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Foresight project planning: methods, technology, international experience

Abstract. The study is aimed at methods and foresight project technologies systematizing on the basis of international and Russian experience. The necessity of applying adaptable forecasting techniques when working out foresight projects of controlled objects' sustainable development has been substantiated. It has been concluded that objective and reliable forecasting of the development of economic, technological, ecological, social, political, cultural and other spheres of public activities is an extremely important resource of public administration enhancement and achievement of the goals of economic entities and the society as whole.

Keywords: Forecasting; Foresight; Methods; Adaptability

JEL Classification: C53; C54; E17; O10

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Форсайт-проектующий майбутнього: методи, технології, міжнародний досвід використання

Анотація. Дослідження спрямовано на систематизацію методів і технологій форсайт-проектуювання із урахуванням міжнародного й вітчизняного досвіду. Обґрунтовується необхідність використання адаптивних методів прогнозування в процесі розробки форсайт-проектів стійкого розвитку.

Ключові слова: прогнозування; Форсайт; методи; адаптивність.

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Форсайт-проектирование будущего: методы, технологии, международный опыт использования

Аннотация. Исследование направлено на систематизацию методов и технологий форсайт-проектирования с учетом международного и отечественного опыта. Обосновывается необходимость использования адаптивных методов прогнозирования в процессе разработки Форсайт-проектов устойчивого развития.

Ключевые слова: прогнозирование; Форсайт; методы; адаптивность.

1. Introduction. Mankind has always been interested in the future. It is obvious that confidence in the future is a prerequisite for effective activities at present. At certain stages of evolution, foresight had various forms under the influence of historical features of social structure, socio-economic and technological development, social and moral principles of the society.

Development of prognostics, applied forecasting, futurology, strategic planning, strategy development and other areas and forms of scientific foresight laid the foundations of modern practices concerning future.

2. Problem statement. The most efficient futures technology and practice in modern conditions is Foresight. Foresight is a unique technology, which actually lowers the uncertainty of a prediction period and, being based on collective efforts of participants of the processes, allows creating a target image of the future. The characteristic feature of designing lies in the integration of stakeholders to implement the set goals and related tasks, increase the likelihood of desired events. Strengthening positive trends, at the same time, stakeholders prevent negative impacts of possible adverse ones.

The framework of interaction, the development of the strategy and tactics of the formation of the future are based on a developing set of interrelated Foresight methods and the forecast of results of the global experience use. At the same time Foresight project logic adapted to modern conditions of Russian economy has not been ultimately formed. Determining priority goals in the crisis, the substantiation of the choice of forecasting and planning methods, development of the schemes of stakeholders' interaction when im-

plementing projects and many other problems remain unresolved.

Achievement of the goals and solution of the tasks of Foresight project planning is provided by a logical relationship between desired state and the ways of its future achievement.

3. A review of recent researches and scientific papers. Foresight Project issues are studied by many foreign and Russian researchers which is explained by the fact that it integrates various areas of science and practice.

The term «Foresight» was introduced into social, economic and futurological sciences by a well-known science fiction writer Herbert Wells (1930), who first used it in 1930 in his speech on BBC radio. The writer not only gave a new meaning to this word as «care or provision for the future; the act or power of foreseeing; knowledge or insight of the future; foreknowledge», but also proposed to introduce a specific position on comprehensive forecasting the future and assessing possible actions of the control object in the predicted situation («Prof. of Foresight»).

Modern Foresight has transformed into an independent research area with high practical value of the results.

The Foresight essence and applicability for sustainable socio-economic development of society is represented most precisely in the definition of Ben Martin (2001), who characterizes it as an assessment of the long-term prospects of science, technology, economy and society in order to specify the strategic areas of research and new technologies, having the maximum socio-economic effects [1].

International experience of using Foresight methodology is described in detail by German economists A. Zweck (2014),

A. Braun (2014), S. Rijkers-Defrasne (2014) [2]; they used the materials of the 9 Symposium for Foresight and Technology Planning as a basis of their study.

Japan, China, Korea, the USA, Brazil, France, the UK, the EU accumulated a substantial experience in Foresight development and implementation, which has universal characteristics and national ones.

