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MECHANISMS OF USING FORESIGHT METHODS TO INCREASE THE EFFICIENCY OF INNOVATIVE MARKETING

Abstract. The article considers some of the theoretical issues regarding the methods of using the Foresight technology in determining the formats and mechanisms of strategic forecasting. This is a relevant topic from the point of view of the revival of the economy of Ukraine. The essence and structure of foresight methods are considered, their features are highlighted. Various approaches to defining this definition are presented. The proper interpretation of the concept of "foresight" is proposed as a special unifying technology for forming priorities for the strategic development of countries, regions, and enterprises and society, which allows to unite all interested parties on the basis of a transparent vision of possible development scenarios and agree on the most expedient option from the point of view of risks and the most effective from the point of view of economic consequences. Separate attention is paid to the tasks of innovative marketing. The connection between innovative marketing and the methods of foresight technologies is substantiated. The characteristics of innovative marketing are given. The article substantiates that the use of foresight methods will have an additional effect in marketing research and will significantly affect strategic planning. It is proven that such a mechanism will ensure transparent interaction within the triple spiral and with society. In turn, such interaction will give impetus to the achievement of the country's strategic goals in the economy, social sphere, and public policy. Specific mechanisms for using foresight methods to increase the effectiveness of innovative marketing are considered. It is noted that innovative marketing as a business philosophy offers a system of thinking and an ideological basis of entrepreneurial activity, which is focused on achieving competitive advantages through the use of innovations, an important feature of which in market conditions is the novelty of its technical and consumer properties. It is noted that the concept of marketing has undergone significant transformations associated with a change in the level of development of production and demand for the offered products. The changes were mainly determined not only by the state of such subjects as the producer, consumer and the state, but also by the nature of their interaction in the market space. It is the last factor that is decisive in determining the future and orientation to the long-term perspective. It is justified that the methodology of using Forsyth's methods also recognized certain transformations. Analyzing the state of the economy on the appropriate cycle of development according to Kindratyev's cycles brings us closer to objective reality and provides a tool for concrete analysis of events.

Keywords: Foresight, strategic forecasting, expert forecasting methods; triple spiral, innovative marketing, Great waves of Kindratyev.

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МЕХАНІЗМИ ВИКОРИСТАННЯ ФОРСАЙТ МЕТОДІВ ДЛЯ ПІДВИЩЕННЯ ЕФЕКТИВНОСТІ ІННОВАЦІЙНОГО МАРКЕТИНГУ

Анотація.У статті розглянуто деякі з теоретичних питань щодо методів використання технології Форсайт у визначенні форматів і механізмів стратегічного прогнозування. Це актуальна тема з позиції відродження економіки України.Розглянуто сутність та структура форсайт методів, висвітлено їх особливості.Наведено різні підходи до визначення цієї дефініції.Запропоновано власне тлумачення поняття «Форсайт» як спеціальна об'єднуюча технологія формування пріоритетів стратегічного розвитку країн, регіонів, підприємств і соціуму, яка дозволяє об'єднати усі зацікавлені сторони на основі прозорого бачення можливих сценаріїв розвитку та узгодити найбільш доцільний варіант з точки зору ризиків та найбільш ефективний з точки зору економічних наслідків. Окремо приділено увагу задачам інноваційного маркетингу.Обгрунтовано зв'язок інноваційного маркетингу із методами форсайт технологій.Надано характеристику інноваційному маркетингу.У статті обгрунтовано, що застосування форсайт методів надасть додоткового ефекту у маретингових дослідженнях та суттєво вплине на стратегічне планування. Доведено, що такий механізм забезпечить прозору взаємодію у межах потрійної спіралі та із суспільством.У свою чергу така взаємодія надасть поштовх досягненню стратегічних цілей країни в економіці, соціальній сфері та публічній політиці.Розглянуто конкретні механізми використання форсайт методів для підвищення ефективності інноваційного маркетингу. Зазначено,що інноваційний маркетинг як філософія бізнесу пропонує систему мислення та ідеологічну основу підприємницької діяльності, яка орієнтована на досягнення конкурентних переваг шляхом використання інновацій, важливою ознакою яких в умовах ринку є новизна її технічних і споживчих властивостей. Відзначеено, що поняття маркетингу зазнало значних трансформацій, пов'язаних із зміною рівня розвитку виробництва та попиту на пропоновану продукцію. Зміни в основному визначалися не тільки станом таких суб'єктів, як виробник, споживач і держава, а й характером їх взаємодії в ринковому просторі. Саме останній фактор є вирішальним у визначенні майбутнього та орієнтації на довгострокову перспективу. Обгрунтовано, що методологія використання методів Форсайту також визнавала певні трансформації. Аналіз стану економіки на відповідному циклі розвитку за циклами Кіндратьєва наближає нас до об'єктивної реальності та дає інструмент для конкретного аналізу подій.

