SOME ASPECTS OF ASSESSING THE EFFECTIVENESS OF FORESIGHT METHODS
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Abstract: evaluating the effectiveness of the Foresight methods used leads to their classification into the following groups: highly informative; low-cost; highly specialized and resource-intensive. A comprehensive review of the existing world experience in the use of Foresight methods in the economic sphere leads to the conclusion that it is most appropriate to apply the methodology of its implementation, consisting of the following five stages, following which the most effective strategic plan is formed: pre-Foresight; research of primary sources; expert procedures; creative analysis; interactive analytics.
Keywords: foresight planning, expert group, SWOT analysis, cross-impact analysis method, strategic plan, creative economy development.

НЕКОТОРЫЕ АСПЕКТЫ ОЦЕНКИ ЭФФЕКТИВНОСТИ МЕТОДОВ ФОРСАЙТА
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Аннотация: оценка эффективности используемых методов Форсайта приводит к классификации их на следующие группы: высокоинформативные; низкозатратные; узкоспециализированные и ресурсозатратные. Комплексный обзор имеющегося мирового опыта по использованию методов Форсайта в экономической сфере приводят к выводу, что наиболее целесообразно применение методологии его проведения, состоящую из следующих пяти этапов, по итогам которых формируется наиболее эффективный стратегический план: пре-Форсайт; исследование первоисточников; экспертные процедуры; креативный анализ; интерактивная аналитика.
Ключевые слова: форсайт-планирование, экспертная группа, SWOT-анализ, метод анализа перекрестного воздействия, стратегический план, развитие креативной экономики.

The complication of socio-economic activity has led to the fact that it has become almost impossible to predict events in the context of the flow of innovations, since methods based on expert assessments, human potential, and innovative development are required, requiring intuitive insight. Classical strategic planning is also not advisable, due to the fact that research costs are extremely high and in the context of the global division of labor, they are beyond the power of an individual country. Recently, forecasts have become very popular in both the economic and social fields. However, accurate forecasts are required, based on real opportunities and with a higher probability of influencing the future. Therefore, it is necessary to use the foresight methodology as one of the methods of developing a strategy at the macro level based on the innovative development of the economy [1].

In order to increase the sustainability of economic growth, it is necessary to qualitatively change the national economy in the direction of innovative development and, above all, improve the management system of this development through innovation policy. Foresight methodology has become one of the basic tools of such a system in recent years. In order to strengthen its position on a global scale, it is necessary to identify priorities for long-term development in the scientific, technical and economic spheres in a timely manner. In the context of increased global competition, the state must form and strengthen its competitive advantages by creating and bringing innovative goods and services to the markets, and implementing a comprehensive innovation policy. To identify the most promising developments, Foresight projects are needed that allow us to form a system of priorities, develop large-scale research programs aimed at the development of critical technologies and and the creation of promising products.

Since Foresight began to be used for decision-making, its methodology has gradually become more complex, and this process has affected both the methods themselves and the very purpose of research. Taking into account the study of the world experience of Foresight, it is most advisable to apply the methodology of its implementation, consisting of the following five main stages, following which a roadmap is formed: pre-Foresight; analysis of primary sources; expert procedures; creative analysis; interactive analysis [2, 3].

At the first stage, called pre-Foresight, key research directions are determined, a subject area is allocated for building a roadmap, a team of performers is formed, and research goals and objectives are set. The main methods of Foresight at this stage are critical technologies and surveys, including Delphi. Thanks to the survey of a large number of experts, it is possible to consider all the main points of view of specialists. The iteration of the process ensures high reliability of the results obtained, which are then validated at an expert seminar.

At the second stage, which includes the analysis of primary sources, information and analytical materials reflecting scientific, technical and market trends in the development of the subject area are selected. The main criteria for choosing a primary source include: the authority of the source (the number of mentions, including by project experts), the authority of the author (the number of publications, the level of citation of the author).At this stage, all available information that exists in codified form is analyzed using the following Foresight methods: literature reviews (collecting primary information about promising technologies and products); bibliometric and patent analysis (identifying research fronts, clarifying the list of innovative solutions and forming a list of highly qualified experts for the survey); scanning (identifying external conditions for development subject area); benchmarking (studying the best world experience). Following the results of this stage, an expert group is formed, consisting of specialists selected using special criteria.

