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**EMPIRICAL RESULTS
ON RUSSIAN COMPANIES’
INNOVATION ACTIVITY**

Innovation is a vital process for countries striving to evolve and occupy a competitive position in international markets. This paper is based on research designed to evaluate the strengths and weaknesses of the national innovation system in Russia. The objective of the study was to examine innovation activity and innovation performance in Russia, as well as to identify the priorities of the government’s policy for promoting innovation.

Key words: Russia, innovation, national innovation system, innovation performance.



Research and development in Russia compared to global indicators

Figure 1 presents R&D expenditure in Russia and other countries. The share of these expenses is nearly the same as in Estonia, Belarus, South Africa and Ukraine, and slightly exceeds the indicators of India, Turkey and Chile yielding to China and Czech. Expenses for R&D in the group to which Russia belongs are half of those in the USA, Germany, France and Canada, and three times less than in Japan, Finland and South Korea. Scientific and research achievements are quite costly for Israel: it allocates 5% of the GDP for R&D and this share is increasing.

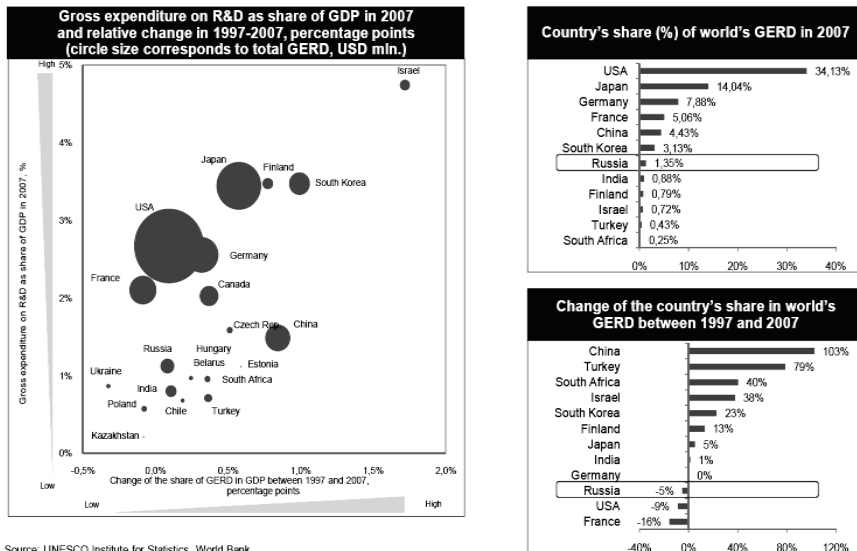


Fig. 1. Expenses for R&D

Source: [2; 3].

Why such an unfavourable situation was formed in the country which was the first to launch the space satellite? Which measures should be taken in this situation?

Implementation of the survey

Data required for the analysis were taken from the Russian Innovation Survey 2009—2010 which was a result of cooperation between “Bauman Innovation” and the NGO for SMEs “Pole of Russia”. It was aimed at the identification of strengths and weaknesses of Russia’s national innovation system.

The aim of the study is to assess innovation activity and innovation performance in Russia and to identify the priorities of the state innovation policy.

It was decided to make a survey based on a sample consisting of 250 managers, due to the budget limitations. A database on 3 thousand medium and large enterprises of Russia was used. It was created in the framework of the previous surveys carried out by “Bauman Innovation”. The original sampling was made by taking random outcomes from the database. Then potential respondents were contacted by phone. The total sampling was made by random substitution in case an initial respondent was not able or did not want to participate in the survey. Personal questioning was the most preferable method of data collection.

The quality of the answers was due to a detailed analysis of their structure and additional control by phone. In the process of control three false respondents were revealed, and the structure analysis showed that two respondents were answering the questions meaning gradation of answers as for the general ones. One more respondent did not answer a required number of questions. Thus, 6 forms out of 251 turned to be invalid, so 245 forms were analyzed.

The sampling included representatives of companies from all Russian regions with a main focus on the largest cities in Russia. Nearly half of the companies (51%) participated in the questionnaire are based in Moscow and its suburbs and Saint Petersburg, while others (49%) are located in such large cities of the Privolzhsky, Sybirsky, Uzhny and Uralsky Federal Okrugs as Chelyabinsk, Nizhny Novgorod, Novosibirsk, Omsk, Perm, Rostov-on-Don, Samara, Saratov, Toljatti, Tomsk, Ekaterinburg etc. The sampling also included companies of the Far-East Federal Okrug, as a small number of potential respondents agreed to take part in the questionnaire. Taking into account that the Far East is poorly populated and is not a leader with regard to innovations, it should be noted that the present sampling is representative related to the Russian medium and large enterprises.

