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FORESIGHT IN RUSSIA AND FOR ITS COOPERATION WITH THE EU

Key words

Foresight, Russia, Science & Technology, Research & Development, Innovation, EU.

Abstract

The Russian S&T sector has come high on the Russian policy agenda in efforts to diversify the economy beyond primary goods production. In this context, foresight has become in recent years an important tool for S&T policy making in Russia. Specialized institutes, which provide analytical support to the government and R&D and innovation funding institutions were established. But foresight is also applied for developing and deepening of the EU-Russia R&D and innovation cooperation within the FP7 funded ERA.Net RUS project¹.

1. Russian R&D and innovation

In the recent years the Russian R&D and innovation sector has undergone tremendous changes while policy makers have taken important decisions to modernise it. At the beginning of the 1990s, when the Soviet Union was dissolved, the Russian Gross Domestic Expenditure on R&D (GERD) declined dramatically from levels over 2% of GDP to around 0.7% of GDP. It has grown

¹ See for details on the ERA.Net RUS project and its preliminary analytical results of EU-Russia S&T cooperation at: www.eranet-rus.eu.

since then and stands currently at levels slightly above 1% of GDP (see Fig. 1). According to this indicator, Russia is at the same level as Italy, but well below the biggest EU countries. In the analysis of these figures, it needs to be taken into consideration that the Russian GDP has expanded up to the year 2008 strongly at levels of 6% per year and financial inflows into R&D and innovation have de facto increased substantially.

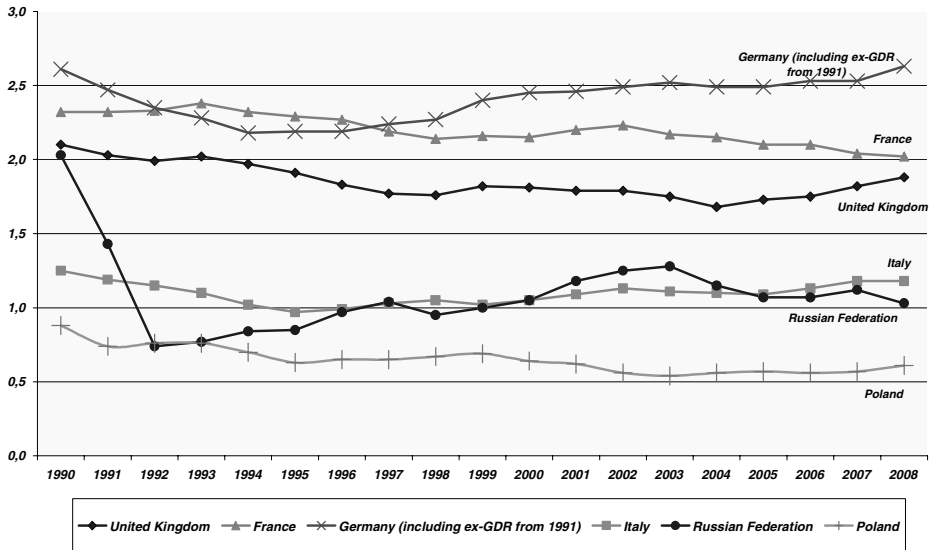


Fig. 1. GERD as a percentage of GDP
Source: EUROSTAT, 2010.

New competitive funding programmes, so-called Federal Targeted Programmes (FTP) have been established and new funding bodies, especially for innovation support have been set up with Rusnano for stimulating innovations in nanotechnologies, and the Russian Venture Company (RVC) for increasing venture financing. Competitive funding for civil R&D, although having still some flaws (such as limited competition in certain funding programmes), contributes to approximately 50% of total R&D funding, whereas traditional block grant funding of public research organisations has been decreasing². The strengthening of the Russian universities, especially of their research capacities and international cooperation has become another policy priority. Opening up of the Russian S&T sector is supported through various new funding programmes, e.g. one for attracting leading foreign scientists to

² OECD (2008). STI Outlook 2008 – Policy Questionnaire: The Russian Federation.

establish research groups at Russian universities³. A weak feature is still that government funding of R&D and innovation is comparatively strong, whereas investment of private business in these activities is rather limited.