For example, Ji Ho Hwang, Young Jun Kim, Soekho Son and Jongmin Han (2011) [3], M. Choi and H. Choi (2015), [4] describing the development of the Korean Foresight, emphasize the processes of scientific and technological developments transforming into state innovation policy. An important research institution in this field is the Korea Institute of Science and Technology Evaluation and Planning

Marcio de Miranda Santos (2015) (Centre of Science, Technology, and Innovation Strategic Studies and Management, Brazil) gives the priority to improving the diagnostics and monitoring of global and national science, technology and innovation [5].

Ted Fuller (2013), a Professor of Entrepreneurship and Strategic Foresight at Lincoln University (UK) in [6] describes emerging Foresight methodology (methodological tendencies) and trends of its development.

In Russia, official Foresight development began with the creation of the International Scientific and Educational Foresight Centre at National Research University - Higher School of Economics in 2006. Foresight Centre successfully develops and implements projects, works out methodology and promotes active Foresight implementation in forecast and management practice [7].

National Foresight paradigm is being formed by such Russian scientists as N. V. Gaponenko (2012) [8], L. M. Gokhberg (2014) [9], O. I. Karasev (2015) [10], B. N. Kuzyka (2008) [11], I. R. Kuklina (2009) [12], S. N. Kukushkina (2007) [13], A. V. Sokolova (2014) [14; 15], V. P. Tretiak (2009) [16], F. M. Safina (2013) [17] etc.

Many areas of Foresight have been formed on the basis of theoretical and practical aspects of forecasting and planning.

In the area of forecasting and planning research, the following Russian scientists can be mentioned: A. I. Anchishkin (1981), I. V. Bestuzhev-Lada (1992), S. Y. Glaziev (2012), A. G. Granberg (1988), V. V. Davnis (2006), B. N. Kuzyk (2008), V. I. Kushlin (2015), V. A. Lisichkin (1974), S. S. Shatalin (1987), Yu. V. Yakovets (2015), Y. V. Yaremenko (1999), etc. The leading organization in the field of forecasting is the Institute for National Economic Forecasts of the Russian Academy of Sciences (INEF RAS) [18]. Implementation of scientific achievements and practical results in the field of forecasting in Foresight is obvious. The analysis of the positive trends of Russian forecast methodology and their integration in Foresight was considered by the authors earlier in [19-20].

The prospects for Foresight development using the combination of forecasting and strategic planning methods are not thoroughly studied. For example, the results of complex forecasting, analytical and strategic studies of Yu. V. Vertakova (2014), M. G. Klevtsova (2014), Yu. V. Polozhentseva (2014) etc. [21-22] can be used as a basis of the development of regional Foresight technology. Objectivation of forecast results, formal substantiation of strategic guidelines, and the original approach of these authors deserve special attention in the process of research.

The polemic character of the expressed ideas, different points of views of Russian and foreign Foresight researchers, and actual problems of the processes of the formation of national Foresight methodology and practices, the presence of unsolved theoretical, me-

thodological and applied problems led to the choice of research topic and objectives.

4. The purpose of the article is to study the ways to improve the Foresight project planning of sustainable socio-economic development of controlled objects on the basis of forecasting methods and Foresight technology systematizing, which are efficient in terms of Russian economy's development.

5. Results. According to a number of researchers [8; 11; 16-17], the system of interrelated expert (quality), factual (quantitative) and combined (quasi-quantitative) methods systematized with regard to creativity, expertise quality, substantiation and expert interaction are laid in the basis of Foresight methodology formation and development. The structured system of forecasting and planning methods is generally represented in the form of Foresight Diamond.

It should be noted that the issues of systematization of forecasting and planning methods used in Foresight have a polemic character. Previously, when developing Foresight, the methods were divided into three groups (according to the criteria of creativity, expertise and interaction, i.e. Foresight triangle). V. P. Tretiak (2009) [16] offers joining methods depending on the following groups: creativity, specialization and interaction.

Distinguishing the criterion of «substantiation» demonstrates the need for the objectification of the results of forecasting and planning research, the increasing role of quantitative analysis and data verification. According to the authors, it would be advisable to distinguish one more criterion of methods grouping, namely, «adaptability».

Author's geometric interpretation and methodical content of Foresight polygon are represented in Figure 1.