Ключові слова: Форсайт, стратегічне прогнозування,експертні методи прогнозування; потрійна спіраль, інноваційний маркетинг,Великі волни Кіндратьєва.

Introduction. Knowledge of the future in historical epochs took different forms. These processes are known from ancient prophecies to 20th century futurology and 21st century scientific prognostication. Foresight (from the English Foresight — a look into the future, prediction) combined the best achievements of forecasting and strategic planning and became one of the most effective technologies for designing the

development of society, based, at the same time, not on the analysis of events in retrospect, but on the expected future. Analysis the chronology of Foresight in different countries shows that during the 1990s this methodology was extremely popular among the governments of Western European and East Asian countries. Then Forsyth spread to other countries. Foresight studies were also carried out in other regions of the world, for example, in Latin America. There are various hypotheses to explain the reasons for the spread of this methodology: from the simplest methods ("epidemic" model, or fashion) to more complex ones, which take into account the emergence of new problems and challenges and the need to more clearly present the role of science and technology in the network economy. In addition to the international distribution of Foresight, this practice is increasingly used within countries. Thus, in many Western European countries, primarily in France, Germany, Great Britain, the Scandinavian countries, and the Netherlands, foresight research is carried out at various levels: national (in ministries, scientific councils, etc.), regional, supranational, and in individual organizations (for example, in state laboratories, large companies, etc.). At the national level, Forsyth mostly went beyond the traditional framework of the scientific and technical sphere. Currently, such studies are regularly conducted by ministries and departments responsible for various fields. It is known about the technological foresight, etc.Pioneers were European and North American scientists, representatives of Japan and other Southeast Asian countries. Among them, the names of T. Cuosa, M. Keenan, R. Popper, I. Miles, M. Butter, B. Habegger and others are well-known. There are examples of Foresight in Ukraine as well. The transformation of market relations puts solving new problems on the agenda. Foresight is no exception, the methodology of its organization needs to be brought to modern business conditions, taking into account the processes of global digitalization.

Analysis of publications and studies. In recent years, Foresight has become a widely used policy, strategic planning and management tool around the world. This methodology is used at the national level in the ministries of science and funding organizations to develop a long-term strategy, determine priority areas of research,

deepen the interaction of participants in scientific and innovative systems. Ukraine has some experience in the implementation of national foresights, first of all, to establish scientific, technical and innovative priorities[1 -3]. There are developments in the development and social sphere of individual regions [4-7]. There are also known attempts to conduct Foresights of individual spheres of domestic society[7-9]. For the formation of priority directions for the development of science and technology during 2004–2006 and in 2008–2012. two state programs for forecasting the scientific, technological and innovative development of Ukraine were developed and implemented. As a result of their implementation, the system of scientific, technological and innovation priorities of the state was substantiated and presented (2008, and the edition of the Law of Ukraine "On priority areas of innovative activity in Ukraine" was updated with the formation of the List of priority thematic areas of scientific research and scientific and technical development for the period until 2021 .

In 2015–2016, the International Council for Science (ICSU) and a number of leading scientific institutions of Ukraine (in particular, the Institute of Applied System Analysis of the National Technical University of Ukraine "Ihor Sikorsky Kyiv Polytechnic Institute") carried out a thorough foresight of the development of the future economy of Ukraine and formed a group of scenarios socio-economic development of Ukraine up to and including 2030. The authors chose the concept of sustainable (balanced) development as the general methodological framework of their research. In the conclusions, the researchers emphasize the difficulties in translating the methodological framework of the Concept of sustainable (balanced) development into the empirical plane and note that one of the important problems on the way to the implementation of the specified concept is "the formation of a measurement system (metrics) for the quantitative and qualitative assessment of this extremely complex process." [10]. Unfortunately, the general audience still does not know how the positive and negative scenarios of the development of Ukrainian society defined in it are taken into account.