2. Foresight in Russia

Informed policy making is increasing in Russia's R&D and innovation system and has contributed to recent reforms. Foresight methods have become common among specialized research institutions, such as the Institute for Statistical Studies and Economics of Knowledge (ISSEK) at the Higher School of Economics in Moscow, and analytical support institutions for the government, such as the Interdepartmental Analytical Centre. A specific scientific journal entitled "Foresight"⁴ is published in Russia since 2007. It is edited by the Higher School of Economics and has an international editorial board including representatives of OECD and UNIDO, as well as of the Russian government and of R&D and innovation funding bodies (e.g. Russian Venture Company).

Foresight is undertaken to support the government in the policy-making process. Foresight results are used by the presidential apparatus, the prime minister, and by certain ministries. For the coordination and the shaping of research policy the Governmental Commission on High Technologies and Innovations⁵ has been established in the frame of the Russian government. It is chaired by the Prime Minister of Russia. One of its tasks is to make long-term scientific-technological forecasts. But it should be stressed that some funding bodies, such as Rusnano use and contract foresight out to research institutions for developing certain fields of their scientific-research activities⁶.

A major foresight exercise was undertaken in 2008–2009 at the request of the Ministry of Education and Science. This exercise was scheduled in the "Comprehensive Programme for the Scientific-Technological Development and Technological Modernisation of the Economy of the Russian Federation up to the year 2015", which dates from 2007. The aim of the exercise was to provide a state of the art of the scientific-technological potential, to outline external and internal factors for the development of the scientific-technological sector and to single out those fields in basic and applied sciences, where Russia is still at the

³ See the funding programme "Attracting leading scientists to Russian universities", published at the website of the Ministry of Education and Science: <http://eng.mon.gov.ru/pro/ved/uch/>, last accessed 26 October 2010.

⁴ <http://ecsocman.edu.ru/foresight/>.

⁵ <http://www.government.ru/eng/gov/agencies/138/>.

⁶ See for example the article: Forsait, dorozhnye karty i indikatory v oblasti nanotechnologii I nanoindustrii, in Forsait, No 4 (12) 2009.

forefront and which are promising for economic development in the long term perspective up to 2025⁷.

The foresight exercise was implemented by a consortium of three organisations, the Centre for Macroeconomic Analysis and Short-Term Forecasting, the State University – Higher School of Economics, and the Interdepartmental Analytical Centre. Around 3000 Russian experts were involved in the exercise and a Delphi study was conducted. Experts from all relevant Russian regional scientific centres were involved, foremost from Moscow, St. Petersburg, Kazan, Krasnoyarsk, Novosibirsk, Tomsk, Ufa, Yekaterinburg. Thematic fields that were surveyed in detail corresponded to the priorities, that are believed to enable the development of the science and technology sector, and which were approved by the Russian President in 2006⁸. These priority areas of research are highly important and consequently most funds are directed towards research within these priorities. The following priorities were surveyed:

- Security and antiterrorism,
- Life Sciences,
- Industry of nanosystems and materials,
- Information and telecommunication systems,
- Advanced weapons, military and special technologies,
- Sustainable use of environment,
- Transport, aviation and space systems,
- Energy and energy saving.

Results of this foresight exercise were presented at a round table discussion at the Ministry of Education and Science in December 2008. The results were also discussed in the Governmental Commission on High Technologies and Innovation, within Government and were submitted to the Russian President. Another foresight cycle has recently been implemented in the years 2009–2010.

A foresight exercise was also undertaken by the Ministry for Economic Development and resulted in the “Concept of Long-term Socio-Economic Development of the Russian Federation for the period up to the year 2020”⁹. The document, which includes the development strategies for the research and educational sectors was approved by the Russian government in November 2008. Additionally, such ministries as the Ministry of Industry and Trade and the Ministry of Communications and Mass Media apply foresight for their policy-making.

⁷ See A.V. Sokolov (2009). *Budushchee nauki iologii: rezultaty issledovaniya Delfi*, Forsait No 3 (11) 2009.

⁸ See: <http://www.sci-innov.ru/law/base/97/>, last accessed 26 October 2010.

