

## Foresight Studies in the Context of Innovation Policy of Ukraine in 2000s

*Issues of science and technology forecasting in Ukraine are discussed in the broader context of innovation policy. A review of main tendencies in economic, R&D and innovation performance in the independent Ukraine is given. Contradictions of the State Innovation Policy in Ukraine are highlighted. Detailed review of the procedures involved in the two recent foresight programs in Ukraine (implemented in 2004 and in 2008–2011) is made. Main results of the recent programs are summed up and the most important problems in foresight studies in Ukraine are outlined. It is emphasized that foresight activities in Ukraine were being implemented in conditions of very weak and incoherent innovation policy; responsibilities of the key actors were not well defined; they were used as a predominantly policy-informing tool; innovation policy building was based on normative considerations rather than on the analysis of future developments in technological and S&T areas.*

**Key words:** foresight-type programme, research and development, innovation, technopark.

### Introduction

The objective of this paper is to describe key aspects of the recent foresight-type programmes in Ukraine in the broader context of innovation policy and then to identify the most important problems in foresight studies in the country.

The paper is focused on these prospective programmes, and especially the ones launched in the first half of 2000s. The next two sections deal briefly with the recent trends in economic, S&T and innovation development in Ukraine, paying special attention to innovation policy, and to the role of different actors in innovation activities. The third section is devoted to the main features of the 2005–2007 Programme, and the fourth section presents description and some preliminary results of that last (terminated) foresight-type programme.

In the conclusions, we summarise the results and evaluate the perspectives of further development of prospective analyses in the country in the context of its modernization and further integration into international structures.

### 1. Situation in Economic and Innovation Spheres in Ukraine in 1990s – 2000s

In 1990s and 2000s, Ukraine passed through several periods of economic crisis, when once (in 1998) GDP dropped even to 40% of the level the country had in 1989. Even in 2012 the level of GDP was about 70% of the level of the 1991, the last pre-independence year. Ukraine has failed to complete major economic reforms, which makes it different from the Eastern European neighbours [1]. In the

recent two decades, Ukrainian economy has become increasingly oriented towards producing relatively 'simple' goods for export like basic chemical products, the cheapest types of steel and so on. Even the remaining working enterprises in the machine-building sector (for example, shipbuilding) are found mostly in low value added segments in technology intensive sectors. Competition in such market segments is particularly intense, and Ukrainian companies are persistently under threat of losing out to businesses from developing countries.

It is also necessary to note that the negative structural changes stemmed from the low level of innovation activities amongst the majority of Ukrainian enterprises. According to the official statistical data, the values for indicators concerning basic innovation activities (e. g. number of new technologies, the number of inventions, etc.) went down 5–15 times between the beginning of 1990s and the middle 2010s [2]. The pattern of science and technology activities has changed gradually. Key efforts were not directed towards the development and introduction of domestic technologies and products, but towards the adaptation of imported equivalents. This has resulted not only in the exaggerated technological dependence of the country, but also to a decline in the country's existing science and technology potential.

Ukraine inherited a substantial part of the technologically oriented Soviet R&D system [3]. A decline in orders from the side of industry and collapse of the planning system led to shrinking of R&D establishments. The number of personnel involved in R&D dropped by almost two thirds between 1991 and 2014. Despite substantial

changes of the 'economic environment', the internal reforms within R&D system were very limited. In turn, this led to an ineffective utilization of funds and a low impact of the R&D sector on economic transformation. The dominant principles of fund distribution on a non-competitive basis were preserved. Despite the declarations by Ukrainian authorities, less than 5% of the total state R&D budget was distributed on competitive basis in recent years. Such practice led to a widening gap between industry and science. The state simply did not have enough money in the budget to support the system of R&D organizations.

