

Alexander Sokolov, Karel Haegeman, Manfred Spiesberger, and Mark Boden, “Facilitating EU-Russian Scientific and Societal Engagement: Joint Efforts to Tackle Grand Challenges,” *Science & Diplomacy*, Vol. 3, No. 4 (December 2014). <http://www.sciencediplomacy.org/article/2014/facilitating-eu-russian-scientific-and-societal-engagement>.

**This copy is for non-commercial use only.** More articles, perspectives, editorials, and letters can be found at [www.sciencediplomacy.org](http://www.sciencediplomacy.org). **SCIENCE & DIPLOMACY** is published by the Center for Science Diplomacy of the American Association for the Advancement of Science (AAAS), the world’s largest general scientific society.

## Facilitating EU-Russian Scientific and Societal Engagement: Joint Efforts to Tackle Grand Challenges

*Alexander Sokolov, Karel Haegeman, Manfred Spiesberger, and Mark Boden*

**T**HERE is a history of engagement between scientists in the European Union and the Russian Federation (and, previously, the Soviet Union). This cooperation is based on the bilateral interests of governments and individual scientists alike for interaction and engagement. It also fits the EU’s broader policy goals, whereby “international cooperation in research and innovation [is seen] as an instrument of soft power and a mechanism for improving relations with key countries and regions.”<sup>1</sup> Now, with the events in Ukraine and mutual EU and Russian sanctions, science can again—as it did during and immediately after the Cold War—play a role in sustaining dialogue and continuing fruitful and mutually beneficial connections that could help reestablish broader links. The significant scientific cooperation activities between EU member states and countries associated with

---

*Alexander Sokolov is deputy director at the Institute for Statistical Studies and Economics of Knowledge, the National Research University – Higher School of Economics in Moscow, Russia.*

*Karel Haegeman is an official at the European Commission’s JRC–Institute for Prospective Technological Studies in Seville, Spain.*

*Manfred Spiesberger is a researcher and project manager at the Centre for Social Innovation in Vienna, Austria.*

*Mark Boden is an official at the European Commission’s JRC–Institute for Prospective Technological Studies in Seville, Spain.*

its Framework Programme for Research and Technological Development, the EU's key instrument of international science and technology (S&T) cooperation, and the Russian Federation provide a solid basis to jointly tackle common societal challenges. This paper describes an approach aimed at better understanding these challenges and determining how future scientific collaborations can most appropriately and effectively tackle them.

## **A Strong Record of Scientific Cooperation**

Even in the Soviet era, stable S&T links existed between the EU and Russia, particularly in basic research and some applied areas such as space and environmental studies. For example, the signing of a bilateral Soviet-French agreement on space studies in 1966 led to the implementation of dozens of joint projects, including a series of experiments in joint space flight in 1982.

After the demise of the USSR, science and technology became one of the most successful areas of cooperation. The International Association for the Promotion of Cooperation with Scientists from the Newly Independent States of the Former Soviet Union (INTAS), a fruitful initiative founded in 1992, covered a wide range of research areas and was funded mostly from the EU budget. The International Science and Technology Center (ISTC), established the same year, connected scientists from Russia and other former Soviet republics with their peers and research organizations in the EU, Japan, the Republic of Korea, Norway, and the United States. ISTC facilitated international science projects with a focus on the reconversion of former military research. Both organizations were established in reaction to the USSR's disintegration and the related significant downsizing of research and development (R&D) budgets in the emerging independent republics. While INTAS ended in 2010, the ISTC is still in place. However, in 2010, Russia announced its plans to withdraw from the organization by 2015 and has already begun winding down its activities.

The EU's recent Framework Programmes have been open to participation from non-EU countries. During the last fifteen years, Russia has been increasing its participation, becoming the largest and most successful third-country partner (i.e., non-EU member state or Framework Programme-associated country), especially under the Sixth Framework Programme (FP6), which ran from 2002 to 2006, and the Seventh Framework Programme (FP7), which ran from 2007 to 2013. It is ranked highest among third-country partners in both funding received and number of participants in Framework Programme projects. Russia took part in more than 350 projects funded under FP7,<sup>2</sup> most of them implemented within subprograms such as People, Transport, Knowledge Based Bio-Economy, and Information and Communication Technologies. As of December 2012, 463 Russians had participated in 291 signed grant agreements, receiving an EU contribution of €63 million vis-à-vis a Russian contribution of €40 million.<sup>3</sup>

Under Horizon 2020, the successor to the Framework Programmes, which runs from 2014 to 2020, cooperation with Russia and certain emerging countries, such as China, is on a more equal level. These countries are now generally expected to fund their own participation in projects, unlike in the past when the EU has readily provided funding for their scientists.