⁹ See: <http://www.economy.gov.ru/minec/activity/sections/strategicplanning/index>, last accessed 26 October 2010.

Foresight for EU-Russia R&D cooperation

The cooperation in R&D and innovation has been developing dynamically over the past years between Russia on the one hand, and the EU, its Member States (MS)¹⁰, and the countries associated (AC) to the EU's 7th Framework Programme for R&D (FP7)¹¹ on the other hand. Russia has established several bilateral joint R&D and innovation funding programmes with European partners. The strongest cooperation relations are between Russia and the following EU countries: Germany, France, Austria and Finland. Whereas, among the countries that are associated to the FP 7, Switzerland and Norway have the most substantial joint funding programmes with Russian funding partners¹².

At the multilateral level, Russia has had the highest participation rate in the FP6 and FP7 projects of all "Third Countries" (countries not being EU Member States or countries associated to the FP)¹³, although this position is now being contested by the USA. In recent years Russia has co-funded several coordinated calls within the FP7. In these calls, the EU and Russia jointly define specific topics in the frame of a standard call of the cooperation programme. The specific topics of the call are agreed among Russian and EU experts in joint Working Groups, involving representatives of the Commission, FASI (Russian Federal Agency for Science and Innovation) and Russian ministries. New joint EU-Russian funding instruments are being created within the ERA.Net RUS project. This ERA.Net project, which is funded by the FP7, aims to coordinate bilateral funding programmes with Russia for establishing a joint R&D and innovation funding mechanism.

Russia has established a special cooperation framework with the EU with the concept of the "four common spaces", which includes a common space of research and education, including cultural aspects¹⁴. As a consequence of this profound cooperation with the EU, in 2008 Russia requested its association to

¹⁰ EU member states are: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom.

¹¹ Countries associated to the FP7 are: Albania, Bosnia and Herzegovina, Croatia, Faroe Islands, FYR of Macedonia, Iceland, Israel, Liechtenstein, Montenegro, Norway, Serbia, Switzerland, Turkey.

¹² S. Kougiou, M. Spiesberger, V. Kerasioti, I. Kuklina, G. Roll, L. Proskuryakova, I. Sharova (2010). State of the art and perspectives of bilateral S&T programmes between the EU MS/AC and Russia. <http://www.eranet-rus.eu/en/107.php>, last accessed 26 October 2010.

¹³ European Commission (2009). European Community-Russia scientific and technological Cooperation. A Roadmap for action 2009-2011. Available at <http://ec.europa.eu/research/iscsp/index.cfm?lg=en&pg=russia>, last accessed 26 October 2010.

¹⁴ The other three common spaces are a common economic space, a common space of freedom, security and justice and a common space of external security.

the FP7. Negotiations on this association are advancing slowly, as it is being negotiated in the wider framework of a new Partnership and Cooperation Agreement between the EU and Russia.

In the context of developing EU-Russia R&D and innovation cooperation, a foresight exercise is to be implemented in the frame of the ERA.Net RUS project over the years 2011–2012. The foresight project shall provide an analytical basis for a future sustainable joint funding programme between the interested EU Member States, countries associated to the FP7, and Russia. It was decided within the ERA.Net RUS consortium¹⁵ to focus in the foresight exercise on developing a structural and a thematic scenario for R&D and innovation funding cooperation. The structural scenario shall give guidance, how the cooperation may be set up institutionally for a joint funding programme. The thematic scenario shall give guidance on the future thematic orientation of funding cooperation. Obviously analytical support for funding activities is needed. For example, discussions on the planned ERA.Net RUS Pilot Joint Call for R&D and innovation projects¹⁶ have shown that issues such as the definition of the thematic scope of the call, which are highly relevant for funding organisations cannot quickly be solved.

