

Russia's National System of Innovation: strengths and weaknesses

Studying the business sector of Russia's NSI

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2008

Russia's NSI indicators 2007

- Global Summary Innovation index (25th out of 49)
- Knowledge Economy index (47th out of 140)
- Global Competitiveness index (48th out of 131)
- Proportion of innovative products at the World market – 1%
- Proportion of innovative SME – 5%
- R&D expenses - 1% of GDP
- Number of registered patents per 1 mln ppl – 1.65

Objective of research:

- to analyze the peculiarities of NSI functioning in Russia, its strengths and weaknesses, and also to work out recommendations on its improvement

Questions to be answered:

- What are the peculiarities of Russia's NSI, its problems and disproportions, that originate from the Soviet period and still have an effect on Russia's NSI?
- What are the main subjects of Russia's NSI, and how they interact?
- Which organizational and economic forms increase the effectiveness of innovation processes on the federal and regional levels?
- How are the innovation processes regulated on the municipal level?
- How can we summarize foreign experience of NSI shaping and developing and apply it for improving Russia's NSI?
- **Business sector of Russia's NSI.**

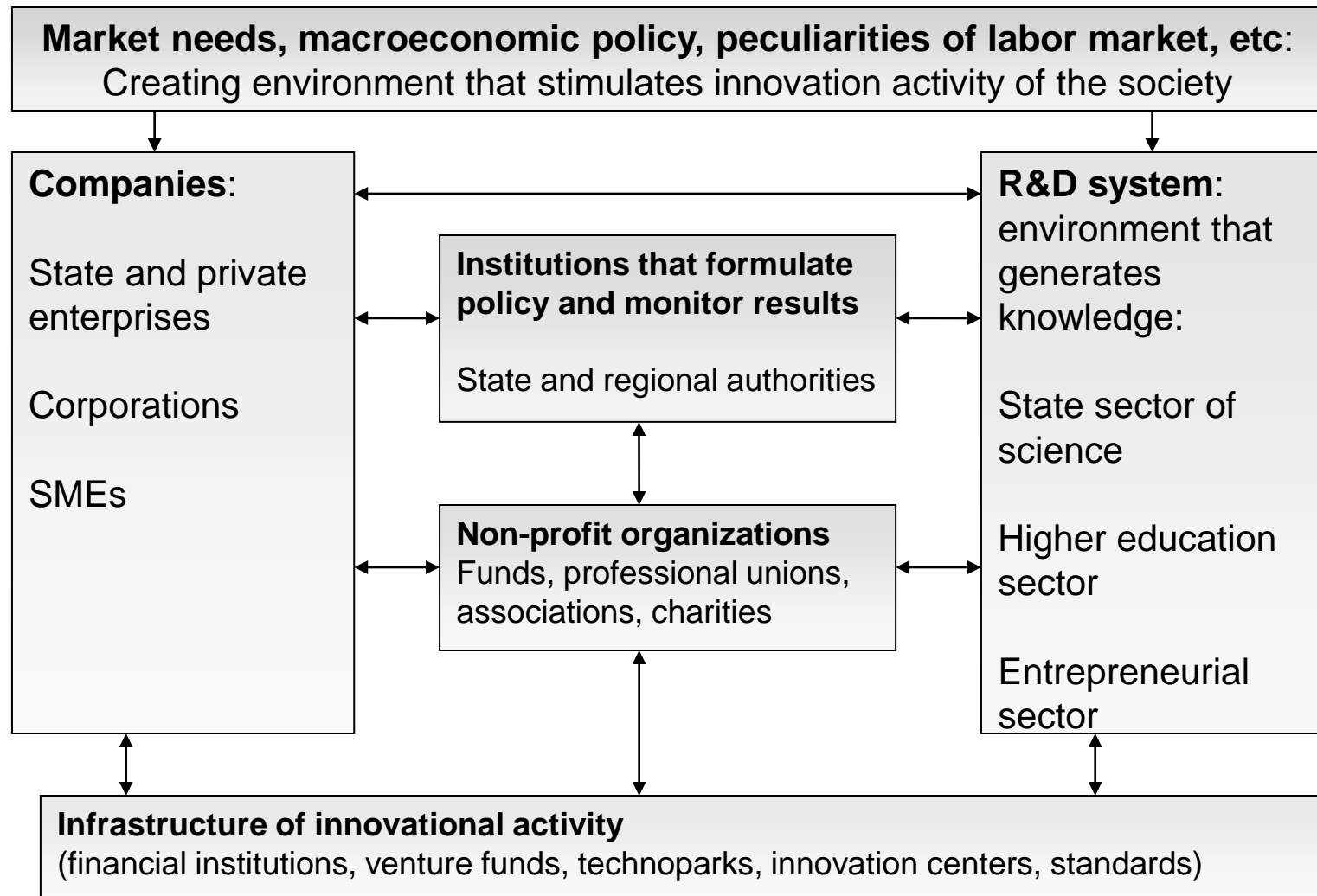
The peculiarities of Russia's NSI

- Underdeveloped infrastructure of innovation activity, disconnection between science and industry
- No independence in innovation activity, control of the Academy of Science
- Difficulties in starting own business
- Telecommunications are not well developed in Russia which impedes information and knowledge transfer
- Science is excessively concentrated in big scientific and industrial centers
- Lack of high quality specialists to manage innovation processes and financial institutions
- Insurance, financial and legislative institutions are underdeveloped
- Centralized model of managing all spheres of activity still has a lot of impact on interaction and coordination between federal and local authorities

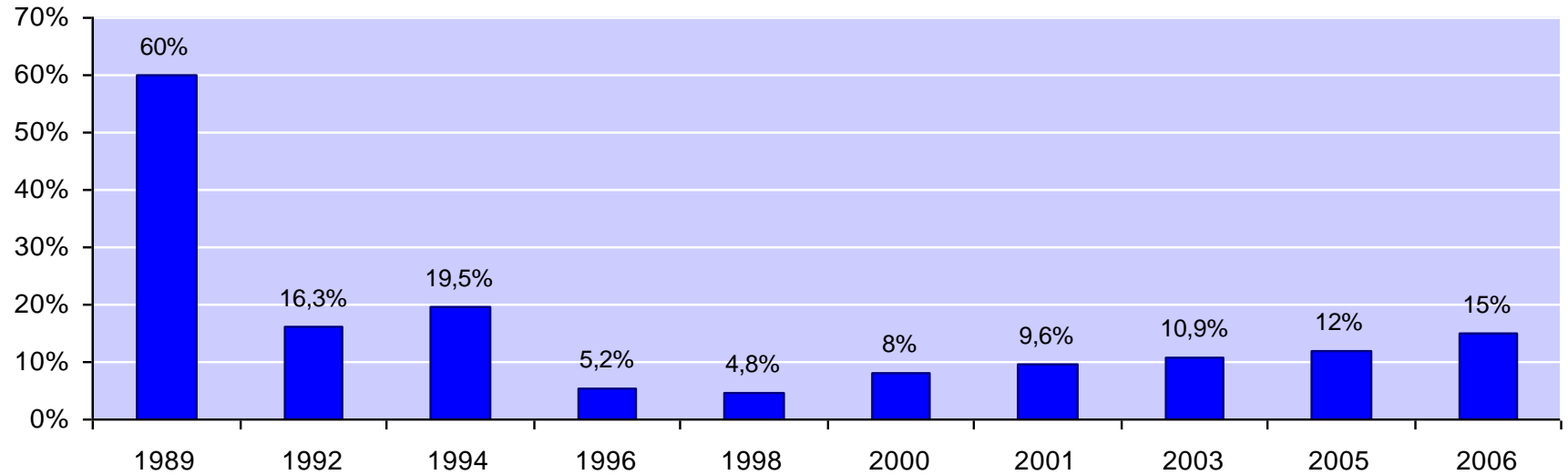
Three ways to define NSI

1. NSI as a complex of institutions whose activity is aimed at generation and diffusion of innovations
2. NSI as a set of interconnected economic mechanisms and activities that serve innovation processes
3. NSI treated as a part of national economic system that builds in the innovation processes into economic and social development

What are the main subjects of Russia's NSI and how they interact?