In our opinion, the structure of interrelated methods should include «adaptive forecasting methods», distinguishing a special group of «adaptive discriminant analysis» [23].

According to our viewpoint, «substantiation» should be enhanced through simulation modelling techniques, games technology, and verification methods. Bibliometrics, literature review, text mining are a prerequisite for Foresight project development, since they are related to the use of the totality of methods in most cases.

Foresight technology is proactive to future events. Communication of initiators and participants of Foresight projects is determined by the correlation of actions with the objective foresight of the expected changes. Consequently, it would be rational to use adaptive forecasting experience, accumulated by Russian and foreign science. Adaptive methods make it possible to develop forecasts and adjust plans according to the continuous changes in the forecast background. Foresight project

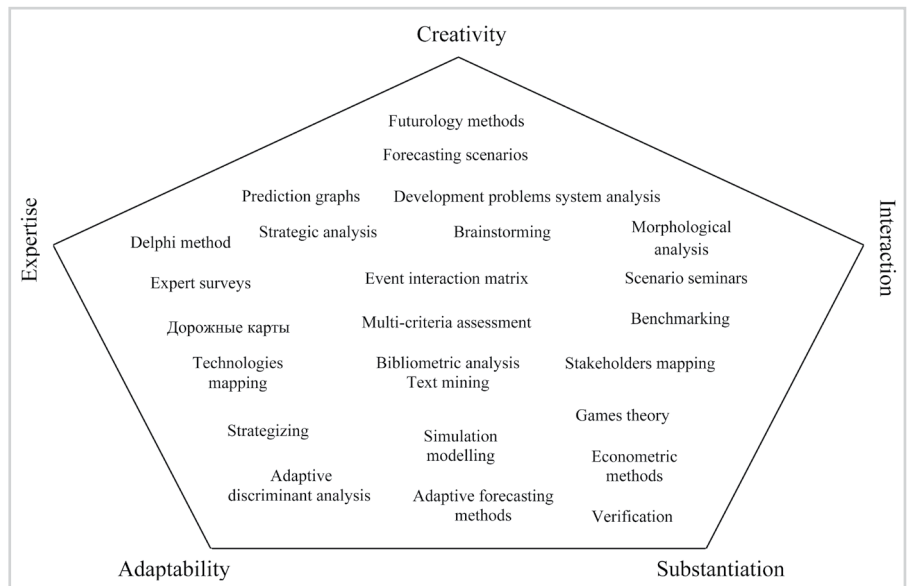


Fig. 1: Geometric interpretation and methodical content of Foresight polygon
Source: Proposed by the authors

adaptation will enhance its efficiency and ensure the sustainability of socio-economic development of the controlled objects.

Unlike forecasts which give probabilistic predictions, Foresight projects form the future. At the same time, a Foresight project is not a plan in the traditional interpretation of this economic document as a guide to specific actions, which have no alternatives. A plan specifies clearly events timing, performers, and necessary resources. Planned performance processes are tightly controlled and do not allow both negative and positive changes in the external and internal environment of the controlled objects.

The result of forecast-analytical study in Foresight is a roadmap, which determines the interaction of stakeholders and goals achievement monitoring. In addition, when developing and implementing a Foresight project, it is necessary to observe the principle of continuity of forecasting and planning, since new aspects of the controlled objects, which could not be taken into account initially, and should be included in the existing map of the future, emerge.

Currently, the areas of applying Foresight projects are being significantly expanded. Addressing the problems of selecting innovation activities and development of innovative

programs by companies with state share of participation in the framework of business strategies will be efficient when using Foresight methods and technologies [24].

Activation of import substitution policy in the conditions of sanctions and the development of the main directions of state economic policy in order to stimulate the Russian production development, described in [25] is possible using Foresight projects.

Almost every sphere of public life and every field of activities can be effective provided that its future development is managed. The roadmap development to achieve goals and solve necessary objectives in each specific case is adapted to the particularities of the controlled object activity [26-27].

6. Conclusion. Improvement of Foresight projects is intended to enhance the sustainability of the controlled objects. On the basis of systematizing methods and technology Foresight it can be concluded that it is necessary to use adaptive forecasting methods when developing projects and in practice working with the future. Adaptive forecasting methods are efficient for the formation of the path of future development in an uncertain external environment, which is peculiar to Russian economy.

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