The *Methodological Approach* for implementing the ERA.Net RUS Foresight was discussed during a workshop in September 2010. It was agreed that:

- Literature review, data analysis and drafting of a discussion paper on EU-Russia S&T cooperation shall provide a basis for scenario workshops and the further implementation of the foresight. The starting point of the foresight is analytical work already performed within ERA.Net RUS. For example, a survey among Programme Owners in the EU MS/AC was implemented in 2009 and revealed the issues of topical interest and detailed information on the procedures of bilateral funding programmes (e.g. application, evaluation, cost categories, etc.)¹⁷. Other important input for this foresight task is available through Russian national foresight exercises, data on publications and co-publications of Russian and the EU MS/AC researchers, and analysis performed in other FP funded projects relevant for S&T cooperation with Russia, such as Scope-East¹⁸, RUSERA-EXE¹⁹.

¹⁵ The ERA.Net RUS consortium includes 18 institutes from 10 countries, 11 partners from Member State Countries, 2 partners from Associated Countries, 4 partners from Russia and 1 partner from the European Commission. The Coordinator of the project is the International Bureau of the Federal Ministry of Education and Research in Germany. <http://www.eranet-rus.eu/en/101.php>.

¹⁶ The Pilot Joint Call shall be launched in early 2011.

¹⁷ See reference 12 above.

¹⁸ <http://scope-east.net/>.

¹⁹ http://www.rusera-exe.ru/index_en.php.

- Expert panels composed of policy makers, representatives of funding organisations and researchers will be established to supervise the implementation of the foresight and for scenario development.
- Scenario workshops will be held for developing and verifying the scenarios.
- A Delphi study will be conducted among Russian and EU policy makers and scientists to develop and assess the structural scenarios.
- Online surveys/questionnaires will be used and addressed to scientists from the EU and Russia to identify thematic priorities relevant in EU-Russia cooperation in the future.
- Expert interviews shall support the scenario development process.

In the following, some relevant elements for the structural and thematic scenarios will be outlined, which guide the implementation of the foresight.

The **structural scenario** refers to an informal, legal and/or institutional framework for S&T cooperation between Russia and the EU MS/AC. The focus is here on joint funding activities for R&D and innovation. For the structural scenario, several sub-scenarios can be considered:

1. FP Association of the Russian Federation

Russia's association to the FP would result in a full integration in the EU R&D and innovation funding policy and programmes. This would require a substantial financial contribution from Russia. But association would also include participation in a central policy field of the EU, which is believed to gain in importance in the future. It would include participation in programme committees, although without voting rights. Voting rights are though not that relevant, as work in these committees is based on consensus building. The more important feature would be to participate in the FP and its committees and to make the own R&D interests known and considered.

2. Specific cooperation instruments with Russia

Specific instruments for advancing S&T cooperation between the EU MS/AC and Russia has already been tested and has taken different forms:

- coordinated EU-Russia calls for R&D projects within the FP7,
- funding tools within ERA.Net RUS,
- specific funding programmes such as INTAS²⁰,
- bilateral and trilateral cooperation among R&D and innovation funding bodies (e.g. Russian Foundation for Basic Research – German Research Foundation – CNRS),
- policy dialogue forums, etc.

²⁰ INTAS means International Association for the Promotion of Co-operation with Scientists from the New Independent States (NIS) of the Former Soviet Union. INTAS supported R&D and innovation projects among researchers from EU countries, associated countries to the FP and countries of the Former Soviet Union. It was disbanded in 2010.

Such specific cooperation instruments could be implemented as an alternative to FP7 association, as complementary instruments to the FP (e.g. to cover scientific topics, which are not supported within the FP) or to stimulate cooperation among a certain group of countries. Specific cooperation instruments may reach different stages of institutionalisation, ranging from joint committees, working groups up to joint offices, joint institutions, and joint management of a funding programme.

Some examples include the working groups for coordinated calls within FP7, a specific international association like INTAS used to be, or a Group of Funding Parties, and a central administration planned to be introduced in the ERA.Net RUS. An interesting example of an institutionalisation in the context of regional ERA.Nets concerns “BONUS”, a research funding cooperation for the Baltic Sea region, which evolved from an ERA.Net into a research programme according to article 169 EC treaty and further on into a European Economic Interest Grouping (EEIG)²¹.