Representatives of medium businesses (up to 250 employees) amounted to 70% of the respondents, 14% — representatives of companies with 251—500 employees, and the rest 16% of companies employ not less than 500 staff. The sampling includes only five companies in which the number of employees is over 5 thousand people. In relation to the number of companies per capita in Russia, the number of large companies is presented in the sampling insufficiently. However, the analysis was made without any

preliminary reconsideration of data which might have resulted in the transition of data to medium enterprises.

Most of the companies questioned are from the following sectors: 73% — production, 20% — construction and 19% — trade. Russians own 92% of companies, foreigners — 8%. The Russian Government has shares in 11% of the companies questioned.

As to the sales geography, all companies except one focus on the Russian market. Nearly half of the companies export part of their products: 43% of companies export their products to the CIS countries, 16% — to the Eastern European countries and the neighbouring Asian countries, while 14% of companies sell their products to other countries (Western Europe, North and South America, Australia, Africa and Asian countries except for the CIS countries, Mongolia, Japan and China).

Empirical results

Nearly half (51%) of the sample was represented by the companies that have specific units for research and development or other units fulfilling similar functions in their structure. Only quarter of all companies adopted an innovation strategy as a specific document or part of the corporative strategy. 51% of all companies do not have any written innovation strategy, it exists only *in the heads of top management*, while 24% companies declared that they do not have any innovation strategy (Fig. 2).

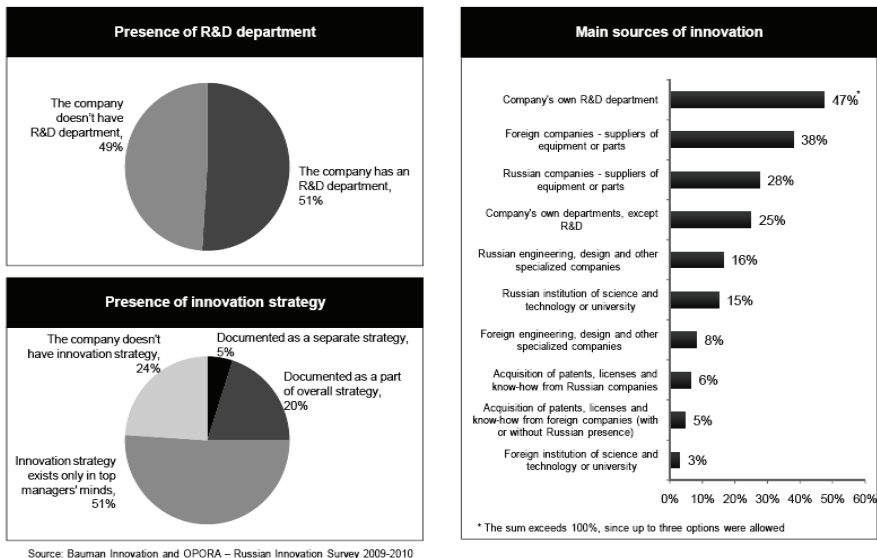


Fig. 2. Units for research and development, innovation strategies and sources of innovation

Source: [1; 4; 5].

For 47% of the companies questioned the main source of innovation was their own unit for research and development. Foreign and Russian suppliers of equipment and accessories, as well as units fulfilling other functions, were among four most popular sources of innovations. Higher education and research institutions, special design offices, purchase of patents and licences were much less often mentioned as the sources of innovation.

As a rule, innovations are not the strategic priorities for Russian companies. Only 13% of the respondents indicated innovations as the main priority, most of these are part of the sectors with high rate of innovations. However, compared to similar companies in other countries, Russian enterprises have quite low indicators. According to the survey made by the Boston Consulting Group in 2007 in 58 countries, 23% out of 2500 managers questioned indicated innovations as the main priority. The present questionnaire confirms that Russian companies are yielding not only in innovation activity but also in the willingness to foster innovations.

The aim of the Russian Innovation Survey was to identify the barriers for innovation activity. In the answers to one of the questions respondents identified three circumstances limiting the development of innovation potential of their companies. Most frequently the answers indicated lack of funding (62%), high cost of innovations in Russia (33%) and lack of external financing (33%). Among other reasons were problems related to the forecasting of the demand for innovative products at the consumer market (23%), lack of qualified labour forces (19%) and insufficient information on existing technologies and developments (12%).

In the questionnaire held in the EU companies, the barriers for innovations were mentioned in the same order. The EU companies indicated lack of finances and difficulties related to the provision of external funding among three main barriers. However, it should be remembered that in Russia the second important barrier (33% respondents) is the high cost of innovations, while in the EU countries it is mentioned fifth or sixth. Thus, it may be concluded that innovations in Russia are quite costly.

While analyzing lack of labour resources, nearly half (47%) of enterprises indicated difficulties with attracting skilled engineers and technical staff. In this respect, most respondents refer to the lack of specialists and not to the lack of funding. Only 22% of managers pointed out that the level of payment expected by engineers is too high and unacceptable.

