

Russian Innovations strategy 2020 in brief

Global challenges:

Global economy is characterized by ever increasing pace of technological development, which Russia needs to catch up with. Highly qualified workforce and smart money are becoming extremely mobile and attracting them is a real challenge for any given country's innovative ecosystem. Global trends such as climate change; population aging; food safety; healthcare, etc will strongly influence Russian economy in the nearest future.

Current positioning:

1. Human potential:

One of the Russia's still preserved competitive advantages. World's top in overall literacy and basic education (#1 in PIRLS 2006 test). Over 23% of the population has a university degree. Technical and natural science education in Russia (and USSR) has traditionally been place among the world's strongest. However, the quality of higher education has been decreasing in the latter years, caused mostly by chronic underfinancing. The situation is improving now, but Russia still lags in education expenditures (4% of GDP), compared not only to developed (over 5% of GDP) but also to many developing countries. Another important issue is serious weakness in personal qualities that are crucial for innovative entrepreneurship, such as: entrepreneurial spirit; desire for lifelong learning; mobility; risk acceptance – still rare among russians in post-comunistic era.

2. Business:

Business openness towards innovations is low: less than 10% of Russian companies make direct investments in R&D and innovations (compared to 70% in Germany). Less than 12% invest in contracting innovations from external markets. Overall business expenditures for R&D and innovations (about 1% of GDP) are low compared not only to 3-5% in world's leading economies, but also to 1,5-2,5% in many of developing countries. Only 3 Russian companies are present in the global list of 1000 companies making biggest expenditures for R&D and innovation, with Gazprom (Russia's top) placed 108th with 0,6% of revenue spent on R&D. This situation is complicated by structural and organizational limitations preventing companies from active utilization and management of innovations. In WEF "index of companies ability to adapt new technologies" Russia ranks 41 out of 133, along with countries like UAE or Cyprus. Passive innovation (adopting of existing technologies) is still the most widespread type of behaviour among Russian companies (34%), whilst only 16% are radical innovators developing their own advanced technologies. Share of Russian innovative products on global markets is consistently less than 0,5% (compared to 16% and 14% of China and US). Country's strongest positions there are non-electric machinery (2%); chemicals (0,8%) and aerospace technology (0,4%).

3. Science

Russia is in top 10 countries for overall R&D expenditures (Euro 4bln in 2010) but is significantly behind leading countries when it is taken as % of GDP (1,3% in 2010). Russia is inly behind China, US and Japan in absolute quantity of scientific personnel (400 thousand). However, proportion of scientists in overall number of employed places Russia in the 3rd dozen of world list. Increase in state R&D expenditures and decrease in scientific personnel in recent years have resulted in significant growth in relative R&D expenditures per one researcher (USD 60 thousand in 2009). Despite many russian researchers developing successful carriers abroad, realtive weight of Russia in overall number of international scientific publications is between Brazil and Netherlands (about 2,5%). Relative amount of researchers and expenditures per one internationally ranked scientific paper (16 researchers and \$850 thousand) is much higher than in developed countries and has been increasing in recent years.

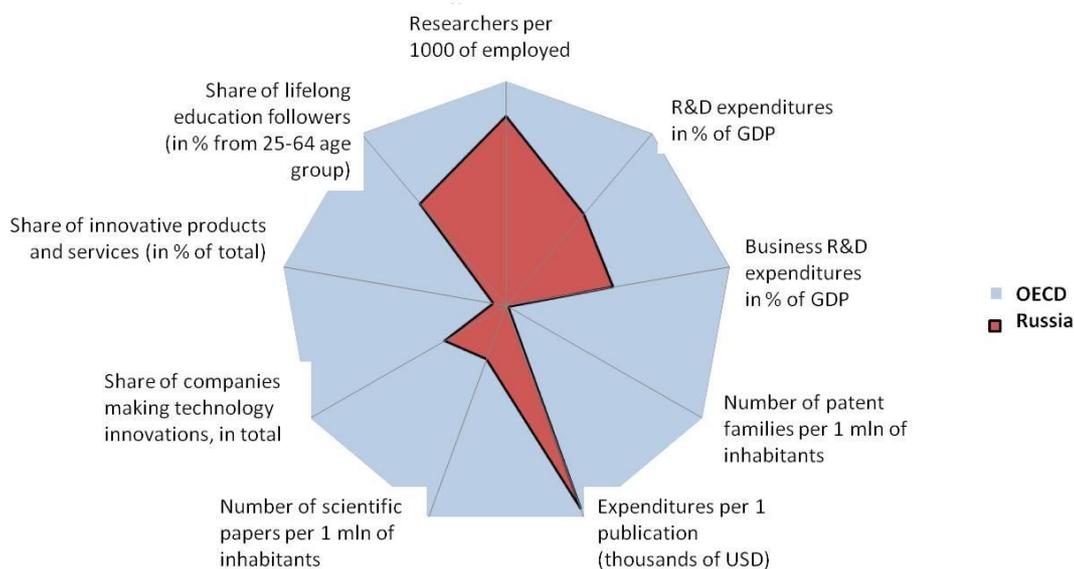
4. State

Government model is overall "non-innovative" and so far has not achieved significant results in establishing innovative climate in the country. This is demonstrated by low level of R&D financing,