### **Finding Common Ground: Greater Integration of Research Goals and Cooperation**

To move beyond the occasional invitation of Russian research groups to participate in European projects and build stronger, more systemic ties, funding bodies in participating EU member states and countries associated to FP7 initiated a series of activities leading to joint calls for S&T and innovation projects through the European Research Area Network (ERA.Net) scheme of FP7, which seeks to strengthen coordination of research and access to national funding in the countries involved. The goal of the ERA.Net RUS project is to build on a better understanding of past scientific cooperation and identify overlaps in future plans to develop policy instruments to promote EU-Russian S&T cooperation.<sup>4</sup> In particular, the project focused on synergies linking the EU's FP7 and Horizon 2020 with the Russian Federation's S&T Foresight 2030. ERA.Net RUS brought together eighteen partner organizations from nine European countries and four Russian partner organizations to develop a coherent, well-coordinated research agenda based on a partnership among equals and shared funds and responsibilities.

Under ERA.Net RUS, the partners undertook a study to better understand the nature of and remove barriers to EU-Russian interaction.<sup>5</sup> The results led to joint calls for research on topics corresponding to the long-term plans, termed "grand challenges," of both the EU and the Russian Federation. This step moves the Russian Federation toward closer scientific cooperation with EU member states and associated countries and offers opportunities for enhancing the EU-Russian strategic partnership in research and innovation. Two pilot joint calls were implemented from 2009 to 2014—Collaborative S&T Projects and Innovation Projects. Forty-two joint projects were funded with a total budget of €10.3 million.

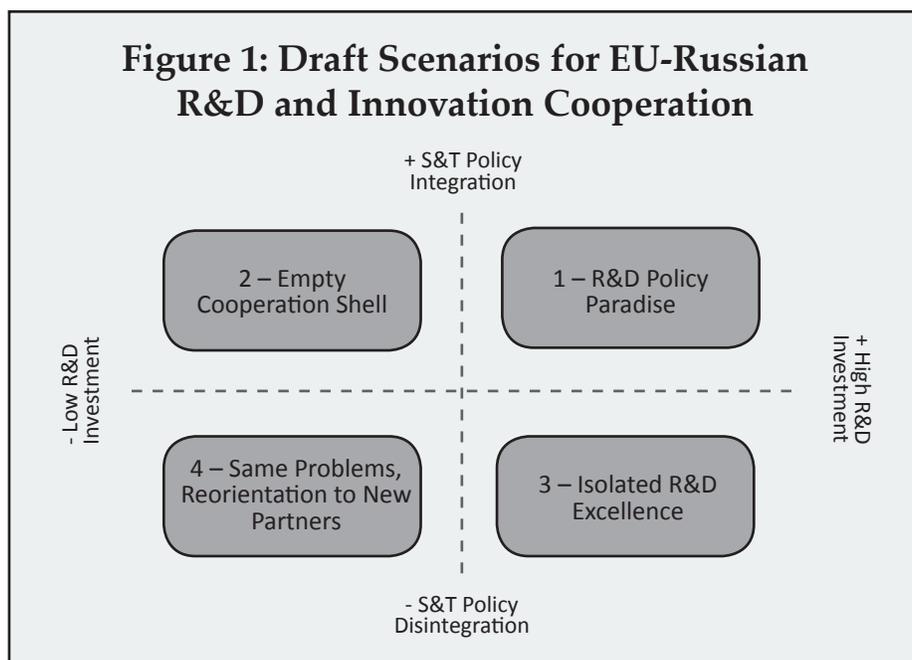
#### *Identifying Future Opportunities for Cooperation*

A foresight study on EU-Russian S&T and innovation cooperation, also implemented through ERA.Net RUS,<sup>6</sup> involved the following sequence of activities: (1) a series of scenario workshops; (2) a two-stage Delphi study; and (3) thematic workshops. The study ultimately resulted in a joint research call. The scenario workshops—held in 2009—provided a background for discussions of policy measures that would assist in S&T cooperation. Four scenarios describing potential EU-Russian S&T and innovation cooperation (Figure 1) were selected for

consideration by the participants, who consisted of policy makers from EU member states and associated countries and from the Russian Federation:

1. R&D Policy Paradise (assessed by participants of the Delphi study as rather unlikely but very desirable)
  - a decade of prosperous cooperation
  - Russia's successful and deepening participation in Horizon 2020
  - formation of a free-trade zone
  - Russia's joining of the Organisation for Economic Co-operation and Development (OECD)
  - establishment of a joint EU-Russian research fund
2. Empty Cooperation Shell (rather likely but undesirable)
  - low and decreasing investment in R&D cooperation
  - lack of qualified personnel despite a strong interest in cooperation
  - draining of key human resources for public research centers by private Russian firms
  - discouragement of participation in R&D cooperation due to inadequate incentives
3. Isolated R&D Excellence (probable but very undesirable)
  - scientific isolation accompanying economic globalization
  - attempted creation by every macroregion (e.g., the EU and Russia) of the best "ivory towers" and centers of excellence to remain competitive in their specialties
  - R&D cooperation limited to specific areas
  - Russian focus on topics such as nuclear fission and defense, EU focus on different topics such as green energy and aging
4. Same Problems, Reorientation toward New Partners (probable but undesirable)
  - because of limited EU enthusiasm to promote joint research projects, a shift in R&D cooperation by Russia toward the Eurasian Union
  - by 2020, continued third-country status for Russia in Horizon 2020
  - uncertainty persists in R&D governance issues, including Russian intellectual property rights policies, visa procedures, and convergence of standards (e.g., Bologna Process)
  - little improvement in quality or scale of cooperation

Following the workshops, the two-stage Delphi study, conducted in 2012 and 2013, focused on identifying future trends in research cooperation, development, and innovation. Web of Science, the world's largest and most comprehensive scientific online database, was used to identify existing instances of cooperation between EU and Russian Federation scientists. This search identified 4,583



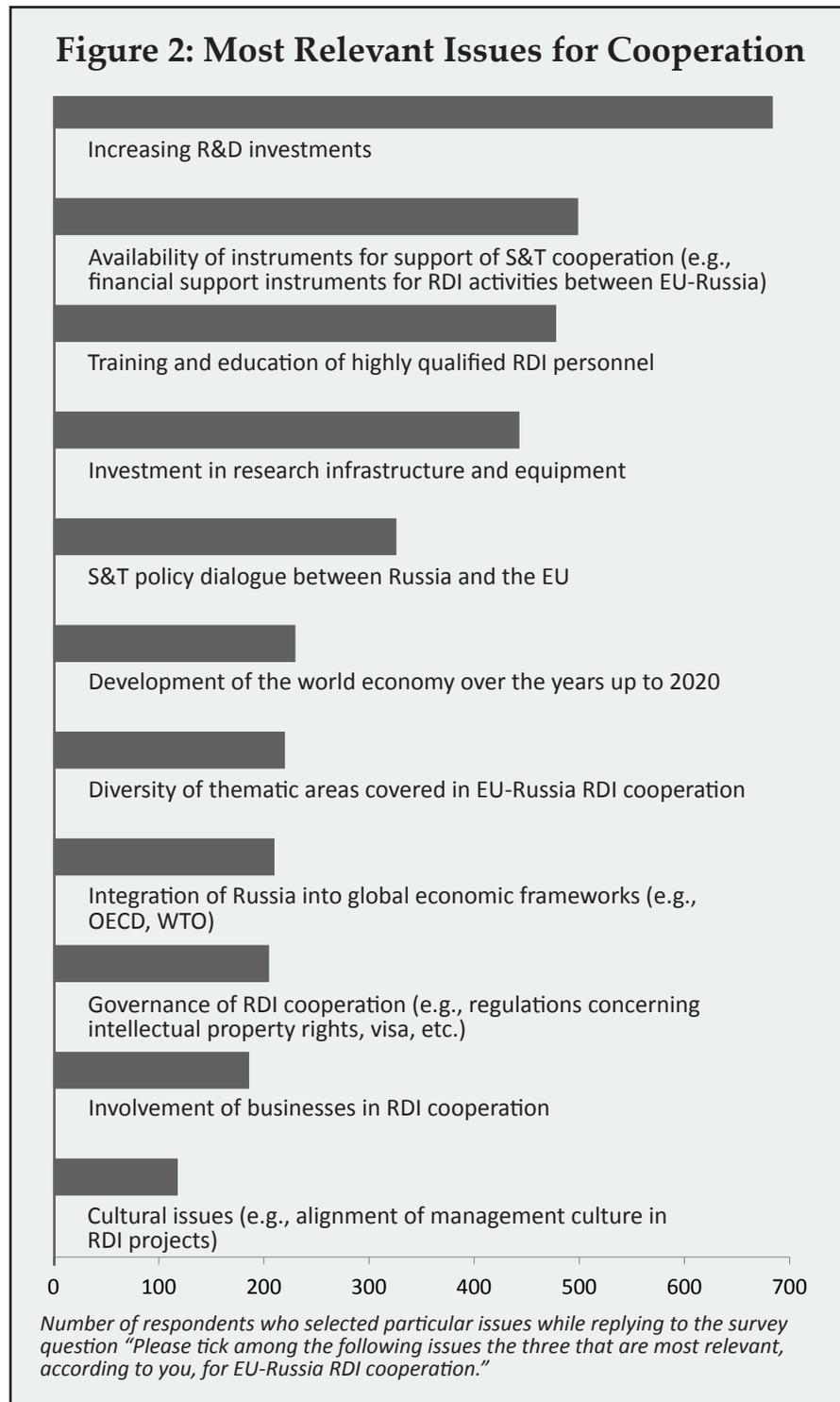
European and 2,258 Russian researchers with joint publications in Web of Science-listed journals. All of these researchers, as well as relevant policy makers and research managers, were invited to participate in the survey.

