

National Technology Platforms: The European Experience

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The Ministry of Education of the Russian Federation has announced the start of the formation of national technology platforms to ensure coordinated development of innovation in key economic areas. The mechanism of the platforms is borrowed from that of the EU.

Coordinating the work of members of the scientific community and technological progress is a fundamental problem. The life of a society improves or diversifies only when scientific ideas are transformed into technology and have an application. Normally, science, development, and technology can be likened to a swan, a pike, and a crab, respectively: the odds that all will move in the same direction are very small. Scientists, engineers, and managers pursue different goals and use different ways to measure their accomplishments. To ensure progress, it is necessary to coordinate the work of all three groups.

Modern economic theory describes such coordination using the concept of *National Innovation System* (NIS) developed in the late 1980s by an Englishman, Christopher Freeman, and a Dutchman, Bengt-Åke Lundvall. NIS theory is, in fact, the underlying component of the entire development strategy of the European Union, and Freeman and Lundvall themselves were among the masterminds of the famous Lisbon EU strategy.

According to Freeman's definition, NIS is the network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies. Since most EU economies are of a mixed, socialist-capitalist type, the role of

government in the European model of NIS is particularly big. The EU is a key customer and consumer of this research and development, financing such research through their framework programs.

The current Seventh Framework Program (FP7) is designed for the years 2007-2013. The ten areas of thematic priority are highlighted in it as the most general tool for coordination, just as in the Russian programs. Most of the money is allocated to IT, health, transport, and nanotechnology.

The main instrument of coordination amongst all the players in the field of R&D has become the *European Technology Platforms*. Formally, they are not included in FP7, but they are closely linked to it. There are 36 such platforms, the first of which was created in 2002.

Each platform is designed around a specific group of commercially and socially important technologies, such as Photovoltaics, Water Supply and Sanitation Technologies, Industrial Safety, and Textiles and Clothing of the Future. The EU has adopted the opinion that the platform is formed from the bottom up, "But, in fact, business, investment and finance, research and community organizations put them into close contact with government agencies and services."

Such technology platforms do not have a legal status; they are

open organization networks that formalize the industrial NIS. Their existence is subject to three phases:

1. Interested participants form a common vision for the development of subject fields, in meetings and discussions;
2. Jointly, but under the industry's leadership, a *Strategic research plan* is formed. In this regard, the needs for both medium- and long-term research and development are laid out;
3. The implementation of the strategic plan is carried out, involving private and public investors (example, through FP7 and national ministries and foundations).

One of the main objectives of these platforms is to help EU officials shape the subject contest in the FP7. At the same time, the EU is only funding the work of the platform secretariat, and the basic organizational costs are borne by the participants. Additionally, the EU ensures that the platform concepts are not eroded. The corresponding status of the "European Platform" is assigned only to the cohesive and motivated associations that have emerged around breakthrough technology trends.

For example, let us turn to the strategic plan for the technology platform "European Research Council in the Field of Road Transport." Here are some points of the plan:

In the years 2020-2025, working trials will be held to test automated traffic control, simultaneous braking and acceleration of vehicles, as well as keeping the distance between vehicles.

In 2010-2015, experiments will be done to evaluate the possibility of direct measurement for the friction of tires.

In 2010-2015, a full-fledged system of networked communications between vehicles, as well as vehicles and infrastructure, will be developed.

Long before the formal adoption, the plan will be posted on the platform's website, where it is freely available for discussion.

The platform includes more than a dozen core business associations (the Asphalt Association, Association of Automotive Components Suppliers, amongst others), several universities and nonprofit foundations, countries – members of the EU, the European Commission as a whole and its individual committees. A special role is played by such corporations as Bosch, Renault, Volvo, and others.

Over all, an executive board of five members manages the platform, led by Wolfgang Steiger, the director of new technologies for the Volkswagen Group. The Council meets about once a month, and the more illustrative meetings are linked to specialized exhibitions and conferences.

These Platforms are at different stages of development. A separate group is composed of the most advanced initiative associations, demanding particularly complex and expensive research. Joint technology initiatives (JTI) are specifically developed for them in FP7. To date, there are five such initiatives, and they all work in partnership with the "parent" platforms: Fuel Cells and Hydrogen Energy, Nanotechnology, Innovative Medicines, Embedded Electronic Sys-

tems, and Aeronautics and Air Transport.

Legally, these are public-private partnerships, each of which works between the European Commission, the countries concerned, and representatives of private business. The EU allocates 1-2 billion euro to each JTI on average for the period ending in the year 2013, a matching amount is provided by business. An open competition is used to select projects for funding, bringing together research centers, small businesses, and corporations. The main criterion for selection is scientific excellence. The first projects were selected in late 2008, but so far it is too early to judge the effectiveness of JTI.

However, there are sufficient monitoring results for the conventional technology platforms. In 2008, a survey of 950 organizations showed that in general there is greater coordination and harmonization of policies in organizations participating in such platforms. Does participation in the platform give access to financial resources? The respondents consent, but the degree of optimism on this matter is much higher for civil servants than for corporate managers, university professors, and especially, owners of small innovative firms.

There are problems in integration with FP7. The representatives of some platforms are happy with how their proposals are presented in the program competitions, while others believe that their proposals are being completely ignored. There are complaints that the efforts to establish and promote a strategic research plan do not correspond to success in FP7, and that contests are won by the same small group of applicants as always.

EU experts were faced with great difficulties when trying to obtain information about the activities in individual platforms. Sometimes

their secretariats worked poorly, and the members rarely met to discuss.

Finally, the expectation that the platform will build and develop vocational education was not met. In this area there has been practically no activity. But in general, 93% of respondents reported that they would not have changed their decision to join the platform had they known in advance about their development. A study in 2009 confirmed the fact of the usefulness of such platforms, but it emphasized the low degree of participants' involvement in their work. Due to the informal nature of the platforms, the specific economic and statistical effects of their existence are not recorded.

The moderate success of technology platforms is combined with the overall modest achievements of European research and innovation policies. A key objective of the Lisbon strategy was to bring spending on science up to 3% of GDP by 2010, and this goal remains unfulfilled. Now experts are creating a new European Commission strategy. Technology platforms will be maintained, but they are encouraged to merge into a "technological innovation platform," organized in the cluster form. In addition to the strategic plans, the participants are now instructed to develop and present "Plans for Innovative Actions" to the European Commission, and conduct studies consistent with the EC forecasts. They will have to assess themselves joining high-risk projects and implement their own "program innovation." Only time will tell how the strategy of such enhancement of the platforms was justified. The EU is not planning on giving up, and European officials insist that this mechanism has enormous potential, referring to the platforms as the "Flagship of Europe." ●