiently and quickly.¹⁷

Demographic changes also have a significant impact on consumer expectations, in particular: urbanization is increasing; the average life expectancy is increasing, which is requiring longer retirement benefits; the population in developed countries is aging, which is shifting consumer priorities from consumption and lending to savings and investment; the share of the younger generation in developing countries is increasing, and thus the demand for consumer lending in these countries is increasing. This, in turn, requires dramatic changes at any point of contact throughout the journey of cooperation between the financial institution and the client.

The latest technologies are increasingly moving financial transactions and services to the network, the volume of cash is shrinking significantly, and therefore the need for traditional branches is diminishing. 77% of people at the age of 18-21, who spend money today, make P2P payments¹⁸. In these conditions, the cost of maintaining branches is increasing, and therefore the only argument for their continued existence is to become more productive or reduce costs significantly. It is clear that the number of branches will decrease, but it is not advisable to abandon them at all. They must be transformed and become advisory centers, in particular «interaction centers» or «smart

¹⁶ VanderBrug Jackie. (2017) Women, millennials, and investing for impact. How Gender and Generation Could Help Reshape the World. Investments & Wealth Institute, formerly IMCA.

¹⁷ Cocheo S. (2018) 15 Things Banks & Credit Unions Must Know Before Targeting Gen Z. *The Financial Brand*. June 10, 2019 Retrieved from: <https://thefinancialbrand.com/84367/bank-credit-union-marketing-gen-z-generation/>

¹⁸ Ibid.

kiosks». An attractive development strategy is the partnerships between traditional institutions and FinTech companies, providers, which will allow to build a wider ecosystem and thus increase their own competitiveness.

An important aspect of the further development of financial institutions is the staff management. Despite digitalization, according to the survey¹⁹, only 19% of financial institutions have planned to cut staff in the nearest time (12 months), on the contrary, 51% have planned to increase, and 30% have thought of leaving it unchanged. It is revealed that the main trend is the change of job responsibilities (85% of the top-level managers surveyed). 91% notice on the necessity to strengthen soft skills, to develop creativity, emotional intelligence; 75% of managers are concerned about the lack of digital skills in the industry, 76% in their organizations. As a result, 63% of institutions have implemented digital training courses in employee training programs; 49% analyze the benefits of employees collaborating with automated systems; 41% predict the impact of automated intelligence on what skills will be relevant in the future.

Thus, on the one hand, the diffusion of the advanced technologies is reducing the demand for human resources, and, on the other hand, there is a shortage of professionals that are able to meet current needs. Staff shortage is recognized as one of the main factors in the possible slowdown in the financial sector growth and a decline in customer confidence in the near future. In these circumstances, the staff should develop to become curators, instructors, consultants, employees who help each client to receive an individualized set of products and services.

The transformation of the financial sector requires not only new skills and competencies from the staff, but also a new staff management policy focused on talent search and development. This requires one-on-one training for staff throughout their lives, participation in conferences and co-working communities, communication with industry leaders, «digital tourism», etc. An important aspect is the formation of a fundamentally new, both internal and external, culture of financial institutions, as well as a rethinking of the leadership paradigm. The base of this is implementing a new financial institution thinking strategy from strategy to operations: the adoption of a «customer mindset». 90% of

¹⁹ PwC. (2018) Further and faster Accelerating workforce transformation – Key findings in the financial services sector. 21st CEO Survey. Retrieved from: <https://www.pwc.com/gx/en/ceo-survey/2018/deep-dives/ceo-survey-financial-services-talent-report-web.pdf> (accessed 10 December 2019)

consumers think that personalization is very attractive, 80% of consumers are more likely to do business with a company that offers personalized experience. However, 94% of surveyed banking institutions cannot fulfill their promises of personalization²⁰.

Therefore, financial institutions, growth-oriented in the context of digitalization, should take into account:

- not to sell products or services, but to serve customers (needs, feelings, emotions, customer behavior), providing them with real value, changing the lives of consumers for the better;
- a customer who consumes a digital product is attracted to emotions, not information;
- customer benefits are created not by features but by solutions that best meet their needs; therefore, customers are not willing to pay for features and prefer simple but efficient services;
- the architecture of a consumer-oriented financial product should be holistic, not fragmented; a product is an experience that can last for years;
- not to protect your product, customer, organization from competitors, etc., but to disrupt it, to accept changes, to take risks, to disrupt yourself (The Innovator's Dilemma);
- the competitive advantages will be given to those institutions that will not expect and accept innovative changes from the outside, but will initiate and effect digital transformation within the organization on the basis of the «Thinking Newbie» strategy;
- personalization is not segmentation, differentiation or cross-selling; it is the result of effective use of analytics;
- consumers' preference for anonymity should be respected, and in these circumstances, financial institutions should be prepared to resist the personalization, mistaken, and insincere positions of clients when interviewing;
- a brand not for a buyer but a buyer as part of a brand;
- a partnership allows to create a wider ecosystem, thus creating additional competitive advantage for financial institutions or financial products.