The first stage of the Delphi study was conducted online during 2012. The EU experts' response rate was 27 percent; the Russian experts' response rate was 15 percent.

The study assessed scenarios and framework conditions for cooperation in research, development, and innovation between Russia and the EU member states and associated countries until 2020. Specifically, the survey sought respondents' views on the likelihood and desirability of the four outlined scenarios (how *likely* it is for each scenario to occur and how *desirable* it is). The key results follow:

- R&D Policy Paradise (scenario 1), while considered rather unlikely, was identified as the most desirable and appropriate goal.
- Increasing R&D investment was identified as the key issue for EU-Russian cooperation (44 percent; see Figure 2). Availability of financial instruments to support S&T cooperation was also identified by a high proportion (32 percent), followed closely by training and education of highly qualified personnel (30 percent).

The second phase of the Delphi study, implemented in 2013, sought to identify grand challenges to be addressed through collaboration, based on those set forth in both the EU's Horizon 2020 and Russia's S&T Foresight 2030, formulated by the Russian Ministry of Education and Science.<sup>7</sup> The overlap in challenges



encompasses the economy, society, environment, and S&T<sup>8</sup> areas such as life sciences, nanotechnology, and information and communications technology.

From the Delphi study's second phase, the most important societal challenges for EU-Russian research, development, and innovation (RDI) cooperation were identified as follows:

1. Health, demographic change, and wellbeing (55 percent of Russian respondents; 45 percent of EU respondents)
2. Secure, clean, and efficient energy (20 percent of Russian respondents; 25 percent of EU respondents)
3. Climate action, resource efficiency, and raw materials (11 percent of Russian respondents; 14 percent of EU respondents)

The ERA.Net RUS funding parties from EU member states, from countries associated with the FP7, and from the Russian Federation used the insights offered by the full Delphi study as a basis for discussion in thematic-priority workshops. Four priorities were identified—nanotechnology, environment and climate change, health, and social sciences and humanities—workshops were organized with researchers to discuss priorities in each of these areas. These workshops (two held in Brussels, two in Moscow) each identified three subpriorities, as follows:

1. Nanotechnology
  - advanced nanosensors for environment and health
  - novel functional nanomaterials based on design and modeling
  - nanomaterials for efficient lighting
2. Environment and Climate Change
  - increased reliability of regional climate projections: models and measurement
  - environmental impact and risk of raw materials extraction and transportation
  - extreme climate events and their impact on the environment
3. Health
  - molecular mechanisms of brain function and pathology
  - regenerative medicine and biomaterials
  - drug discovery for cancer, as well as cardiovascular and infectious diseases
4. Social Sciences and Humanities
  - understanding of conflict, identity, and memory: past and present
  - demographic change, migration, and migrants
  - opportunities for and challenges to regional development and social cohesion

The foresight-study participants highlighted many existing barriers and proposed measures for enhanced cooperation and involvement of broader research communities in joint studies. The key barriers identified included discrepancies in legislation, intellectual property rights regulations, and educational systems; acquisition of visas and licenses; corruption, bureaucracy, and very slow decision making; and lack of motivation for younger generations to build research careers.

The project participants correspondingly identified a number of measures for increasing the scale and improving the quality of S&T cooperation. These include

- supporting policy dialogues through a more bottom-up approach (e.g., mobility, instruments for support, and joined research infrastructure)
- initiating doctoral stipends for a three-year training period for Russian master's degree holders toward their PhD in EU countries—associated with a contract and perspectives to come back to Russia
- creating a common fund investing fifty/fifty in R&D between EU countries and Russia
- extending EU-Russian S&T cooperation across Russian territory, targeting centers of excellence
- increasing involvement of Russian partners who are far from decision-making and political spheres; and
- increasing the exchange of young scientists, and providing extra funds for short- and medium-term visits for young Russian scientists in EU labs.