inadequate development of public-private partnership models; inadequate support to innovative SMEs (about \$110 mln, annually). Existing public procurement system hampers innovative products/services entry to government contracts system. State repressive overregulation of entrepreneurial activities is even more harmful for innovative business. Doing Business ranking placed Russia 130th out of 183 countries. Overall tax pressure has increased lately after switching from unified social tax to insurance taxes. Meanwhile, there are innovations happening in some spheres of governmental activities such as electronic government and electronic public services.

5. Infrastructure

Last 10 years Russian government has been investing intensively into both soft and hard infrastructure, establishing so-called institutes of development of Russian innovative economy (funding), about 200 technoparks and business incubators, 100 centers of technology transfer, 4 special economic zones with special tax and customs regime, Skolkovo project, etc. However, the efficiency of the infrastructure is so far low, primarily due to country's poor natural business demand for innovations.



Global positioning of Russia, relative to OECD countries (100%).

Conclusion:

Despite recent governmental efforts, trends towards innovative development of Russian economy are yet to be settled. Critical problem is to create grounds and incentives for innovative development of all parties of the economy, increase cooperation of business and public research, benefiting from existing and developing infrastructure.

Goals and Objectives

Following primary goals are set to be reached by 2020:

1. Share of companies effecting innovations to increase to 40-50% (from current 10,9%).
2. Russian share of global market of hi-tech products and services to reach at least 5-10% in 5-7 market segments.
3. Russian share of global hi-tech goods export to reach at least 2%.
4. GVA of innovative goods and services in Russian GDP to reach at least 17-20% (from current 12%).

5. Share of innovative products in total Russian volume of production to reach at least 25-35% (from current 12,4%).
6. Internal R&D expenditures to reach 2,5-3% of GDP (from current 1,3%), with over 50% covered by private sector.
7. Share of publications produced by Russian researchers in global publication index to reach 5% (from current 2,5%).
8. Average citedness of Russian scientific publications to reach 5 references per article (from current 2,4).
9. At least 5 Russian universities to be included in the world's top 200 (overall) according to international ratings.
10. Number of patents registered by Russians in patent organizations of EU, USA and Japan to exceed 2,5-3 thousands annually (from current 100-200).
11. Share of Russian universities income obtained from contractual research and IP commercialization to reach 25%.
12. Share of university research to reach 30% in overall research funding provided by the state.

Key Objectives:

- 1) Innovative economy needs "innovative class" oriented towards not only consumption but also generation of innovations. The task here is radical enlargement of innovative entrepreneurs class, public advocacy for startups risk-taking behaviour and innovation business activities throughout lifetime learning. Provision of necessary education and skills to inoculate modern innovative behavioral patterns.
- 2) Drastic change in business perception and demand for innovations. Companies shall consider innovation not as an obligation or "hobby" but as an integral part of their business activity, vital for ensuring future competitiveness, efficiency and leadership.
- 3) Making the State more innovative itself. This includes wide introduction of modern ICT technologies in governmental operations and services (electronic government). Utilization of public procurement system for stimulation of innovations. Establishment of an "innovation climate" – conditions and incentives to stimulate companies and individuals to innovate.
- 4) Formation of a balanced, sustainable R&D sector of economy, that has an optimal structure ensuring continuous production of globally competitive knowledge. Radical improvement of an infrastructure ensuring commercialization of R&D results.
- 5) Increasing openness of national innovation ecosystem and innovation economy, enlarging integration of Russia into global innovation process, boost of international collaborations.

Strategy:

Overall mixed innovation strategy is proposed as optimal. In several areas like aerospace, nanotech and composites, nuclear power, ICT Russia may pretend to take the role of one of the global leaders, providing world-class innovative solutions and technologies (leadership strategy). In other areas the country will take the route of developed Asian countries (Japan, S.Korea, Singapore, etc) importing and adopting the most advanced technologies available (catch up strategy). It is clear that pure leadership strategy is too expensive and may only be applied pointwise in the technology areas where Russia is traditionally strong and has firm basis. In other areas (such as FMGC, automotive, construction, services, etc) modern technologies will be borrowed and adopted. This has its own advantage in minimizing risks, speeding up innovative projects, benefiting from overall improvement of country's technological development, decentralization and deregulation.