Despite the rapid pace of spreading of the latest technologies in the financial sector, the level of satisfaction with financial services remains

²⁰ Marous J. (2020) 2020 Retail Banking Trends and Priorities. Retail Banking Trends and Priorities, number 246, 119 p. Retrieved from: <https://www.digitalbankingreport.com/trends/2020-retail-banking-trends-and-priorities/>

low. In 2018, it is estimated that only one in five customers has experienced a significant improvement in the level of banking service through innovation. And among the reasons for this there is the fact that only 28% of digital transformation initiatives start with consumer needs. 68% of the initiative focus on business processes and 4% focus on employees²¹. On the one hand, financial institutions are focused on providing services 24/7/365, and, on the other hand, digital consumers still want to interact with people.

Therefore, it is not enough to provide online and mobile functionality to create a successful digital financial institution. A digital organization is a customer-oriented all-encompassing process that involves employee actions and behaviors, both internal and external, and enables decision-making on behalf of the customer. At the same time, a high level of client's trust in the organization regarding the present and future cooperation should be ensured. Therefore, the significant components of digital transformation of financial institutions at the present stage are: attraction of innovations and technologies necessary for their development; timely modernization of the organizational structure; implementation of new customer-oriented business models of development; optimization of distribution of financial services and products; formation an effective digital top-down organization culture, policies on recruitment, motivation and development of talents; proactively managing risk, regulations and capital.

20.3. FinTech: Transforming the structure of financial markets and the role of regulators

As a result of the spread of FinTech, we can distinguish the following phenomena that significantly affect the conditions in which financial market entities operate and thus transform the structure of the financial market:

Firstly, financial services providers are emerging in the new financial ecosystem, which, through innovation, reduces the costs and time of operations, makes them simple, convenient, and most comfortable for consumers. This has an impact on the market and behavior of traditional financial institutions, since higher efficiency of

²¹ Marous J. (2018) Digital Banking Transformation Strategies Neglect The Customer Experience. *The Financial Brand*. July 17. Retrieved from: <https://thefinancialbrand.com/85798/digital-banking-transformation-customer-experience-trends/?internal-link>

providers either provides additional competitive advantages for traditional financial institutions or creates additional risks.

Secondly, financial institutions are increasingly turning to third parties: information service providers, ISPs, cloud services, etc. As a result, in the financial sector, the share of third-party service providers is increasing, which is increasing systemic and cyber security risks if they are not able to manage them. In doing so, the risks change structurally, which requires new approaches and methods to manage them.

Thirdly, BigTech companies (Amazon, Facebook, Google, Apple, Microsoft, Alibaba, Tencent) appear alongside FinTech companies. These are high-technology companies with unconventional structures, established networks, accumulated big data, which begin to provide innovative services and products in the financial space and compete with traditional financial institutions. Moreover, they form new standards of quality, convenience, speed for the consumer. 68% of consumers are willing to consider a financial services product offered by a non-financial services company²².

As a result, the spread of FinTech reduces barriers to entry and exit; enhances the differentiation of financial products through, first of all, the design of financial products; causes the emergence of new market participants who differ in the principles of functioning and regulation by the state; changes the forms of interaction between market participants; promotes decentralization of the financial services system; increases economies of scale; reduces the cost of information asymmetry-related operations as well transactional costs; increases transparency of financial transactions. Overall, it will promote the diversity and competitiveness of the financial markets.

However, it should be noted that the role of traditional financial institutions will be diminished and modified: there will remain those who are able to understand the motivation and needs of consumers of financial services and products, and their brand will be a reflection of trust, honesty, security, quality; they will be able to collaborate productively with FinTech companies rather than compete with them. BigTech companies, on the one hand, will further increase competition, financial inclusion, pressure on traditional institutions to innovate and improve the overall efficiency of financial activities, and, on the other

²² EY. (2019) Global FinTech Adoption Index 2019. As FinTech becomes the norm, you need to stand out from the crowd. Retrieved from: <https://eyfinancialservicesthoughtgallery.ie/wp-content/uploads/2019/09/ey-global-fintech-adoption-index.pdf> (accessed 10 October 2019)

hand, their activities will lead to the emergence of new forms of concentration and market power, will produce new systemic risks, the scale and consequences of which are much broader than those of traditional financial institutions.

Such trends require a revision of the regulatory policy paradigm, both in financial markets and in the related ones, in the context of ensuring the right balance between protecting consumers, promoting competitive markets, facilitating innovation, protecting the stability and reliability of the financial system. In this case, the issue of cooperation between market actors and regulators should be resolved not only by national coordination, but also by international, which is fundamental in the digitalization conditions of modern society. Priority areas for international cooperation should include: raising awareness on FinTech, regular risk assessment and developing the micro- and macroprudential regulatory framework. Operational risk management from third-party service providers, mitigating cyber risks, monitoring macro-financial risks deserve particular attention in this context.

In general, regulation of FinTech is still in its infancy, and regulatory frameworks differ significantly across countries. Consequently, the main task of FinTech regulation must be, on the one hand, to strike the right balance between fostering innovation and competition, and, on the other hand, to maintain integrity of the financial markets and ensure consumer protection. Government regulation and supervision should be flexible, fostering innovative projects and avoiding any obstacles to change that will eventually affect the supply of technology-intensive services in the future.