The Ukrainian Institute of Scientific and Technical Expertise and Information (UkrINTEI) is conducting work on determining new priority areas of scientific and

technological development of Ukraine for 2021–2030, which involves conducting foresight studies in the context of compliance with global technological trends and achieving the Sustainable Development Goals in Ukraine .

The peculiarity of the Foresight "Economic Strategy of Ukraine 2030", which is being developed from 2020 in the collegium of the Ukrainian Institute for the Future, lies in the formation of a strategic vision for the future development of Ukraine as "in the interests of the second regional entity, independent, independent in making economic and geopolitical decisions, as far as the global situation will allow, with a high quality of life for citizens" [18]. As you can see, the country has some experience in forming a strategic vision, but from a practical point of view, the Foresight methodology is of interest in solving market problems, including those related to the introduction of innovations. Foresight of the region is being used more and more actively for the formation of scientific and innovation policy, with its help, potential threats and opportunities are identified for the preparation of long-term "predictive" strategies. The innovative market is also aimed at this. A statistical report on the fact that the methodology of the innovative market, like Forsyth, does not use an available review of objective information about the state of the environment in strategic periods, the source of which is Kindratyev's Great Cycles, as well as bibliometric data of the intellectual and information space, in the volume number of of the market of innovative technologies, goods and services, which correlate from the theory of cyclical dynamics of socio-economic environments N.D. Kindratyeva. The purpose of the article is a detailed study of the features of testing the innovative market using Foresight research methods, as well as providing recommendations on measures to improve its effectiveness. Presenting main material. The term "foresight" was previously used in 1930 by the science fiction writer Herbert Wells. Speaking at another forum, he proposed the news of the specialty "Professor of Transfer", who will analyze future technological discoveries and offer them as tools of innovative development [11]. tasks were carried out to determine promising military technologies. Traditional prognostic methods (quantitative models, extrapolation of existing trends, other known methods)

were sufficient for this, and specialists developed the Delphi method, which became the basis of Foresight research. The 1970s marked the beginning of active Foresight of scientific and technological progress at the national level in many countries, including the USA, European countries, and Southeast Asia [12-14]. Over the past 25 years, approximately 800 foresight studies have been organized by large corporations [7]. It is noteworthy that among them there were not only manufacturers, trade holdings, small and medium-sized businesses, but also charitable organizations. This is to say that foresight is used not only for long-term profit, but also for the purpose of finding a more effective management system. Like any new concept, Foresight has many definitions, among which there are distinctive characteristics [15,16]. The analysis carried out in the work allows us to note somewhat common approaches of different authors: the foresight of this process, the purpose of which is to determine a possible future, create its desired image and determine the strategy for its achievement.

Most Foresight theorists and practitioners consider it as a kind of combination of "product" (forecasts, scenarios, priorities) and "process" (establishment of connections between all interested parties), which contributes not only to the study of the future, but also to the achievement of consensus in society on the basis of a planned dialogue between experts, politicians, businessmen and the public.

In our opinion, Foresight is a special unifying technology for forming priorities for the strategic development of countries, regions, enterprises and society, which allows you to unite all interested parties based on a transparent vision of possible development scenarios and agree on the most appropriate option from the point of view of risks and the most effective in terms of economic consequences.

The methodology of a specific Foresight is determined based on the tasks of the project and the scope of its application. Foresight studies in different countries are based on different methodological and organizational principles. The world experience of its application shows that the set of methods is quite wide and can differ significantly, depending on the purpose, scope of application, selected period, etc. In addition, the

approaches and system of Foresight economic or industry research methods in a particular country can be different. They may also change over time, as Foresight itself as a concept of foresight is constantly changing and evolving with the world. This applies to all its main stages, including the stage of pre-foresight research (Pre-Foresight Stage), actual Foresight (Foresight Stage) and post-foresight monitoring (Post-Foresight Stage).