In 1990s to 2000s science was deprived of prestige, and the status of scientists eroded. These changes resulted in gradual reduction in the number of researchers and collapse of many, if not majority, of branch (industrial) research institutes. Many scientists of middle age left their academic establishments and industry institutes. They swapped their activities for more profitable ones, while some of them emigrated. This caused a deepening of the age gap between different groups of scientists and was accompanied by the considerable shortage of 30–40 years old specialists – the most active cohort in terms of creative capacities. The "age crisis" in science will be hanging over Ukraine for years to come [4]. Moreover, as the senior generations depart from their active involvement in science, the shortage of skilled specialists will be more evident very soon.

According to statistical surveys, the proportion of innovative enterprises in the industrial sector declined from almost 30% in 1994 to 14.1% in 2013. There are several reasons for such changes. First of all, general deterioration of economic environment and technological 'simplification' contributed to a decrease of demand on innovation from the side of industry. Ukrainian companies supply goods with relatively low level of processing to the international markets (ferrous metallurgy, chemical industry, shipbuilding, agriculture) or they assemble final products from predominantly imported components for local consumption (car industry, computer industry and some others). The second important reason for decline is related to the negative structural changes in the Ukrainian economy, where the share of high and medium tech sectors shrunk threefold since the beginning of 1990s, while the shares of the energy and ferrous metallurgy sectors grew substantially. As previously indicated, these sectors have a more stable technological base, and traditionally they are less innovative than high

and medium tech sectors that contributed to the overall decline of the number of innovative enterprises. Lack of direction in modernising the national economy and insufficient incentives for developing the high tech sectors are key problems for the country. Instead, Ukraine specialises more and more on low-tech products, such as ferrous metallurgical products and basic chemicals, which represented around 60% of Ukrainian exports in pre-crisis period [5].

The demand for local innovative products dropped substantially in 1990s and the beginning of 2000s, and it is far from the level that was reached in late 1980s. The second reason, which explains poor innovative performance, is related to the generally unfavourable business environment. The indicators of the time required for registration, number of permissions needed and the cost for the establishing a new business are among the worst in the region of Central and Eastern Europe [6].

There are no other established quantitative goals at the national level, except the target of 1.7% of GDP to be devoted to R&D from the state budget. It was set in mid-1990s in the Law on Scientific and Technological Activities. In fact, this level was to have been reached several years ago, however, very little was done proactively to achieve the target. The level of budget expenditures on R&D varies from 0.33% to 0.45% in recent years, while the total share of R&D expenditures in GDP dropped to less than 0.7% in 2013. The share of Ukrainian publications in the international publications has been dropping year after the year, as well is the share of patents in UPSTO. Ukraine has very few EPO patents. This number is not going up.

A system of IPR protection has been developed relatively well in recent years. The country has created its own patent system and the special Division on IPR within the Ministry for Education and Science. In recent years this Division has started to operate quite effectively, although there is still a lot work to be done to reach the level of the leading EU countries.

Technoparks are the only organisations oriented towards supporting innovation development. Even venture funds, created in the country in mid-2000s, are oriented exclusively to the financing of property development. As a rule, innovation activity is supported through direct financing from the state budget and the system of the state scientific and technological programs. No specialized national funds, aimed at support

of innovation activities, have been created in the country. New mechanisms, such as tax incentives, have been implemented only temporarily in the case of technoparks in 1999–2004 [7].

In contrast with the innovation development in Eastern European countries [18], it was not coordinated with other policy measures in economic sphere in Ukraine. The gap between Ukraine and its Western neighbours in key indicators of innovation activities and corresponding policy tools has been especially evident in 2000s, when some of these countries joined the EU [8; 9].

## 2. Contradictions of the State Innovation Policy in Ukraine

Despite a certain number of ministries, state agencies and advisory bodies, related to innovation policy formulation and implementation, governance of the national innovation system in Ukraine is fragmented and ineffective, as the roles, responsibilities and financial obligations of the different state bodies remain ‘blurred’. The system as such, was the subject of permanent change at the executive level. Here political instability and competition to control assets and financial flows was evident.

