ORGANIZATIONAL AND ECONOMIC PRINCIPLES OF INVESTMENT AND INNOVATIVE PROJECTS SELECTION FOR SUSTAINABLE DEVELOPMENT OF THE REGION

The model of the previous projects portfolio building, based on the developed organizational and economic principles of portfolio building of innovative and investment projects which can be implemented for the sustainable development of the region, is improved. The scheme of the organizational and economic mechanism of innovative and investment projects for sustainable development selection, which includes the factors of a regional development, factors of an enterprise development and the time factor is created. It is initiated to consider the selection process of innovative and investment projects for the sustainable development of the region, based on sustainability criteria of the project outcomes according to financial and economic, institutional and social and, environmental measurements.

Keywords: sustainable development, innovative and investment projects, effects, region.

Problem statement in the general form. Social and economic problems, that Ukraine has faced, indicate an acute necessity to improve the regional development system. The necessity of enterprises refocusing on new markets, the transformation of theirs industrial and technological structure, the building of the conceptually new types of business in sustainable development strategies require from the administrative sector of the region to make informed decisions. At the same time, awareness of the importance of solving the existing environmental problems and prevention of the new ones, searching and implementation of environmental-oriented projects and resource-saving technologies, which would lead to a new level of region development, says about the need to consider the environmental aspects in economic policy. In conditions of unsolved social and political problems and looking for the ways to overcome the economic crisis, the role of investment and innovative projects is increasing. The needs of ecologically safe management in the region determine the relevance of this research in the context of a building the common portfolio of innovative and investment projects, that would allow both to accumulate and regulate the execution of eco-oriented strategies for sustainable development. Typically, a portfolio of innovative and investment projects is formed at a country or regional level. The most economically important projects primarily relating to the modernization of production, infrastructure creation, enterprise restructuring and others are chosen. At the regional level the separate projects in energetics, chemical industry, oil and gas sector, agriculture, transport, machinery, etc. are considered more frequently.

In 2011 the State Agency for Investments and National Projects was created in Ukraine [4]. However its activity has not been yet of the extensive manner, because in contemporary Ukraine only few national projects are being implemented, the level of detail...
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and processing of which are far from being perfect [3].

Overview of the main scientific publications on this subject has revealed the certain deficiencies in exploring of problematic issues of innovative and investment projects portfolio building for the region sustainable development. Specifically, the main aspects of the innovative and investment projects portfolios management at national and regional levels are in the purely economic sphere and are not related to the implementation of sustainable development strategies of Ukraine regions. The selection process of innovative and investment projects for the sustainable development of the region needs to be improved on the systematic approach basis, taking into account the social and environmental assessment approval. It has determined this study rationale.

Analysis of recent research and publications. Today there is a large number of published scientific works, which highlight the issues of the innovative and investment projects portfolio building and the portfolio structure optimization, as well as models of theirs management. The issues of building and management of the portfolio of projects were examined in the articles of R. Archibald [1], D. Kendall [8], S. Rollins [8], K. Koshkin [12], V. Rach [14] and many others.

Unsolved issues that are a part of the problem. The issues of making the organizational and economic principles of investment and innovative projects selection, holding to terms of sustainable development, are still the unsolved aspect of the general problem. A number of problems concerning the organization of the selection process of projects to develop the region towards the sustainable growth and sustainable development priorities is not discovered. Therefore, an assessment and selection of innovative and investment projects in terms of prioritization of implementing the strategy of sustainable development of the region require the scientific justification.

The aim of the article is to improve scientific and methodological approaches to the selection of investment and innovative projects at the regional level for its sustainable development.

The basic material. The results of literature analysis [1-18] indicate that the level of innovative and investment activity in Ukraine does not correspond to social needs [17]. There are both theoretical and practical aspects of this issue. Thus, the Law of Ukraine “About Innovation Activity” gives the definition of an innovative project: “A project is recognized as innovative, if it involves development, production and implementation of an innovative product and (or) innovative goods, which corresponds to Articles 14 and 15 of this Law demand” [5]. Turning to the Resolution of the Cabinet of Ministers of Ukraine “About Approval of the Procedure of Formation and Using of State Innovation Foundation” [15], it can be found such interpretation as: “An innovation project is a set of interrelated measures of investment character, aimed at commercial application of scientific and technological developments, development of new goods, services and introduction of new technologies. A project is executed in accordance with the requirements of the State Innovation Foundation as a formalized description, including the feasibility study and business plan”.