Summarizing the international experience of Foresight development, it should be noted that it is difficult to single out a certain general scheme of organization and management of Foresight formation and its stages. Each specific Foresight has its own unique implementation regulations, a unique combination of approaches and methods depending on the object, goals, period, tasks and other circumstances. The effectiveness of the formation of Foresight and its resolutivity depends entirely on their definition. The variety and range of methods and tools used in Foresight. These are, first of all, methods of quantitative assessment of existing trends and their consequences. They are applied using specially developed models and information technologies. Secondly, these are methods based on the knowledge of experts and special procedures and methods of working with experts. In this, Foresight is a system of methods of expert evaluation of strategic directions of socio-economic and innovative development, identification of possible technological breakthroughs capable of influencing the development of society in in the medium and long term [17]. Scenario development is used to structure the existing situation and present it in the form of a model. In the process of systematization of research methods of social processes, the development of Foresight technology is also taking place. It is constantly replenished with new ones, primarily those related to the development of information and communication technologies (conducting surveys of experts using the Delphi method using, for example, the Internet, Kindratiev wave analysis).

The choice of methods for Foresight depends on the scope, field and horizon of the survey. One of the most important components of Foresight's organization is its field of application. Such an area should be similar to the general plan of finding an optimal solution. This means that, before conducting research, it is necessary to find the most

important factors in the development of the object under study, which can turn from ordinary elements into dominant ones and which can improve the situation in the best way.

Forsyth's field outlines the participants of the project and consists of several circles. The first circle includes initiators and propagandists, that is, individuals and organizations that are directly interested in the implementation of Foresight. The second circle of participants represents stakeholders - citizens and organizations who understand that possible changes will affect them and create problems. The third circle is also stakeholders, but those who are not sufficiently aware of the possibility of expected changes, but are interested in the measures. The Foresight horizon is the period of time on which the fixation of the results of a prediction or an active forecast is oriented. He is determined individually, depending on the selected type of Foresight or on the perspective of the object that we should see in the future.

There are two more or less standard time limits of the Forsyth horizon: 20-30 years for repetitive processes with a long turnover cycle and 2-5 years for repetitive processes with a small turnover cycle. Thus, the Foresight horizon can be defined as the maximum number of years for which an active prediction is expected to be formed. When considering Forsyth's time horizon, two processes are usually distinguished for which time horizons are defined. The first involves establishing the optimal time horizon and analyzing the prospects of scientific and technological progress. The essence of the other process consists in the implementation of the procedure for the formation of priority directions for the development of the Foresight facility and their documentary confirmation in the form of a road map. "Roadmaps" is the result of Forsythe. They are an official document that shows possible ways of development of the object in the future. On their basis, development strategies are formed and long-term priorities are determined. In fact, road maps assume a predetermined future with a detailed description of the main stages and practically possible ways to achieve it. Thus, they are one of the key tools for the purposeful activity of stakeholders in the triple helix model with the involvement of stakeholders.

In his time, F. Kotler proposed five concepts of business management: improvement of production, improvement of goods, intensification of commercial efforts, marketing and socio-ethical marketing[19]. For a long time, most theorists and practitioners were guided by these concepts. But recently, more and more scientific works have appeared in which the list of concepts is expanding. F. Kotler himself believes that at today's stage of development, the concept of lateral marketing is leading. Lateral marketing is a non-standard and creative approach to conducting business by enterprises. The essence of lateral marketing is the creation of fundamentally new innovative goods or services, new ideas, under the conditions of creating a new market and going beyond the boundaries of the old, already existing one. [20] The business concept uses different types of marketing and, in our opinion, they should be used like Foresight depending on the different tasks individually or in combination. The situation in Ukraine, when there is a decline in the production of domestic goods due to the fact that many types of products are not in demand both on the domestic and foreign markets, requires a transition to innovative development, which has no alternatives. All the developed countries of the world have long been on this path and receive about 80–85% of GDP growth thanks to innovations, which include new products, new technologies for their production, new methods of organizing production and sales. That is, modern marketing, as thought by F. Kotler , can be called innovative marketing. Innovative marketing makes it possible to reduce the negative impact of external factors and the possibility of the enterprise manufacturing competitive products. Innovative marketing is a business concept that involves the creation of improved or fundamentally new products, innovation, and the use in the process of its creation and distribution of improved or fundamentally new innovative tools, forms and methods of marketing[21]. In order to better navigate the modern management system and to understand how Foresight's theory correlates with innovative marketing, it is necessary to use the cyclical theory. Its authors are Mykola Kondratiev and Joseph Schumpeter [22], and the formula developed by them allows for long-term forecasting. The latter is subject to the following specific cycles:

- formation of priorities;
- analysis of existing innovative and technological solutions;
- creation of a technological "road map";
- application of simulated results;
- study of implemented foresights.