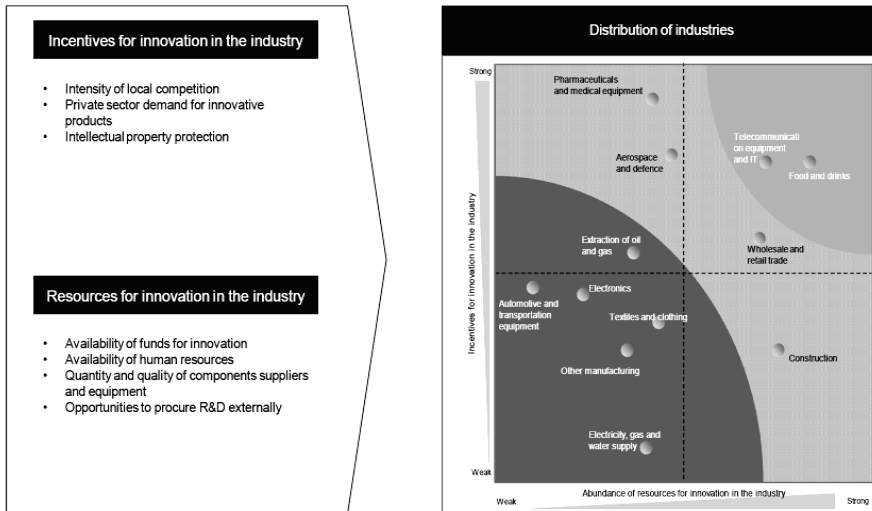
The quality of education is another problem. Managers of Russian companies pointed out a lot of gaps in knowledge of graduates of higher education institutions as well as indicated an unsatisfactory level of vocational and secondary education: 35% of the respondents consider the level of education to be low; on the contrary, 41% of the respondents consider it to be high. Then, 51% of those questioned pointed out that the qualification of graduates of vocational schools and colleges does not meet the requirements of their companies; 23% of the respondents evaluated it in a positive way. Furthermore, 31% of the respondents assessed the level of teaching mathematics and natural sciences at school as low, while 46% — as quite high.

Answering the questions on protecting intellectual property, the company managers admitted that the situation in the country is far from the ideal one. More than two thirds of the respondents pointed out that intellectual property is either not protected (31%) or poorly protected (38%). Protection of copyrights and patent rights was among the most problematic. According to the data of the survey, intellectual property in Russia is not protected to the right degree.

Recommendations on the survey results

4. The government should take into account the sector specifics while elaborating an innovation policy.

The survey results demonstrate the importance of promoting innovations and the need for substantial resources to underpin innovation activity. A sector matrix shows external innovation incentives grouped by the type and sector. Variables of incentives and resources present a simple mean of several factors (Fig. 3).



Source: Bauman Innovation and OPORA – Russian Innovation Survey 2009-2010

Fig. 3. Incentives and resources for innovations by the sectors of Russian economy

Source: [1; 4; 5].

The matrix shows that such sectors as pharmaceuticals and production of medical equipment as well as aerospace industry, defense, and oil and gas industry have high incentives for innovations. At the same time, the provision of resources in these sectors is evaluated as below average. Most resources for innovations are in the construction and trade sectors but the incentives for innovations here are quite weak. Only two industries — food processing and production of telecommunication equipment (including IT) — have sufficient incentives and resources.

Many other sectors including motor-car construction, electronics, textile industry and those related to infrastructure have neither enough resources nor incentives for innovations. It was revealed during the survey that oil and gas industry has a tendency to be in the last group as the level of incentives to innovations in the sector is slightly higher than the average one. This could be explained by the fact that the demand for innovative products in the primary product sector is extremely small. Another explanation is that due to high prices for oil and high tax for raw oil export, oil processing is becoming quite profitable for Russian oil companies, but the potential income for investment into the technical improvement of oil-refinery plants is small compared to potential investments.

It is clear that the application of a common policy to different sectors is a wrong approach. For the sectors of communication equipment and food processing industry, inequality of possibilities is the main problem, while for electronics and motor-car construction it is lack of resources. However, the pumping of the resources into the sectors shown in Fig.3 will not have a due effect unless there appear incentives for innovations.