The programmes of different ministries are numerous and ambitious, but their results are very limited due to poor financing and inadequate mechanisms of support of innovation projects. The ministries receive money on ‘current activities’ and, partially, on R&D and innovation. The size of innovation and R&D budgets varied for every ministry year by year but seldom exceeds 100–150 million UAH (up to 20–25 million Euros) even for the largest ministries. There was a huge gap between the announced intention to support innovation development and the real state policy, aimed at supporting innovation. The level of the actual financial support of the state innovation programs varied between 3% and 40% of the announced financial obligations in the years of independence [10]. At the same time, real progress in support of innovation activity is very limited due to political instability and the ineffective economic policies of successive governments. In fact, instruments of support were limited to the direct financing through the state budget. Poor policy design and unfavourable business environment are the key reasons for failures in the innovation policy of the country.

In 1999, an attempt to create technoparks was made. It is important to mention that according to the legislative documents on technoparks; only

innovative projects with the overheads they transfer to the technopark management are exempted from standard taxation procedure. Companies cannot directly receive state support. Different firms have started to register their innovation projects within technoparks and the volume of innovation production reached equivalent of seven million Euros in 2004. However, after several years of relatively successful development [11], all privileges at technoparks were abolished in early 2005 by the ‘liberals’ from the new government. An explanation for this decision was that the legislative acts of technoparks in early 2000s have opened the way for creation of ‘holes’ in the budget, as special conditions were created for some companies, which had nothing with innovation, like technopark ‘Yavoriv’ near the Polish border. This ‘technopark’, in fact, was a terminal for tax free trade. However, positive effects for innovation development were higher, than loses, and the law on technoparks required changes, not complete abolishment.

Mechanisms for the implementation of innovation policy tend to be weak because innovation policy is not the focus of the state authorities. Legal acts on innovation support have a lower priority when compared with some other state acts (e. g. Law on the State Budget). This opens the way for innovation initiatives to be blocked. To some extent, this is a general problem of the Ukrainian system of governance, although some positive changes in recent years are also evident. For instance, the country has joined almost all international agreements on IPR protection that created pre-conditions for effective technology transfer.

The initiation of foresight-type programming was also among such positive initiatives, aimed at transformation of the national innovation policy.

## 3. Key Features and Main Findings of the First Ukrainian Foresight-type Program

The government decided to supplement existing mechanisms of innovation policy by a new foresight-type programme in 2004.

The program had four main tasks:

- to elaborate basic and alternative variants of S&T and innovation development of the country;
- to form a list of the most prospective technologies and innovations, which will create opportunities for opening new external markets;
- to form a list of so-called critical technologies, which will have exceptional importance for

the stable development of the national economy and for the national security;

- to prepare recommendations for the Ukrainian government on how to use effectively R&D results financed by the state, and to create the background for the permanent system of foresight-type studies in the country.

The Ministry for Education and Science (MES) of Ukraine was responsible for budgeting participants of the program and the general logistics. The National Academy of Sciences of Ukraine was responsible for the content of the foresight-type study. Representatives of other ministries were also involved in the activities of the working group, which organised the program. Participation of experts from the industrial sectors was weak from the very beginning with less than 10% of the total number of experts.

The process of program implementation included several following stages: initiation of the Government on the foresight-type program, issuing of the Decree on the program start; determination of the key actors (Ministry of Education and Science and the National Academy of Sciences of Ukraine and two main institutes, responsible for the organization of work); creation of the Scientific Council; formulation of the program tasks and key areas of studies by the Scientific Council, and distribution of functions between the main organizations, responsible for the program; preparation of information materials and consultations on formation of the working groups; formation of working groups on different disciplines and distribution of questionnaires; collection of data and evaluation of results (Delphi-type procedure was implemented); discussion of the results (conferences, seminars); distribution of results (publications); analysis of the work, made within the Program; preparation of propositions on the second round of the program.

Scientific Council of the programme included around 30 prominent Ukrainian scientists and top state officials. Two research institutes (the Centre for S&T Potential and Science History Studies of the National Academy of Sciences – STEPS Centre and Institute for S&T Information from the MES) were nominated as the base organizations, which were responsible for the technical side of the program's implementation.