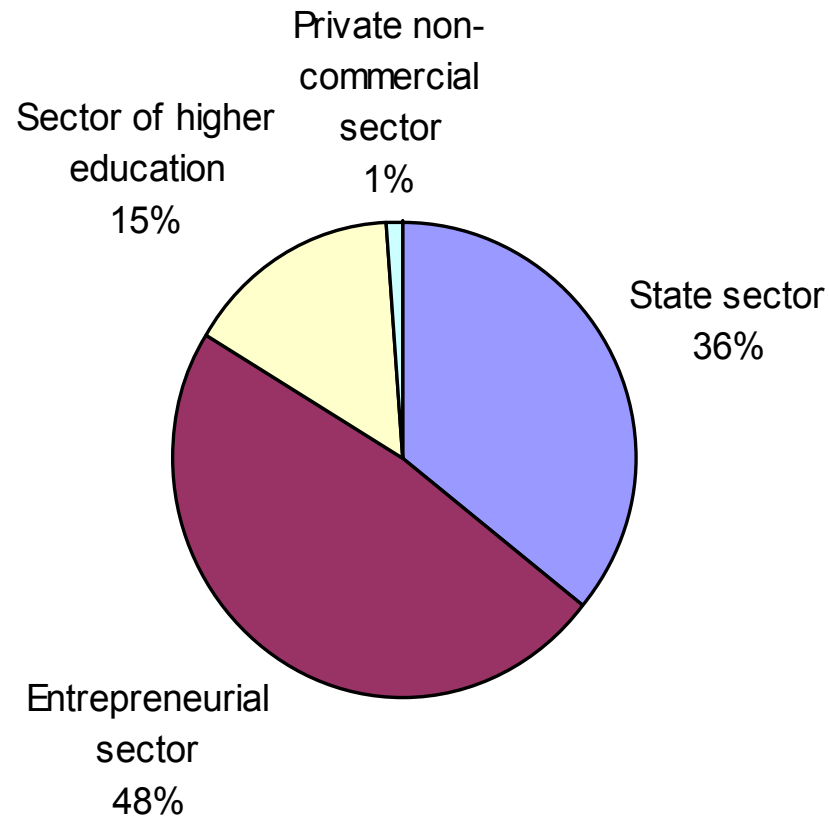
Proportion of innovative enterprises



Innovation activity of industrial enterprises with various types of property

Type of property	Total number of industrial enterprises	Number of innovation-active industrial enterprises	Percentage of innovation-active enterprises, %
State	46000	162	3.52
Municipal	24000	5	0.21
Private	1400000	444	0.32
Non-commercial organizations'	6000	11	1.83
Mixed	88000	517	5.88
Foreign and joint property	25000	34	1.36

Distribution of organizations involved in R&D activities in various sectors of science in Russia



Industries with strong and weak market positions

Market position	Branches of industries
Strong on external and internal markets	Oil industry Gas industry Metallurgy Basic chemical production Military industries (military planes, air defense equipment, shipbuilding)
Weak on external and internal markets	Electrical industry Machine construction Instrument-making Automobile construction Road construction Pharmaceuticals

Scientific processes at firms or plants don't have as high a status as they do in other countries.

Examples of expenses on R&D:

Microsoft	\$7.7 bln.
Ford Motors	\$7.5 bln.
Pfizer	\$7.1 bln.
Daimler	\$6.6 bln
Siemens	\$6.0 bln.
Toyota -	\$6.2 bln.
Gazprom	\$100 mln.
Lukoil	\$25 mln.