The characteristic period of Kindrat waves is 50 years with a possible deviation of 10 years (from 40 to 60 years), the cycles consist of alternating phases of relatively high and relatively low rates of economic growth. M. Kindratyev noted four empirical regularities in the development of large cycles. The first is before the beginning of the rising wave of each big cycle, and sometimes at the very beginning of it, significant changes are observed in the conditions of the economic life of society. Changes are expressed in technical inventions and discoveries, in changes in the conditions of monetary circulation, in the strengthening of the role of new countries in world economic life. These changes to one degree or another occur constantly, but, according to Kondratiev, they occur unevenly and are most intensely expressed before the beginning of the uplifting waves of large cycles and at their beginning.

The second is the periods of rising waves of large cycles, as a rule, much richer in great social upheavals and upheavals in the life of society (revolutions, wars) than the periods of falling waves.

Third, the downward waves of these great cycles are accompanied by a prolonged depression of agriculture.

The fourth is that large cycles of the economic situation appear in the same single process of the dynamics of economic development, in which medium cycles with their phases of boom, crisis, and depression also appear[5].

Schumpeter established a connection between Kondratiev's long cycles and Zhuglyar's medium-term cycles. There is an opinion that the relative correctness of the alternation of rising and falling phases of Kondratiev waves (each phase of 20-30 years) is determined by the nature of the group of nearby medium-term cycles. During the upward phase of the Kondratieff wave, the rapid expansion of the economy inevitably

leads society to the need for change. But the opportunities for social change lag behind the demands of the economy, so development moves into a downward B-phase, during which crisis-depressive phenomena and difficulties force the restructuring of economic and other relations.

Studying the Great Cycles of M. Kindratyev in Western countries, Kharkiv scientists T.I. Lepeyko and T.P. Blyznyuk, on the basis of the study and comparative analysis of the passage of cycles in Western countries, the most characteristic features of five cycles and the main components of each of them were revealed. (Fig. 1) [23].

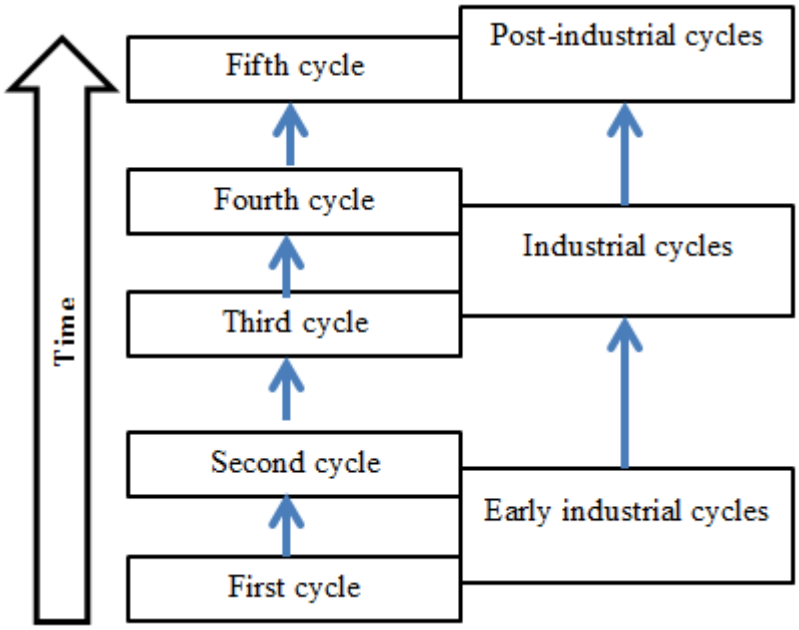

Figure 1. – The stages of M. Kindratyev's Great Cycles in Western countries and their most characteristic features.