After broad consultations, fifteen thematic groups of scientists and other specialists were formed, including telecommunication, biotechnologies, space studies and so on.

Every group of experts consisted of 25–40 specialists from different research institutes, universities or leading industrial companies, and, usually, from different cities of Ukraine. Special questionnaires were prepared and distributed among these experts in a two-stage Delphi-type procedure. The representatives of the STEPS Centre and the working groups prepared these questionnaires jointly. After discussions and amendments the questionnaires were distributed among the members of working groups and among specialists from some key research institutes and companies. By the second stage, about 20% of the experts were replaced with other specialists because of the analysis of the initial responses. Those, who were substituted, could not demonstrate their qualifications in particular problems or simply ignored requirements of the questionnaire content or because of some other reasons. In late 2006, the third round was organized in a form of panel discussions. It provided recommendations on how to improve the situation with S&T and innovation in Ukraine. In 2007–2008, the program co-ordinators disseminated the results of the Program by publishing its materials on the web site and during the conferences and seminars [12].

Every stage of the Delphi-type process was finalised with special conferences and round tables of experts and some invited 'external' specialists, who discussed the key results of the programme. Publications on the results of the studies were prepared and distributed among specialists within the country. In principle, everyone was able to express his or her opinion on the key findings of the programme. It is worth mentioning that, with the assistance of the British Council, British specialists with experience in Foresight program took part in methodological seminars and conferences, which were organized within the program during 2005–2006. At the same time, it is important to note that the procedures of expert group formation were not sufficiently transparent. Groups of experts were formed by the National Academy of Sciences and the MES from limited pools of specialists. Sometimes, whole groups consisted predominantly of specialists from one research centre, while very few foreign experts could express their opinions on the results of findings. This created conditions "uniformity" of the final results and a reduction of the possible variants of development for scientific disciplines and technological areas. To great extent, this could be explained by the fact that the program did not receive the total amount of financial re-

sources it was promised in 2004. This reduced the ability to attract more experts, and to pay more adequately for the job of those, who participated in the program. The government has not included money for the continuation of the program in the budget for 2007. This made difficult the process of implementation of the program, especially the involvement of independent experts from abroad and from industry. As a result, the program represented predominantly the opinion of the Ukrainian research community and, partially, officials from different ministries.

The analysis of the Program results, made by the specialists of the STEPS Centre with participation of the representatives of the working groups, showed that the negative tendencies of the 1990s were less prominent in the 2000s. However, the general trends in changes of the main indicators of S&T and innovation potential development were similar to the previous period. In principle, expert data confirmed the corresponding statistical information on R&D and innovation spheres.

The current level of expenditures, established in Ukraine, is obviously incapable of ensuring efficient research processes because the funds are barely sufficient for the relatively low wages and utility payments. Ukraine spends much less per researcher per year than the EU countries, including CEE countries and less than even India or South Africa. Specialists, who were involved in foresight program, suggested that the government as well as the private sector should increase financial support for S&T [13].

As to particular research areas, traditionally, Ukrainian scientists had relatively strong positions in material sciences, physics, and some technical disciplines. Here, Ukrainian experts looked forward with restrained optimism. It seems that in some scientific areas it is still possible to expect interesting applied results, as, for example, in welding technologies. It is worth noting that problems of energy conservation, utilization of alternative sources of energy and upgrading of energy generating system have received the highest marks for their importance [14]. According to Ukrainian experts, bearing in mind existing potential and experience, there are high chances that these problems will be studied and (partially) solved successfully in the country in the future.

On the other hand, the gap between Ukraine and the developed countries in such areas, as biotechnology, genetics, electronics, nanotechnologies, health care methods will grow, despite that

these research areas have received high marks for their importance from experts, and that Ukrainian scientists have promising results in some narrow sub-fields of these disciplines.