Stages of realization:

- 1) **2011-2013.** Maximal utilization of the world's standards and best practices in education will support creation of a new innovative class. Stimulation of international and domestic mobility of students, researchers and academic staff. Hi-tech business involvement in development of educational programs. Increase level of sensitivity to innovations from Russian business and economy overall. The task will be fulfilled through: governmental-induced capital flow into innovation intensive economy sectors; stimulation of innovative activities of state-owned corps; direct funding (grants and

loans) to innovative SMEs; fiscal stimulation of innovative business activity; development of overall competition level; development of ppp models and mechanisms; removal of state overregulation (technical, customs and tax) oppressing hi-tech business; creation of “competence centers” to generate and commercialize knowledge; pilot projects in russian regions; formation of industry clusters and technology platforms. Skolkovo project (zero income and property tax, 0% VAT, social insurance tax – 14% for resident companies).

2) **2014 - 2020**. This stage is characterized by the increase of private share in overall amount of investments made into R&D. From public side more emphasis will be given to further development of the elements of innovation infrastructure and increase of their efficiency. Formation of integral, relevant and functional national innovation ecosystem shall be completed. Increasing state support will be provided to promotion of Russian innovative products and services to global markets, including financial (loans, state guarantees) and consulting services. Budgetary spendings are now more focused on the areas of the most promising new technologies and on big targeted technological programs, supported by continuously increasing share of non-budgetary funding.

Coordination model:

Overall strategy realization will be coordinated by the **Governmental Commission for Hi-tech and Innovations**. Overall control of the strategy realization will be carried out by the **Presidential Commission for Modernization**. One of the key strategy instruments will be technology platforms. **Russian Fund of Technological Development** will be coordinating R&D programs within these technology platforms. Main coordinator for R&D part of the strategy is **Ministry of Education and Science**. Main coordinator for IPR commercialization part of the strategy and functioning of “innovation lift” is **Ministry of Economic Development and Trade**. Russian innovation system will be actively integrating into the global one and **Skolkovo Foundation** will be playing major role in this process.

Key Indicators targeted:

| Performance | 2010 | 2016 | 2020 |
|--|------|------|------|
| Education coverage in 5-14 y.o. group, % | 94 | 98 | 100 |
| Average teacher salary in % to country’s average wage | 65 | 80 | 100 |
| Share of involved in lifetime learning process in 25-64 y.o. group, % | 25 | 40 | 55 |
| Number of patent applications per 10 000 inhabitants | 2 | 3 | 4 |
| Number of innovative industrial technologies created | 854 | 1500 | 2500 |
| Innovation expenses share in GDP, % | 1,4 | 2 | 2,5 |
| Share of cutting edge hi-tech equipment not more than 8 y.o. in overall amount of R&D equipment, % | 45 | 65 | 85 |
| Share of innovative goods in services in overall goods exported, % | 7 | 12 | 15 |
| Amount of nanotechnology-related goods and services, bln of euro | 3 | 8,7 | 15 |
| Share of companies employing technology innovations, % | 8 | 15 | 25 |
| Amount of innovative SMEs, formed as spin-offs from universities and public research organizations | 600 | 2000 | 4000 |
| Number of working in R&D per 10 000 employed | 111 | | |
| Average age of a researcher | 49 | 45 | 40 |
| Share of governmental expenses in R&D, % | 65 | 50 | 35 |
| Russian share in overall world amount of scientific publications, % (acc. to Web of science) | 2,5 | 4 | 5 |

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|---|----|----|----|
| Place of Russia in information society development world ratings | | | 18 |
| Share of organizations and companies with broadband internet access, % | 48 | 85 | 95 |
| Share of companies and organizations with own websites, % | 29 | 75 | 80 |
| Share of households with internet access, % | 26 | 75 | 90 |
| Share of population utilizing internet to access governmental services, % | 10 | 50 | 60 |

| Financials, % of GDP | 2010 | 2012 | 2020 |
|--|-------------|-------------|-------------|
| Internal expenditures for R&D | 1,3 | 1,5 | 2,4 |
| Governmental expenditures for non-military R&D | 0,88 | 0,9 | 1,1 |
| Internal expenditures for education | 4,8 | 5,6 | 7,0 |
| State expenditures for education | 4,0 | | 6,0 |

| Financials, blns of euro | 2010 | 2012 | 2020 |
|---|-------------|-------------|-------------|
| Governmental university funding | 0,4 | 0,4 | 0,6 |
| Funding to attract of international level scientists | 0,08 | 0,1 | 0,25 |
| State funding to applied research and IPR commercialization | 0,7 | 1,8 | 3,6 |
| State funding to basic research | 0,5 | 2,9 | 3,9 |
| State funding to innovation infrastructure development (incl. Skolkovo) | 0,5 | 0,6 | 1,5 |

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