At the third stage, which includes expert procedures, work is underway to identify the so-called tacit knowledge and includes a series of in-depth expert interviews with representatives of business, science and government agencies selected based on the results of the second stage and thematic expert panels. The qualification requirements for the selection of experts are formed depending on the relevant subject area and the possible range of consumers of the results of Foresight and the roadmap.

During expert interviews, it is possible to obtain uncodified information about promising trends in the development of the subject area directly from the bearer of knowledge and consider various expert points of view on the development of the subject area, which are then discussed on expert panels. Expert groups should include leading experts in the subject area from the side of science and business, as well as allow them to cover the key technologies and products analyzed in the project. The result of this stage is to clarify information about promising research and development activities, technologies and products identified at the previous stage. In addition, it allows you to involve a wide range of stakeholders in the project and take into account different points of view [4].

At the fourth stage, dedicated to creative analysis, work is being carried out to form an image of the future and establish relationships between the elements of the roadmap. As part of this stage, the brainstorming technique is actively used, aimed at generating the desired image of the future and then identifying the key steps necessary to achieve it — the backcasting method. With the help of SWOT analysis, an in-depth analysis of promising research and development works, technologies and products identified at the previous stage is carried out and the relationships between them are established using cross-impact analysis. As part of the definition of the most important trends, "wild cards" are identified, that is, events with a low probability of occurrence, but a high potential effect, and weak signals indicating possible significant changes in the subject area. Finally, at the end of this stage, an analysis of stakeholders, that is, stakeholders, is carried out, which allows to identify their preferences and develop a strategy for their maximum effective involvement at the final stage.

At the fifth stage, which includes interactive analysis, alternative strategies are being developed to achieve the goals of the development of the subject area. At scenario workshops, key experts discuss ways to develop the subject area based on the results obtained in previous stages. As a result of these seminars, a preliminary version of the roadmap is being formed, which is discussed at the final seminar with a wide range of stakeholders, including representatives of science, business, government agencies and the public. Thus, the main difference between the proposed methodological recommendations and existing approaches to Foresight is their flexibility [5].

Based on the analysis, the following four main classes of methods can be distinguished: highly informative; highly specialized; resource-intensive; low-cost.

Despite the significant costs associated with the use of highly informative methods, their effectiveness is the best among others. These include primarily cross-impact analysis and benchmarking.

Methods that fall into a highly specialized category (for example, wild cards) can achieve very specific results. Their use is justified if sufficient time and financial resources are available.

Resource-intensive methods are important for conducting a comprehensive Foresight, but their implementation requires significant financial, organizational and other resources.

A low-cost category of methods, including literature review and brainstorming, is advisable to use during any Foresight, since they do not require significant costs, but allow you to obtain results that form the core of Foresight.

Unlike traditional forecasting, foresight technology is proactive in relation to future events. This means that the authors and participants of foresight do not just individually assess the probabilities and risks of certain conditions, as, for example, is customary in the Delphi method, but take an active position and jointly design their current and future activities in such a way as to strengthen positive trends, increase the probability of desired events and extinguish negative ones. undesirable trends .

The result of the foresight session, unlike other forecasting and planning methods, is a "map of the future" — a visually rich space that allows you to see as a whole the entire subject area, the image of its future, as well as various ways and means to achieve certain desirable and undesirable states, and factors affecting the probability of the embodiment of one or another a variant of the development of events. The map of the future can be easily transformed by participants into a "roadmap" — not just and not only a visual image of a shared future, including key trends, technology development forecast, events, strategic forks, but also decision-making points and the launch of specific social or technological actions or projects [6, 7].

Based on the roadmap, it becomes possible to identify the most promising areas for the selection of applications and identify segments in which investments are associated with high risk. The documents accompanying the roadmap propose specific measures to facilitate the implementation of the roadmap, affecting aspects of financing, regulatory support and organizational nature. Finally, identify areas for stimulating demand, indicating the barriers and limitations

that make it difficult to successfully commercialize innovative products. The roadmap can be used for the development and implementation of state innovation policy, but also by a number of different organizations [8]. Its application helps to improve the interaction of various market participants on the part of the state, science and business, and can help to substantiate various industry plans, forecasts and strategies. As part of the activities of individual companies, the roadmap will be useful for determining and clarifying development priorities, selecting the most promising projects, ultimately leading to a reduction in investment risks.

Thus, the proposed methodology not only contains a specific sequence of stages, but also makes it possible to choose methods for conducting Foresight, taking into account the existing time, personnel and financial constraints.

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