Interdisciplinary studies, such as physical and chemical biology, sensors, and environmental studies were mentioned as important directions for development.

Traditionally, Ukrainian experts received high marks for space research and technologies. However, now and in the likely future the country cannot conduct research projects in these areas without intense international co-operation. The accent should be made on practical aspects of these projects, including observation of agricultural lands, telecommunications and weather prediction.

According to the opinion of Ukrainian experts, the Ukrainian foresight-type program showed that the country still has scientific potential in some disciplines. At the same time, it is evident that the country's research system continues to lag behind the international standards despite excellent results in some research areas. The most urgent objectives at the present stage of economic development were determined by the experts to be the:

- development of R&D organisation and enhancing R&D management, in particular, the creation of new forms of integration of science and production sectors;
- improvement of the management skills in the Ukrainian research sector and the dissemination of the best practices nationwide;
- improvement of the industrial structure, development of hi-tech sectors and acceleration of socio-economic development of the regions;
- active implementation of R&D results and advanced technologies in different sectors of the national economy.
- further development of S&T co-operation with other countries, especially with the EU and neighbouring states.

These recommendations were reflected in the drafts of the new laws related to innovation and S&T, prepared in Ukraine in 2008–2014, including drafts of the laws on S&T and innovation policy and some others. Unfortunately, as the result of political instability and severe economic crisis, these laws were not passed by the Parliament. The program has catalysed the initiation of the several new innovation initiatives, which were announced for 2008–2011. These included the programme on development of innovation in-

frastructure, and the programme on monitoring of innovation activities in Ukraine. However, but the state could not budget them in 2009–2014. Generally speaking, the foresight program led to a strategic orientation, yet its recommendations have not been advanced through policy processes and policy instruments.

Coordinators of the program prepared several reports to the Ukrainian authorities, including the government and the Parliament [14]. These reports could have been used for further discussions and the formulation of policy documents at different levels and utilized by the Ukrainian Parliament. As we mentioned above, according to existing laws, national priorities in S&T are determined by the Parliament every five years. In the past, they were formulated on the base of the opinion of a few experts and bearing in mind existing capabilities of the Ukrainian R&D organizations and the priorities in other developed countries.

In 2008, Parliament had plans to return to the formulation of the national priorities in the S&T, and this time the results of national foresight could have played an important role in the decision-making process. Unfortunately, political problems diverted the attention of politicians from the problems of S&T priorities.

However, a positive indirect result of the program is the preparation of the Strategy of Innovation Development, which was approved during parliamentary hearings in July 2009. Arguments on the need to develop a comprehensive innovation strategy and to initiate different R&D and innovation projects in selected areas were to some extent based on the results of the program [11]. This looks logically justified, as the group of specialists from the National Academy of Sciences, which prepared the initial variant of the Strategy, was also involved actively in the foresight program. The Strategy covers a number of issues, including S&T priorities, organizational measures aimed at acceleration of innovation development, forecasting of the main S&T indicators and so on. The Strategy was discussed widely among specialists from different ministries and the University sector before the hearings but, the hearings showed some differences in views between experts from the industrial ministries, academics and politicians, including members of the Parliament. The Strategy has not become a law, which means that it cannot be implemented officially yet. However, the Strategy has stimulated a number of discussions

among Ukrainian experts and, probably, it could be used in preparation of different parliamentary bills and legal acts in the near future.

#### 4. Second Foresight-type Program 2008–2011

Only at the end of 2007, the Government approved a new foresight-type program, which had to be conducted between 2008 and 2011. The preparation of this Program started in the second half of 2008. According to the Law of the State budget, participants of the program received 900 thousand UAH (140 thousand Euros, according to the official exchange rate) for the period 2008–2009, or only half of the amount, which was announced initially [15]. This new program was considered a continuation of the previous one. Key objectives and tasks were similar. At the same time, it contained several new features. The first one is the focus on the most urgent needs of national development and the possibilities to develop and commercialize some promising technologies. Energy saving was the focus of the Programme during its first year, while the biotech sector and new materials were foci during the second year. Secondly, the MES of Ukraine has concentrated all management in its hands, although this measure has not deprived specialists from the National Academy of Sciences from participation in the Program.