This is, first of all, a gradual (evolutionary) transition from one state of the main components of the cycle to another, higher and more perfect next cycle. The generalization made applies to all the main components of the cycle:

- the industrial (technological) revolution passes into the next one;
- the implementation of achievements of scientific and technological progress leads to changes in the industry structure and the emergence of new achievements;
- the appearance of crises of various scales is cyclical in nature;
- the dominance of the technological system changes as follows;
- each new cycle brings new components related to its features.

The research conducted by the scientists gave them the opportunity to draw the following conclusions:

1) common features of all cycles are the relationship between the emergence of new clusters of inventions (mainly radical ones), an increase in the number of sociopolitical events, and the formation of an upward wave of a new economic cycle. Which is confirmation of one of the "correctnesses" of Kondratiev's theory [21] at the current stage of development of the world economic system;

2) innovations are the basis (base) of the formation of each cycle and this is its feature. Innovations arise during the down wave of the previous cycle, but find their use only on the up wave of the new cycle. The wave of these innovations grows, and as a result, a new technological device is formed, which becomes dominant

3) the beginning of the downward wave is connected primarily with the maturity of the innovation and the decrease in its effectiveness. There is a need for new inventions, the economic system is in a state of crisis, there is no possibility of quick use of innovations, and their number is constantly growing. By the time negative phenomena are overcome in the economy, a significant fund of innovations accumulates;

4) the concept of cycles is the main tool for forecasting and planning further development for all levels of the economic system (economy as a whole, industries and enterprises). The highlighted features of the process of five cycles, their features in Western countries can be recommended for use in the process of forming the organizational and legal mechanism of concretization and implementation of an innovative development model in Ukraine. The use of the experience of passing through cycles by Western countries will help Ukraine to accelerate the process of creating the most favorable conditions for the formation of the rising wave of the sixth cycle, using the features (innovations) of this wave and reduce the state's technological lag behind world leaders.[23]

The theory of great cycles is the basis for understanding qualitative shifts in the economy and social processes and will provide a methodological key to understanding the general patterns of development of individual countries and global processes. These

are the tasks that Forsyth solves, and they are also inherent in innovative marketing.

As a business philosophy, innovative marketing offers a system of thinking and an ideological basis for entrepreneurial activity, which is oriented towards achieving competitive advantages through the use of innovation, an important feature of which in market conditions is the novelty of its technical and consumer properties. The concept of marketing has undergone significant transformations associated with changes in the level of development of production and demand for the offered products. Based on the above, it is proposed to highlight the following stages of the Foresight (Fig. 2).