A.Yakovlev and S.Vasilkova note that “... the rationale of the analyzed issue, illustrates the fact that the laws of Ukraine “About Innovation Activity” (№ 40-JV from 04.07.2002), “About Priority Directions of Innovation Activity in Ukraine” (No. 3715-VI from 08.09.2011) are constantly updated and elaborated, have both numerous related documents and history; they gave rise to a considerable number of sectorial and regional programs, such as: “The Program of Investment Activity in Ukraine in 2010-2020”; the EU project “Support of High-tech and Innovative Enterprises and Technology Transfer into Business”, “Improving of
Analysis of terminological database indicates that there is a whole range of unsolved issues concerning the formation of an innovative and investment projects portfolio for the sustainable development of the region.

A. Yakovlev and S. Vasilkova give the following definition of an innovative and investment projects portfolio in their monograph: “a portfolio of real innovative and investment projects is a combination of innovative and investment projects, selected (created) and implemented by the person (legal, natural), which has a centralized management and committed to a long-term business development or other socio-economic effects through the implementation of innovations [17, p. 27-28].

Admitting all the above, we offer our own definition: a portfolio of innovative-investment projects for the sustainable development of the region is a combination of innovative and investment projects, selected within the centralized management of the sustainable development strategy of the region, basing on the implementation of environmentally friendly innovations legal and/or natural person that seeks business development in the region.

The feature of the portfolio of innovative and investment projects at the national or regional levels according to A. Vanyushkyn [3], is that in most cases, each portfolio project is implemented by the individual investor. It makes the creators of the projects consider a priority of the expected results through the exclusively economic effect prism.

Exceptions are the cases of implementation of the portfolio of investment projects by big institutional investors (IBRD, EBRD) [3, p. 31].

Considering the current trend of the development of “green” economics, the priority of purely economic effects from the implementation of innovation projects is being reduced.

The concept of the “green” economics involves the achieving of the sustainable development while taking into account not only economic interests by economic agents, but also social and, above all, environmental interests [13, p. 186-187].

It is possible to implement upon condition of a long-term modernization of production, transformation of the technological ways that in general will increase overall production efficiency, reducing of losses in production, increasing quality of life, etc.

Note that a lot of actively developing projects for sustainable development in the world, as well as proposals for the “greening” of the economy is actively developed.

In particular, UNEP in 2008 unveiled a “Global Green New Policy”, and in 2011, the report “Towards the “green” economics” [13].

As E. Prushkovs’ka confirms the problems of “green” economy in the countries of the post-Soviet area, are included into the development strategies. She writes that in Russia the “Strategy 2020” is adopted, in which an important role is given to the “green” economics; in Belarus a national report “Sustainable Development of the Republic of Belarus on the Principles of “Green “Economics” (2012) is published, in which the priorities are provided for the development of ecosystems.

In Ukraine the problems of the development and analysis of the current environment health is also included into the State and social programs and documents, such as: the “Strategy of Ukraine’s Development in the Period till 2020”, “The Prospects of “Green” Economics Development”, “Green” Economics and Trade -Unions” [13, p. 186].

According to the State Agency for Investment and National Projects [4], several national projects and a number of strategic regional projects are initiated in Ukraine.

The main ones are:

- “The LNG Terminal” is a construction of the terminal on the Black Sea coast of
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Ukraine concerning receiving 10 billion m³ of liquefied natural gas;
– “Nature Energy” is the creation of the "clean" energy source of wind and sun in the planned volume of 2000 Mg VT of the installed capacity, which is similar to the energy that is obtained from 2 billion cubic of imported gas. The implementation is planned mainly in Zaporizhzhya;
– “A New Life Quality” – within this project five sub-projects will be implemented: “A Clean City” (construction of complexes with the recycling of solid waste); “Quality Water” (the program of providing the population with quality drinking water); “Open World” (creation of informational and communicational education network at the national level on the basis of the fourth communication technologies generation (4G); “City of the Future” (the formation of the strategic plan and city development projects); “New Life” (a new quality of maternity and childhood welfare);
– “Olympic Hope 2022” is a project, aimed at the implementation of the President’s of Ukraine initiative concerning Winter Olympics 2022 in the Carpathians;
– The “Air Express” – a project of creation a high-speed rail service between Kyiv and Boryspil airport.