Modernization of the role of regulators should be upgraded on the basis of the following conditions²³:

- from a rigid control system to a «market arbiter»;
- ensuring a balance between innovation and risk, fairness and technological neutrality;
- providing new ways of interaction between the entities of the new financial ecosystem (capital traders, capital providers, capital users, FinTech companies, risk managers, intermediaries, representatives of fundamental transactions, regulators, etc.;

²³ Lomachynska I. A., Mumladze A. A. Vplyv tekhnolohichnykh zmin na transformatsiyu finansovykh system [The impact of technological change on the transformation of financial systems]. *Proceedings of the Law, Economics and Management: Genesis, Current Status and Prospects for Development* (Ukraine, Odessa, September 14–15, 2018). Odessa: Phoenix, pp. 252–255.

– ensuring a balance between promoting innovation and competition, on the one hand, and preserving the integrity of the financial markets and protecting the rights of consumers of financial services, on the other hand;

– ensuring the protection of information and intellectual property rights, informing of possible risks, coordinating financial education, etc.

Meeting these conditions requires a conceptual change in regulatory activity from institutions, companies to financial services, products, both nationally and internationally.

Consequently, innovation in the financial sector is an exceptional tool for progress. The introduction of digital technologies and the increased use of Big Data will help reduce costs and improve the quality of financial services. All this creates potential benefits for financial services producers, consumers and the economy as a whole.

CONCLUSIONS

Financial innovation is a new process, product, paradigm introduced by a financial or non-financial institution. And it is important to understand that there are «good» or «bad» FinTech. Unlike technological or scientific innovations, FinTech cannot be tested for diffusion, and effects can only be seen in the future. And, therefore, unsuccessful experiments by financial institutions with FinTech can end in loss of trust and reputation.

The transformation of financial systems under the influence of FinTech is inevitable. Consumers are gradually becoming the center of financial relations modernization. On the one hand, thanks to the new service sets, the customers are able to meet their needs fully through personalization of financial services, which involves customer-oriented strategies and business models, the design of financial products based on aggregated personalized values. On the other hand, the prospects for the continued existence of banking and other financial institutions will depend on their ability to understand the motivation and needs of consumers of financial services and products, their brand as a reflection of trust, honesty, security, quality. As a result, the main trends will be expansion of financial services, increase of availability of financial products and services for clients, reduction of expenses and increase of speed of provision of financial services on the basis of security, analytics, integration. The big amount of data will create new opportunities for statistical analysis and increase the transparency of financial services delivery and consumption.

Accelerating the pace of technological change is both the most creative force and the most destructive. Thus, the formation of new financial relationships is accompanied by an increase in new risks, in particular, information security, uncertainty, including financial stability, lack of control over the informal flow of financial resources, lack of awareness and literacy, etc. One of the biggest problems is the need for ensuring cybersecurity.

The global nature of digitalization is also affecting regulators. The priorities of their operation in the new environment are protection of consumer rights, development of competition, protection of stability and reliability of the financial system. Regulation and supervision should be flexible, encouraging innovative projects and avoiding any obstacles to change. The new ecosystem promotes New Tech's entry into regulatory activity as well, as a result of which RegTech and SupTech's specialized technologies are being actively developed.

SUMMARY

Under the influence of globalization, technological changes, and innovations, the financial system acquires new characteristics, properties, elements, as new financial instruments and innovations emerge in the financial environment, and shifts in demand for them occur. Competition between financial instruments and financial innovations leads to the expansion of functionalities of the financial system, increases the efficiency of its functioning and modifies the role of the financial system in the economy. As a result of the rapid diffusion of financial technologies, a new financial ecosystem is formed as a system of interaction between financial service providers, regulators, consumers based on competition and cooperation in order to meet the needs of the customer-consumer. Both financial and non-financial institutions, such as FinTech companies or BigTech companies, can serve as financial services providers.

FinTechs are changing the structure of financial systems. At the same time, the center of financial relations modernization is gradually becoming a consumer, whose behavior in the financial market today is being transformed under the influence of various factors, such as technological, social, behavioral, demographic, etc. Therefore, it is not enough to provide online and mobile functionality to create a successful digital financial institution. A digital organization is a customer-oriented all-encompassing process that involves employee actions and behaviors, both internal and external, and enables decision-making on behalf of the

customer. At the same time, a high level of client's trust in the organization regarding the present and future cooperation should be ensured. Therefore, the significant components of digital transformation of financial institutions at the present stage are: attraction of innovations and technologies necessary for their development; timely modernization of the organizational structure; implementation of new customer-oriented business models of development; optimization of distribution of financial services and products; formation an effective digital top-down organization culture, policies on recruitment, motivation and development of talents; proactively managing risk, regulations and capital. Such trends require a revision of the regulatory policy paradigm, both in financial markets and in the related ones, in the context of ensuring the right balance between protecting consumers, promoting competitive markets, facilitating innovation, protecting the stability and reliability of the financial system. An important aspect is ensuring cybersecurity.

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