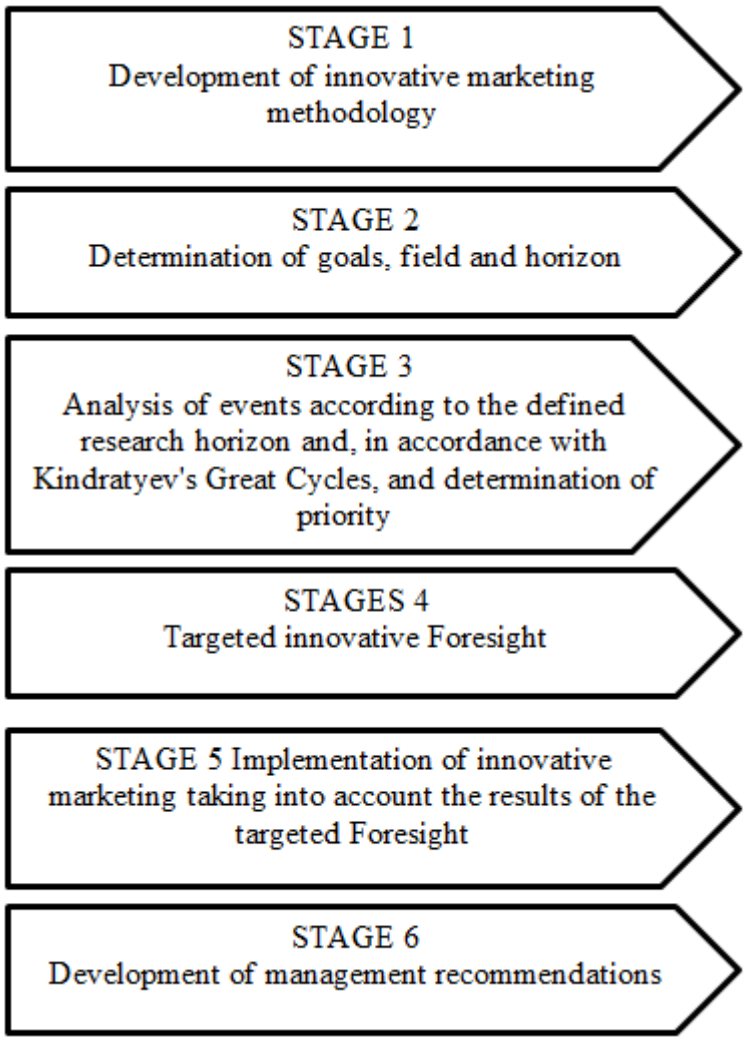

Fig. 2. Methodology of implementation of innovative marketing, taking into account the dynamic cycle of technology development and generations of new technology.

Changes were mainly determined not only by the state of such subjects as the producer, consumer and the state, but also by the nature of their interaction in the market space. It is the last factor that is crucial in determining the future and focusing on the long term.

The methodology of using Foresight methods also recognized certain transformations. The analysis of the state of the economy on the corresponding development cycle according to Kindratyev's cycles brings us closer to objective reality and provides a tool for concrete analysis of events.

As follows from Figure 2, the essence of the proposed methodology of innovative marketing consists in a pre-Foresight study of the predicted future based on a systematic approach to the use of the provisions of the socio-economic theory of M.D. Kindratyev and Forsyth, the possibility of their application in terms of adapting foreign experience, attracting one's own potential (information , economic, technological, innovative) for its implementation and implementation on the basis of ensuring the receipt, processing, analysis and dissemination of relevant information.

That is, a two-stage preliminary analysis of the market environment and the definition of the research horizon, taking into account Kindratiev's Great Cycles, is first proposed. This will allow the Foresight experts to focus on those market forecasts of the future that best meet the set objectives at the second stage. Provided that the involved experts are systematic and multifaceted, it should be expected to ensure a comprehensive solution to the problem. This is possible on the basis of the economic-mathematical apparatus of processing a certain collection of bibliographic objects (for example, patents) and conclusions regarding the long-term (business cycle) dynamic cycle of development of generations of technologies and equipment. Based on the theory of Great Cycles, it is possible to trace the correspondence between phases of cycles and stages of development of market economic systems throughout their entire life cycle. Kindratiev's theory gives an idea of the cyclical nature of the processes of economic and social development, and it entered the theory and practice of forecasting.

Conclusions. The intellectual information space is in continuous circulation thanks to the sustainable development of information technologies, and this becomes the most significant factor influencing the intellectual environment and the competitive struggle of its subjects. Accordingly, significant transformations in the methods of research into the predicted future can be traced. Domestic economic processes demonstrate a

significant level of instability, the management of these processes is characterized by the absence of clear guidelines for long-term development and mechanisms for their achievement. In determining the future behavior of manufacturers on world markets, innovative marketing is considered the most attractive. At the same time, researchers note its imperfection in terms of taking into account future changes in the market environment. The solution to this problem lies in the formation of a methodology based on the use of Foresight technologies and pre-Foresight studies of the predicted future based on a systemic approach using the provisions of M.D. Kindratyev's socio-economic theory. The adaptation of foreign experience, the involvement of one's own potential (information, economic, technological, innovative) for its implementation and implementation based on ensuring the receipt, processing, analysis and distribution of relevant information opens new horizons in ensuring the effectiveness of innovative marketing and obtaining new market advantages. The revealed world trends of large databases allowed to describe them from the standpoint of the program of the theory of cyclical dynamics of socio-economic environments of N. D. Kondratiev. The researchers discovered and built mathematical models of the main scientific and technical cycles (short-term, medium-term and long-term) and the corresponding connections between them. The anticipatory nature of the development of the "intellectual" technical cycles of these bases in relation to their classic counterparts was revealed, which made it possible to create a methodology for forecasting the development of scientific and technical areas of activity and identifying promising trends within the framework of the development of areas of technology and their ranking. The use of this methodology opens up new opportunities for innovative marketing.

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