In the regional context, for example, in 2014 in Sumy region the measures for the realization of innovation and investment projects were initiated, such as [7]:
– construction of a pedestrian Esplanade and shopping centers;
– creation of the Center for transportation and logistics;
– construction of sulfuric acid production department with a capacity of 75 000 ton per year;
– construction of recycling of industrial waste production department;
– reconstruction of mineral fertilizers production departments;
– extraction and processing of chalk;
– production of flax-fibre;
– construction of a plant for the production of cement;
– creation of production from wood powder;
– organization of plastics production;
– construction of the technological line for collecting landfill gas at solid waste.

These projects were included into the investment passport of Sumy region, but information about the compliance with the mentioned projects of the sustainable development strategy of the region and environmental safety during their implementation is not available to the broad public.

According to the results of the analysis of the scientific literature it was found that an important condition for the realization of innovative and investment projects in the region is the adherence to compromise the interests and goals of the participants’ process of sustainable development in the region. From this point of view, the analysis of the conflicting goals of the participants of the innovation and investment process is interesting. Basing on the A. Alabugina research. [2], who has proposed the model of the opposing goals and interests of regional investment process unbalance, we will present a sketchy of relationship between the initiators of the project opposite goals and society’s expectations (Fig. 1).

It is necessary to identify major problems and directions of project selection stages development, because during the evaluation of the projects and their analysis, it is necessary to establish the quantitative criteria, unified for all projects that are the objects of expert comparative assessment.
V. Kuchynskyi [10, p. 114] states that “... the effectiveness of the innovative process is determined only after the implementation of innovation when it turns out the extent to which it satisfies the market demands.

On the development of an innovative-investment process for the sustainable development of the region and its effectiveness affect:

- factors of the region development (the impact of the external environment, the market conditions, the socio-economic potential, the practice of government regulation, education, organizational forms of interaction between science and manufacturing, etc.);
- factors of the enterprise (internal environment of individual organizational and economic systems: financial and logistical resources, innovative capacity, the ability to upgrade technology, environmental responsibility, stuff creativity, etc.);
- features of the specific direction of the region economy development according to the chosen strategy (production, tourism, recreation, etc.).

The evaluation of the effectiveness of innovative-investment activities features should be also defined which include:

- the economic efficiency evaluation of innovation for the company, the level of potential opportunities of innovative project to ensure competitiveness and financial stability;
- evaluation of the management effectiveness for the sustainable development of the region taking into account the continuity of innovative-investment processes and achieving the ultimate goal of innovation for sustainable development (product, technologies);
- taking into account the factor of time in terms of obtaining long-term socio-environmental effects of innovation that affects the ability to obtain the expected economic results for a specified period of time.

We invite to consider the organizational-economic mechanism of the innovative and investment projects for sustainable development selection (Fig. 2).
In modern conditions of managing, requirements to the expected results from the introduction of innovative and investment projects are increasing, the financing of which is possible only after their economic assessment. The evaluation of projects for sustainable development implies, in our view, not only the economic dimension, but also the environmental and social dimensions to support decisions on innovative projects that can be implemented. It should be noted that for enterprises and organizations it is possible to direct their activities to achieve not only the local targets, but successfully function for regional interests. Thus, we propose the following criteria for the selection of projects for the region sustainable development as the sustainability of the expected results of the project dimensions – financial and economic (FS), institutional social (ICS), environmental (ES).

The economic and financial sustainability include: short-and long-term perspective effects from the project implementation, identifying indicators and study of project influence on the socio-economic self-sufficiency of local community development, determining the level of financial projects independence from grant funding, the long-term development and operation of the appropriate organizational structures, which are established to implement the project, based on their self-sufficiency, alternatives to the local budget revenue or funds of the region development and others.

Institutional and social sustainability involves matching the project to the State strategy of the regional development, region development strategy, as well as a plan of action with its...
implementation, the development of communal infrastructure and specialized institutions network, businesses, public organizations, consulting organizations, implementation of intellectual and other non-financial results, which are obtained according to the results of the project, etc.

Environmental sustainability provides the indicators for which the expected implementation of the project will improve the situation for the target groups of the society, the degree of impartiality of the project to the sustainable development strategy of the region, the analysis and prediction of environmental risks, environmental hazards, indicators of potential environmental loss and expenses that can carry the cost of responsible products due to contamination of the environment and use of natural resources, as well as costs of disposal and utilization of waste production, the additional cost of local budget that are caused by the incomplete use of raw materials, additional health insurance.