3. Decreasing multilateral S&T cooperation/Third country status in FP

Another scenario could concern a decreasing multilateral S&T cooperation between the EU MS/AC and Russia, where cooperation might not go forward beyond the current status. This might be a scenario, in which Russia’s association to the FP will not realise and coordinated calls will be perceived as taking too much time and effort. In this case Russia would still have “Third Country” status within the FP and funding for participating Russian scientific teams would be provided. Although, this status might not be sustained, as Russia would be gaining financial strength and it might become more difficult within the EU to justify FP funding for Russian researchers.

For the structural scenarios certain variables need to be considered, which concern the governance of a scenario (e.g. joint committees, institutions), financial effects, time horizons, etc.

The **thematic scenario** refers to the most relevant and promising thematic fields for R&D cooperation between the EU MS/AC and Russia. ERA.Nets would bring national R&D and innovation funding organisations together with the aim to coordinate national programmes for joint, multilateral funding efforts. The coordination of thematic priorities is a necessary prerequisite here. Several approaches are possible for the choice of coordination modes and thematic scenarios:

- Focus on the thematic priorities with proven cooperation capacity; e.g. in an ERA.Net RUS survey, the following thematic fields were top ranked: nanotechnologies/materials, energy, environment/climate change, socio-economic sciences and humanities, ICT, biotechnology.
- Single out the promising fields that overlap in foresight studies in Russia and the EU MS/AC (e.g. Germany, France, UK). The findings could be

²¹ See for further information www.bonusportal.org.

verified by scientists through a survey, and at the same time promising thematic fields for future cooperation could be explored.

- Find out and focus on the strengths of Russia's S&T sector in basic research (e.g. physics, mathematics, etc.) and applied research (e.g. aerospace, etc.).
- Stimulate the topics, which are underrepresented in bilateral and multilateral S&T cooperation (e.g. social sciences).
- Focus on the thematic priorities, which are in line or complementary to the topics covered in the FP7. Stimulate the FP7 fields of research to underpin cooperation in the FP (FP-association scenario), or fields which are not included in the FP.
- A mixed approach might be applied, which would combine the elements outlined above.

In the next step of implementing the ERA.Net RUS Foresight, a “creativity workshop” was held in December 2010 to collect ideas and develop alternative views on future R&D and innovation cooperation between the EU and Russia. The workshop was organised by the EU's Joint Research Centre – Institute for Prospective Technological Studies in cooperation with other ERA.Net RUS consortium partners involved in the foresight exercise: Centre for Social Innovation, Higher School of Economics and International Centre for Innovations in Science, Technology and Education. In addition, the workshop involved researchers, policy makers and experts on foresight, and on Russian R&D and innovation from the EU, from countries associated to the FP7 and from Russia.

Perspectives

Over recent years, foresight has become a relevant tool for S&T policy making in Russia. Russian foresight has been interlinked with expertise of the EU countries. This combined expertise will be used in a European-Russian foresight exercise within the ERA.Net RUS project, which shall result in scenarios for a joint R&D and innovation funding programme in a mid-term perspective. The involvement of policy makers and researchers from both the EU and Russia in this foresight project will help to inform relevant players and beneficiaries about ongoing cooperation and enable to underpin the efforts to strengthen EU-Russia cooperation in R&D and innovation.

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Reviewer:

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Foresight w Rosji – projekty realizowane na poziomie krajowym oraz międzynarodowym

Słowa kluczowe

Foresight, nauka i technologia, badania i rozwój, Rosja, Unia Europejska.

Streszczenie

Sektor nauki i technologii staje się priorytetem w polityce rosyjskiego rządu, który podejmuje działania ukierunkowane na rozszerzenie asortymentu produkcji ponad wytwarzanie dóbr podstawowych. W tym kontekście w ostatnich latach foresight zyskuje na znaczeniu jako narzędzie kreowania kierunków rosyjskiej polityki naukowo-technologicznej. Powołano specjalistyczne instytuty, które zapewniają wsparcie analityczne agencjom rządowym oraz organizacjom naukowo-badawczym, utworzono również instytucje finansujące badania foresightowe. Jednocześnie foresight jest stosowany celem nawiązania i pogłębienia współpracy naukowo-badawczej między Rosją i Unią Europejską w ramach projektu ERA.Net RUS realizowanego w 7. Programie Ramowym.