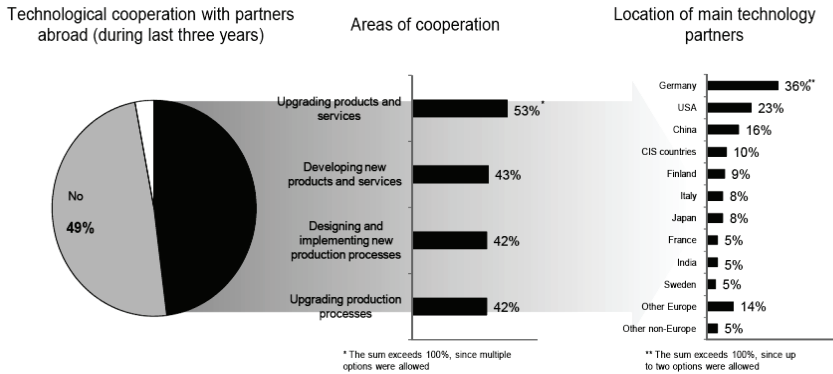
B. Creation of unions and institutions operating as mediators in selling technologies between Russia and its key partners.

How do the leading Russian companies in the sphere of innovation operate in the condition of poor development of R&D in the country? The answer to this question is the internalization.

Companies are looking for partners all over the world, and the Russian companies are not an exception. The respondents were asked questions concerning international technical cooperation. The analysis of the answers made it possible to make a number of conclusions which might be helpful in designing the innovation policy (Fig 4).

Approximately half of Russian medium and large enterprises are cooperating with foreign partners in the sphere of technologies and innovations. According to the poll, improvement of the existing products is the most widespread incentive for cooperation. More than half of the companies operating with foreign partners (53%) indicated improvement of products as the aims of cooperation.

Russian companies often cooperate with companies from Western and Central Europe. The overwhelming majority of the managers questioned indicated European countries as main partners in the sphere of technology, 23% — the USA, about 8% — Japan. Germany is a leading partner of the Russian companies in the sphere of technology (36%) which is in line with the common opinion on the intensive Russian-German cooperation. Partnership with Germany plays a more important role than the technical cooperation with all other European countries including France, UK, Italy, Spain, Nordic and Central European countries except for the CIS.



Source: Bauman Innovation and OPORA – Russian Innovation Survey 2009-2010

Fig. 4. Cooperation with foreign companies in the sphere of technologies and innovations

Finland is in the second place among the EU countries cooperating with Russian companies in the sphere of technologies.

It should be noted that technical cooperation between Russia and other CIS countries was mentioned fewer times than the partner relations with China. Although empirical results do not provide information on the technology exchange, most of partner relations with China are bilateral, meaning that the technology exchange is carried out in both directions.

It is necessary to adopt measures aimed at facilitating international cooperation. One of such measures is the creation of institutions operating as mediators in selling technologies between Russia and its key partners. For instance, Offices of technical exchange may be established in Dusseldorf and Munich, Boston and Saint-Francisco, Shanghai and Beijing, Helsinki and Tampere/Turku.

C. The companies believe that R&D financing and measures aimed at better efficiency of institute operation in the R&D sphere are the priorities of the Russian public innovation policy.

The Russian government did not step aside, although much more might have been done for better innovation activity of the companies: 16% of them participated at least once in the governmental programmes for innovation support.

Allocation of funding for innovation projects on the basis of R&D is the most widely used method of support: 62% of the companies which were supported pointed out the use of such resources. Financing and subsidizing different projects and initiatives including innovation projects, purchase of equipment and software, construction and development of innovation infrastructure and participation in international exhibitions are the most common forms of support, which is in line with the list of main barriers for innovation activity mentioned by the managers questioned.

Among other forms of support are tax preferences, development of cooperation with universities and knowledge institutions or other companies, which does not frequently occur. Only 10—15% of the respondents which received state support in the sphere of innovation indicated the above mentioned forms.

The company potential in the development of innovation is limited. So measures within the state policy should be efficient and specific. However, this is not applied to the Russian innovation policy. As a whole, the companies assess the state policy in the sphere of science, technologies and innovations as ineffective: 65% of the managers questioned do not see any positive results of the public interference. Only 11% of the respondents mentioned positive results. Taking into account that the government may play different roles and apply numerous approaches, respondents were asked a question on the priority area of the state involvement.

The companies which participated in the questionnaire mentioned tax preferences on R&D as well as co-financing and other measures of direct and indirect R&D funding as priorities of the state support. This potential policy area was supported by 57% of the managers, which is not surprising, taking into account that these methods of funding are profitable for companies.

Among measures other than direct funding of companies, 41% of the respondents mentioned the improvement of the level and scale of teaching natural and technical sciences (at all levels of education) as an efficient instrument for fostering innovation activity. Allocation of funds to universities and knowledge institutions are among three most popular measures mentioned by the heads of companies among priorities (35%). In addition to this, they approved the state support to commercialization by means of a grant system as well as the reform of the existing structure of public research institutions, better efficiency of R&D and the improvement of the rights for intellectual property, state regulation of industries, technical norms and system of commercialization.

Thus, the Russian enterprises consider R&D financing both in the private and public sectors, and measures for improving R&D efficiency to be an element of the innovation policy which should be a high priority for the Russian Government.

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