Main reasons:

- 1). There is not enough demand for innovative products; many enterprises have obsolete equipment and try to harvest as much as possible without any costly innovation;
- 2). There is no stable technological unity between new technologies and product development and their commercialization;
- 3). Unfriendly climate for SME, complicated taxation.

The total number of taxes a firm has to pay is 22 in Russia, which is twice as high as in the USA and Japan. For every thousand of people in Russia there are only 7.9 SME, in the USA 181.7 SME, in Japan – 60.8 SME. As a result of this, only 12-17% of Russia's GDP is produced by SME (in developed countries they produce up to 70% of GDP).

4). The banks' interest rates are very high

Example: the interest on a loan for SME is 16-17%, for larger companies it is 12% on average; the market for SME loans is growing fast in St.Petersburg and Moscow, but still, crediting SME is considered to be quite risky; as a result, enterprises don't have enough finance;

5). Investors do not like to invest money into fundamental research because of high risks (estimated at about 90%);

6). Certain transitional links in Russia's NSI, such as venture company, small innovative high tech company, are missing;

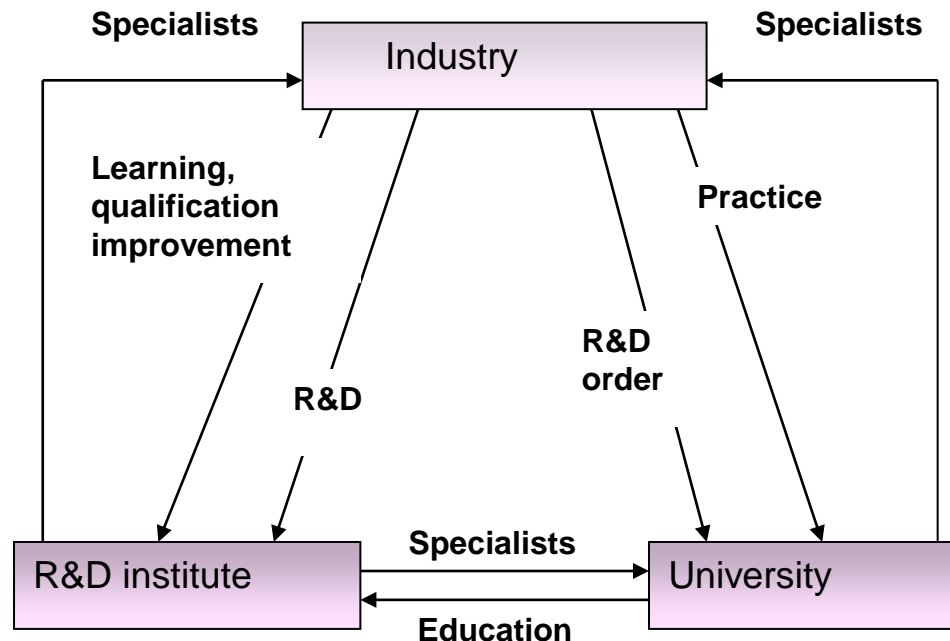
7). Such issues as external environment control, forecasting, strategy evaluation and control are not paid enough attention to;

8). Administrative workers lack theoretical and practical knowledge in managing projects, time, finance, risks, personnel, contracts, technology transfer.