The groups of participants were changed substantially. The procedure of expert selection has become more transparent, and now every person with proper qualification and knowledge could express his (her) opinion on the specific problems of S&T development. Key criterion for selection was the level of competence of the specialist (experience, place of work, and publications in the area). After checking the personal data, experts could receive an access code from the MES, and fill the special questionnaire online. At the same time, ministries and the National Academy of Sciences have recommended different research institutes and companies for participation in the program. Approximately 120 experts responded during the first year, and more than 200 during the second year. It is interesting to note that scientists could fill part of the questionnaire, related to the development of their corresponding discipline, while industrialists or representatives of the ministries focused on aspects, related to the commercial perspectives of the products and technologies.

More attention has been paid to interviews and collection of expert opinions through the In-

ternet. However, the rate of responses appeared low, and coordinators had to ask different ministries to help them with data collection by approaching key specialists directly. As it was in the previous programme, the industrial sector was again represented very modestly (less than 20% of all respondents).

The first results of the second stage of the programme, announced in December 2008, show that this initial task to detect specific technologies and to determine perspectives of their commercialisation will be difficult to achieve. Coordinators have collected data on new energy technologies from more than one hundred experts. However, this was difficult to compare or generalise. The list of approximately 60 different prospective technologies in the energy sector has been prepared. Fourteen technologies were identified as those, which had critical importance for the further development of the energy sector as a whole and for energy saving in different sectors of the Ukrainian economy.

Coordinators of the program had plans to compile data on promising biotechnologies and technologies in the field of new materials in 2011. The corresponding list of such technologies had to be prepared. There were plans to attract at least 32 Ukrainian research institutes and groups to prospective studies of biotechnologies and 35 such organizations to the studies of new materials [16].

The MES of Ukraine has introduced new computerised forms for data collection, but some experts of older generations could not use them properly. It seems that it would be important to arrange another round of expertise to obtain relevant results. The coordinators have also included a block on 'technology audit' into the program, but it is too early to conclude, how it will work with prospective technologies. According to the program administrators, a technology audit is an assessment of specific technologies strictly from a technological, not commercial, point of view. MES officials thought it could help to 'filter' the most promising technologies.

Another new block in the program was the model of S&T development, based on a traditional production function with external S&T factors. It is unlikely that this model could provide reliable results, especially in conditions of crisis. Nonetheless, it is budgeted for in the working plan.

However, the program was terminated in 2011 along with other 28 state programs within the measures, aimed at balancing state budget.

## Conclusions

Although foresight is an important methodological instrument in deciding on goals for social and economic growth, it has been neglected for years in Ukraine. Now the urgent need for foresight studies is evident for a number of scientists, industrialists, and officials. However, foresight-type activity will be useless if it is not integrated in the broader context of innovation policy, which itself needs substantial modernization and improvement.

First, the Ukrainian foresight activities were implemented in conditions of very weak and incoherent innovation policy. In such conditions Foresight faces much stronger limitations when compared to countries that are more institutionally stable and have more developed innovation policy. Real innovation challenges are not defined clearly in the official documents in Ukraine. At the same time, in the conditions of incoherent innovation policy, foresight appears to be an adequate instrument to compensate some policy weaknesses.

Second, responsibilities of the key actors were not well defined. There were several ministries and state agencies in Ukraine, which were responsible for support of innovation activities in the country. However, their scope of governance was overlapping, and not clearly defined.

Third, the foresight process itself was not without weaknesses. For example, the new, relatively low-tech specialization of Ukrainian economy is not reflected properly in the foresight-type programs. More attention has to be paid to the technological changes in traditional sectors. In particular, reduction of energy consumption has to be among the high priorities.

