Russian Nanotechnology Foresight and Roadmapping in Russian Corporation of Nanotechnologies (RUSNANO)

Dubyanskiy Sergey

Russian Corporation of Nanotechnologies, Nametkina Street, 12A, Moscow, Russia 117420
Sergey.Dubyanskiy@rusnano.com

Technology foresight (TF) is one of the most common used and efficient methods for building long-term scientific and economic projections. According to definition given by United Nations Industrial and development organization (UNIDO), foresight is the process involved in systematically attempting to look into the longer-term future of science, technology, the economy and society with the aim of identifying the areas of strategic research and the emerging generic technologies likely to yield the greatest economic and social benefits [1].

Foresight provides a more complex approach than traditional forecasting and it is not a strictly defined procedure, but a number of tools. Foresight is always oriented in future, but it's aims can be different: elaboration of forecasts (technological and social), building of new networks and platforms for social dialogue and unifying different stakeholders.

Foresight methodology is characterized by broadness and flexibility and can combine a great number of separate methods and studies. Among the most commonly used methods technology roadmapping, scenarios, critical technologies, expert panels and Delphi method can be named [2].

In the late 1990s new EU members started foresight exercises to identify national priorities in R&D. Also some international foresight projects were launched by UNIDO. The demand from the society to improve the quality and transparency of administrative decisions is the main cause of increasing popularity of foresight. The complex socio-economic problems like building a knowledge-driven society, war on poverty can be better solved by such comprehensive decisions like foresight.

In the NIS, especially in Russia, several difficulties while incarnating foresight project can be identified: Poor level of strategic development, short-term thinking, old institutions with inflexible disciplinary focus, low intensity of innovative activity.

Russian Nanotechnology Foresight project started in 2008 and is performed by RUSNANO and State University - Higher School of Economics (HSE). The main instrument of this foresight project is Delphi survey. On a large scale the aim of the project is to define priorities for R&D in Russia in the field of nanotechnology. More practical application of the foresight results can be a improving of the mechanism of investment projects selection [3].

One of the two base methods of Russian foresight and, at the same time, an original result is roadmapping. According to a researcher from Motorola where roadmapping was implemented for the first time, a roadmap is an extended look at the future of a chosen field of inquiry composed from the collective knowledge and imagination of the brightest drivers of change in that field [4]. In case of Russian nanoindustry roadmaps are composed for several product groups (carbon fiber, cutting tools, light emitting diodes and catalysts for oil-refining industry) and industries where nanotechnologies can bring significant economic an social effect (medicine, aerospace industry, nuclear power engineering etc.).

Totally RUSNANO plans to build 10 roadmaps. The light emitting diodes roadmaps is already finished and the others will be presented this year. The translation into English of the roadmaps is in work, after that the graphic presentations will be available for foreign users. RUSNANO always welcome interested colleagues and organizations for cooperation.

References

[1] UNIDO Technology Foresight Manual. Volume 1, Organization and Methods. - United Nations Industrial Development organization, Vienna, 2005.
[2] Popper R. How are foresight methods selected? // Foresight, **Vol. 10, No. 6** (2008), pp. 62-89.
[3] Sokolov A., Karasev O. Foresight and technology roadmaps for nanoindustry, Russian Nanotechnologies, **vol 4, № 3-4** (2009). (in Russian).
[4] Galvin R. Science Roadmaps. // Science. **Vol. 280, Number 5365** (1998), p. 803.
[5] Phaal R., Farrukh C., Probert D. Technology Roadmapping: linking technology resources to business objectives. / University of Cambridge (2001).