Ballroom method of the project on the basis of their relative importance evaluation is commonly used for formalization of the evaluation of the innovative and investment projects results for the criteria list [10]. But the use of this technique has several disadvantages, including a high degree of uncertainty in relative importance.

On the basis of scientific results of M. Podayenko, V. Koshkin and I.Chernova [12], it is advisable to build a model of the preliminary portfolio of projects formation, based on the proposed criteria.

Preliminary formation of a projects portfolio is carried out by the organization processes of comparative evaluation of indices \( j \) is \( J \) of each possible projects, \( i = 1, \ldots, n \) the developed criteria: financial and economic sustainability \{FS\}, institutionally-social sustainability \{IP\} environmental sustainability \{ES\} at time \( t = 0 \) the previous formation of a portfolio of projects. This strategic goal can be implicitly labeled at \{IC\}. Comparative analysis of the indicators in each of the projects on \{FS\}, \{IC\}, \{ES\} determines the possibility of its rating.

In case of discrepancy project \( p_{i,j} \) the adopted a range of measures, or the qualimetric quantitative values \{ES\} – a project is rejected, and in cases of discrepancy the \{FS\}, \{IC\} – a project can be improved and is included into the reserve portfolio of projects. At the first stage a matrix \( (\Omega_{i,j}) \) is formed, where \( i \) is the project number in a string of projects, \( j \) is the index of the project in the column of indices [9, 12, p. 39]:

\[
(\Omega_{i,j}) = \begin{bmatrix}
    p_1 & \ldots & p_i \\
    f_{1,1} & \ldots & f_{i,1} \\
    \vdots \\
    f_{1,n} & \ldots & f_{i,n}
\end{bmatrix}
\]  

(1)

For each indicator of the project the most effective values are found and a matrix is formed that includes the found values for \( p_{i+1,0} \) of the reference project:

\[
(\Omega_{i,j})_{max} = \begin{bmatrix}
    p_1 & \ldots & p_{i+1} \\
    f_{1,1} & \ldots & f_{i+1,1} \\
    \vdots \\
    f_{1,n} & \ldots & f_{i+1,n}
\end{bmatrix}
\]  

(2)
At the next stage each of the matrix \((\Omega_{i,j})\) indices passes the procedure of compliance reference value:

\[
(\Omega_{i,j})_{\text{max}} : x_{i,j} = \frac{j_{i,x}}{j_{i+1,n}}. 
\]  

(3)

For each project, which claims to be included in the previously established portfolio of projects, the significance rating can be defined as exposure [12]:

\[
W_j = \sqrt{(1-x_{i,j})^2 + (1-x_{2,j})^2 + ... + (1-x_{n,j})^2}. 
\]

(4)

Then the portfolio of projects is formed in ascending of each project value rating. Counting the time factor it is manifested in the fact that while changing conditions in time period \(t > 0\) a previously formed set of projects or it’s part can be attributed to the reserve portfolio of projects and, if necessary, after improvement to undergo a procedure of the selection according to the proposed criteria (Fig. 3). Thus, organizational and economic approaches to the formation of a portfolio of innovative-investment projects are improved, providing support for decision-making about expediency of the further projects implementation, based on their comprehensive selection.

**Figure 3** – The process of selection of innovative and investment projects for the sustainable development of the region (improved by the author on the basis [12])

**Conclusions and directions for further researches.** Approaches to develop criteria for evaluation and selection of innovation and investment projects portfolio in the region, allowing to take into account the value of each project in terms of sustainable development, provide support for decision-making on the feasibility of their further implementation based on the previous selection.

It is shown that the project portfolio is formed in order of increasing value of project rating. Time factor is taking into account in the fact that conditions are changing in time.
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period $t > 0$. Pre-formed set of projects or part of it can be attributed to the reserve portfolio and if necessary, after improving, to pass when the time selection procedure is proposed by criteria. Thus, it is improved the organizational and economic approaches to the formation of a portfolio of innovative and investment projects, which provides support for decision making on the advisability of further implementation of projects are based on their complex selection.

The prospect of further research is the development of practical recommendations for implementation of the proposed organizational and economic approaches into management practice.


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Retrieved 17 April 2015