As to the first foresight-type program, in general, this experience was not successful enough. However, the first foresight-type program was useful. It helped to collect new analytical information and to raise important problems of innovation development at least to the level of the state officials. While the second foresight-type program was more oriented on the needs of the economy, it was distracted from the general problems of S&T and innovation development.

Havas and co-authors [17] showed that the foresight could play at least four important functions in the process of national development: as a sophisticated policy informing tool; as an integral part of policy process; as a pacemaker for building up reflexivity, and as a tool for impact assessment.

In Ukraine, the foresight-type programs were used predominantly as a policy-informing tool,

while other possibilities for the utilization of the foresight studies were clearly underestimated. However, in recent years, the formulation of innovation policy was predominantly based not on the analysis of future developments in S&T and innovation, but on normative considerations. The state authorities utilized these without adequate analytical work. Foresight could, in principle, help to make decisions in these spheres more grounded and justified. To be really useful for the formulation and implementation of S&T and innovation policy, the foresight program needs changes in its organisation and mechanisms of co-ordination with other policy tools, like the state programs on economic and social development, branch (sectoral) development programmes and so on. It is also important to attract more specialists and government officials into the process of foresight studies and to arrange a broad and open discussion on the most important issues of S&T development.

This will require substantial efforts, including the participation of foreign experts, who could provide independent views on the situation in Ukrainian S&T and innovation spheres and propose mechanisms for their further adjustment.

Another key issue is to make the impact of results of foresight studies more effective in terms of their utilization in decision-making process at the governmental level. It is evident, that this process has to go along with the further democratisation of Ukrainian society and the embrace by politicians of their responsibility to the population of the country.

Foresight programs do not guarantee that Ukraine will successfully address a number of problems it faces at the moment. However, its adequate implementation could help in the effective modernization of the national S&T and innovation systems and their utilization in the interests of the Ukrainian society.

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*И. Ю. Егоров*

### **Форсайтные исследования в контексте инновационной политики Украины в 2000-х годах**

*Статья посвящена проблемам научно-технологического прогнозирования в Украине в более широком контексте реализации инновационной политики. Представлен обзор основных тенденций экономической, научно-технологической и инновационной деятельности в независимой Украине. Показаны противоречия в инновационной политике Украины. Выполнен подробный анализ хода реализации двух форсайтных программ в Украине: 2004 года и 2008–2011 годов. Обобщены их основные результаты и определены наиболее важные проблемы в области прогнозных исследований в Украине. Подчеркнуто, что форсайтные работы в Украине реализовывались в условиях слабой и непоследовательной инновационной политики; были нечетко определены задачи их участников; они в основном использовались как информационный инструмент для политиков; инновационная политика в Украине формировалась преимущественно на нормативной основе, а не на результатах анализа будущих тенденций в научно-технологической и инновационной сфере.*

**Ключевые слова:** *форсайтная программа, исследования и разработки, инновации, технопарк.*

*I. Ю. Єгоров*

### **Форсайтні дослідження в контексті інноваційної політики України в 2000-х роках**

*Стаття присвячена проблемам науково-технологічного прогнозування в Україні в більш широкому контексті реалізації інноваційної політики. Представлено огляд основних тенденцій економічної, науково-технологічної та інноваційної діяльності в незалежній Україні. Показано протиріччя інноваційної політики України. Виконано докладний аналіз ходу реалізації двох форсайтних програм в Україні: 2004 року та 2008–2011 років. Узагальнено їхні основні результати і визначено найбільш важливі проблеми в галузі прогнозних досліджень в Україні. Підкреслено, що форсайтні роботи в Україні реалізовувались в умовах слабкої та непоследовної інноваційної політики; було нечітко визначено завдання їхніх учасників; вони здебільшого використовувались як інформаційний інструмент для політиків; інноваційна політика в Україні формувалась переважно на нормативній основі, а не на результатах аналізу майбутніх тенденцій в науково-технологічній та інноваційній сфері.*

**Ключові слова:** *форсайтна програма, дослідження та розробки, інновації, технопарк.*