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EVALUATION OF EFFECTIVENESS OF NEW TECHNOLOGIES

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ОЦІНКА ЕФЕКТИВНОСТІ НОВИХ ТЕХНОЛОГІЙ

The concept of economic evaluation of new technologies refers to a process that seeks to determine efficiency and effect of innovation in terms of its objectives, including the analysis of the implementation and management of such activities.

Evaluation methods and practices have developed alongside the evolution of technology and innovation policy and the understanding of the innovation process. Starting from the predominant model in the post-war period, the focus was first on the assessment of the quality of scientific research, with peer review and bibliometric techniques (impact analysis and citation counts) as the main methods [1].

Effectiveness is defined as whether a product demonstrates a desired benefit under conditions of actual use. Efficacy is the name quality seen under research conditions.

The first stage of technology assessment (resolving technical issues) evaluates the benefits conferred by a product in a research setting (efficacy). The second stage (determining applicability evaluates whether or not that benefit is realized when the product is put to actual use (effectiveness) [2].

Fundamental research on new technologies begin to give useful effect only after a certain period of early works, and the results are used in various spheres of economy, sometimes in those where they were not expected. That is why it is not easy to plan the expected results and the effectiveness of such investigations.

The effectiveness of any R&D can be evaluated only after their implementation, that is when they begin to impact the economy. After some period the time factor is of great importance. In this connection, the duration of fundamental themes development on the ability has to be optimal.

The fundamental (theoretical) studies affect after a certain period of time and their economic effects in many cases are difficult to evaluate by conventional economic indicators. For example, between the discovery of electricity and its practical use has been almost 100 years, and the life without electricity is almost impossible.

It is known that the effectiveness of applied research is determined by a combination of general and specific quantitative indicators.

The general ones are the main indicators characterizing the effectiveness of the innovation technology as a whole, taking into account results in the creation, production, consumption (use) of the objects of new techniques, technologies and materials.

In our mind it is important to evaluate such issues with the use of further intervention measures in Ukraine:

– evaluation of innovation implementation considering the fact if instability and economic crisis;

– evaluation of science-industry co-operation;

– evaluation of the use of target complex innovation programmes and strategic research and technology measures;

– evaluation of support infrastructure for innovating firms: the example of science parks, clusters and technopolises;

– evaluation of funding for innovation companies (venture funds for real fundamental and applied research);

– evaluating clusters policy.

A long time horizon is one issue in evaluating these types of measures.

If the purpose of the evaluation is primarily to provide justification (i.e. on value-for money questions) to sponsors and politicians, for example, then a summative evaluation is more appropriate. These considerations of course do not preclude the use of a series of (more focused) evaluations designed to look at the different anticipated outcomes of the intervention over a longer time frame. A good example is that of the evaluations of the Danish Innovation Consortia, which proved to be cost effective [3].

In solving the problems of evaluating the effectiveness of new technologies and innovations in unstable economic systems there is a need for a classification of priorities to assess possible effects. The assessment begins with the identification of areas in which the introduction of new technologies can lead to higher rates compared to the current situation. Unlocking the potential of the new technology, or, for example, alternative models (in particular, on the basis of prognostics) is crucial. A concrete plan of introduction of new technologies and service models must be developed on the basis on the analysis of its effectiveness. The principles of evaluation of the effectiveness of the issues stated above are determined by features of the basic economic principles and the results of state and private investment in R&D. foreign and national scientists clearly state that there is a strong correlation between investment in innovation and its effectiveness. Since the study includes not only fundamental researches but also marketing. To solve the problems associated with the assessment of the effectiveness of new technologies the evaluation of investment and innovative projects will provide a comprehensive approach based on the use of financial criteria and criteria of novelty.

However there is the apparent contradiction between the need to spend on innovation in industrial depressed regions and their relatively low capacity to absorb funds intended to encourage innovation and investment in innovation, compared with more developed regions. That is, while there is the need to attract more innovation in depressed regions to preserve and enhance the competitiveness of regional enterprises, the more difficult is to carry out investment and efficient use of public funds to promote innovation in such regions.

The solution to this problem is in proper adequate policies aiming to expand opportunities to absorb investment funds for innovation effectively.

Literature

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