### **A Step Forward in the Strategic Partnership**

Based on the foresight results, the participating funding agencies devised a call for joint research projects. The Single Joint Call on S&T was published in June 2014 through a coordinated funding scheme in the FP7-funded follow-up project ERA.Net RUS Plus, initiated in November 2013. Each funding party from ERA.Net RUS PLUS will fund its own research teams within a multilateral project, selected through a peer-review process. The national financial contributions will be augmented by up to €3.5 million from the FP7. The ERA.Net RUS Plus call for S&T projects includes Russia and the following EU countries and countries associated with FP7 and subsequently Horizon 2020: Austria, Belgium, Estonia, Finland, France, Germany, Latvia, Moldova, Poland, Romania, Slovakia, Switzerland, and Turkey. This cooperation represents a step forward in the strategic EU-Russian partnership on research and innovation, further developing and strengthening cooperation between scientists in EU member states, the countries associated with Horizon 2020, and the Russian Federation.

The approach taken by the EU and Russia demonstrates how existing scientific relations can be used as a basis for jointly addressing mutual concerns and finding policy instruments for facilitating activities to respond to global societal challenges. The framework and associated agreements for joint collaboration will further develop and strengthen cooperation between scientists in EU member states, countries associated with Horizon 2020, and the Russian Federation. In so doing, the resulting improved scientific cooperation can promote the lessening of political and societal tensions, allowing for future engagement, and reducing the sort of distance that can lead to misunderstandings between peoples. The

efforts mentioned thus far—however modest compared to the overall scale of international relations between the EU and Russia—give an example of how scientific cooperation supports positive partnerships that may have spill-over effects to other policy areas in stimulating dialogue and cooperation, which is particularly important considering the worsened political relations between Russia and the EU. And perhaps most important, they provide an excellent reminder that the S&T interests of the Russian Federation and the EU are actually quite similar, transcending political boundaries. **SD**

### Endnotes

1. *Enhancing and Focusing EU International Cooperation in Research and Innovation* (Brussels: European Commission, 2012), [http://ec.europa.eu/research/iscp/pdf/policy/com\\_2012\\_497\\_communication\\_from\\_commission\\_to\\_inst\\_en.pdf](http://ec.europa.eu/research/iscp/pdf/policy/com_2012_497_communication_from_commission_to_inst_en.pdf).
2. Manfred Spiesberger, Klaus Schuch, and Elisabetta Marinelli, "Overview of EU-Russia R&D and Innovation Cooperation: ERA.Net RUS Scenario Validation," *Foresight Background Paper, JRC Technical Reports* (Seville: European Commission, Joint Research Centre, Institute for Prospective Technological Studies, 2013).
3. National Research University – Higher School of Economics, "Russian Participation in FP7," April 2, 2013, <http://issek.hse.ru/news/79027067.html>.
4. See "ERA.Net Rus Archives," ERA.Net Rus Plus, <http://www.eranet-rus.eu/en/198.php>.
5. Manfred Spiesberger et al., *Working Document: Towards a Vision for Research, Technology and Innovation Cooperation between Russia and the EU, Its Member States and Associated Countries*, JRC Scientific and Policy Reports (Luxembourg: Publication Office of the European Union, 2013), <http://ftp.jrc.es/EURdoc/JRC85137.pdf>.
6. Karel Haegeman, Manfred Spiesberger, Natalia Veselitskaya, Alexander Sokolov, and Gorazd Weiss, "FTA Supporting Effective Priority Setting in Multi-lateral Research Programme Cooperation: The Case of EU-Russia S&T Cooperation," *Technological Forecasting and Social Change* (forthcoming).
7. Alexander Sokolov and Alexander Chulok, "Russian Science and Technology Foresight 2030: Key Features and First Results," *Foresight-Russia* 6, no. 1 (2012): 12–25.
8. Leonid Gokhberg, ed., *Russian Long-Term Science and Technology Foresight 2030* (Moscow: National Research University – Higher School of Economics, 2014), <http://foresight-journal.hse.ru/data/2013/03/29/1294347487/3-Sokolov-12-25.pdf>.

*Work on this article was supported by the European Union's Seventh Framework Programme for Research, Technological Development, and Demonstration under the project ERA.Net RUS, grant agreement no. 226164, and by the National Research University – Higher School of Economics' Basic Research Programme. The views expressed are purely those of the authors and may not in any circumstances be regarded as stating an official position of the European Commission.*