How to solve the problems:

- 1). Create better climate for innovative SME;
- 2). Provide interest-free loans to individual inventors and small start-ups;
- 3). Create venture funds and provide tax benefits for them;
- 4). Create nets of technoparks and technopolices;
- 5). Introduce benefits system for participants of technologies transfer;
- 6). Improve coordination between ministries and departments as well as between different levels of government – federal, regional and municipal;
- 7). Increase volumes of state and private investment into R&D;

- 7). Increase volumes of state and private investment into R&D;
- 8). Stimulate purchasing of high-tech products produced in Russia;
- 9). Improve the system of managerial education; for this we suggest the system represented below:



How to solve the problems (continued):

- 10). Introduce tax benefits using experience of foreign countries, such as
- lowering tax rates for profit spent on R&D;
 - lowering taxes paid on dividends from innovation enterprises shares;
 - lower tax on profit received as a result of using patents, licenses, know-how and other intangible assets;
 - reducing taxable profit on the price for equipment given to universities and R&D enterprises;
 - subtracting charity payments to funds financing innovations from taxable income;

Summary of Russia's NSI strengths and weaknesses

Weaknesses:

- 1). Low legislative activity;
- 2). Underdeveloped market of innovation intermediaries;
- 3). Weak interconnections between elements of NSI;
- 4). Insufficient motivation of R&D personnel for producing innovations;
- 5). High export and import taxes;
- 6). Lack of long-term industrial policy aimed at producing competitive products;
- 7). Ineffective system of bank loans, lack of experience in management of innovations.

Strengths:

- 1). Strong positions or leadership in many areas of fundamental science
- 2). Developed system of R&D institutes in various R&D spheres
- 3). Strong positions in the world market in such technological areas as aero-space industry, metallurgy and energy
- 4). Improved positions of higher education sector in Russia's NSI in comparison with previous years.

Positive steps towards formulating effective NSI in Russia

- Ekaterinburg's system of intellectual resource commercialization (the Urals)

Center for innovations and technology

“Akademicheskyy” - 6000 sq.m. of production facilities; The Urals Venture Fund



Aim: increase the proportion of innovative products from 5% to 18% by 2015

Area: pharmaceuticals and medical equipment; construction materials

Tomsk's experimental site for the creation of a model for regional economy development (Siberia)

Production of high-technology products grows 40-50% per year. Tomsk cluster has got the status of Special economic zone



Aims: analysis and monitoring of innovation environment, preparing innovative projects, expertise and support for new projects

The scientific cluster of Dubna (Moscow) – *“naukograd”*

The scientific center of Dubna was built in Soviet times as the center for military industrial complex. Since 2001 – “naukograd” and special economic zone.

Areas: nuclear technologies, nanotechnologies, applications in medicine, IT;

Also functions as business incubator

Project: invest abt \$0.5bln into construction IT center;

Attract 10000 programmers;

Reach the volume of software production worth \$0.4bln by 2015

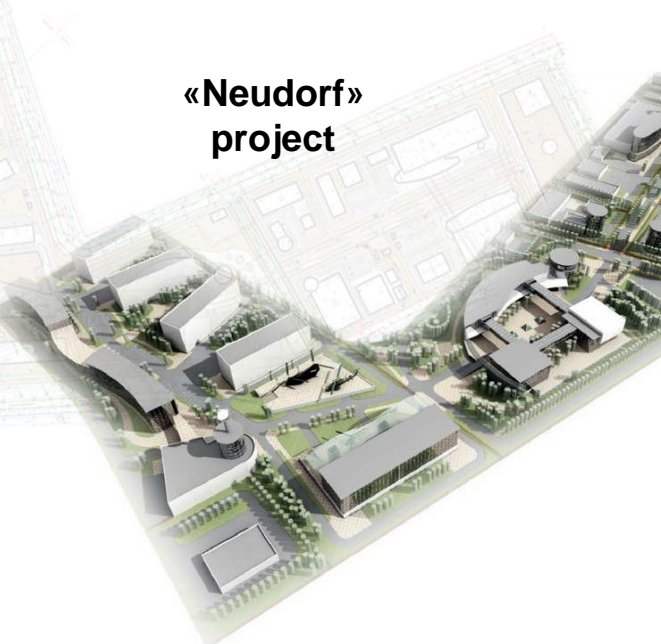
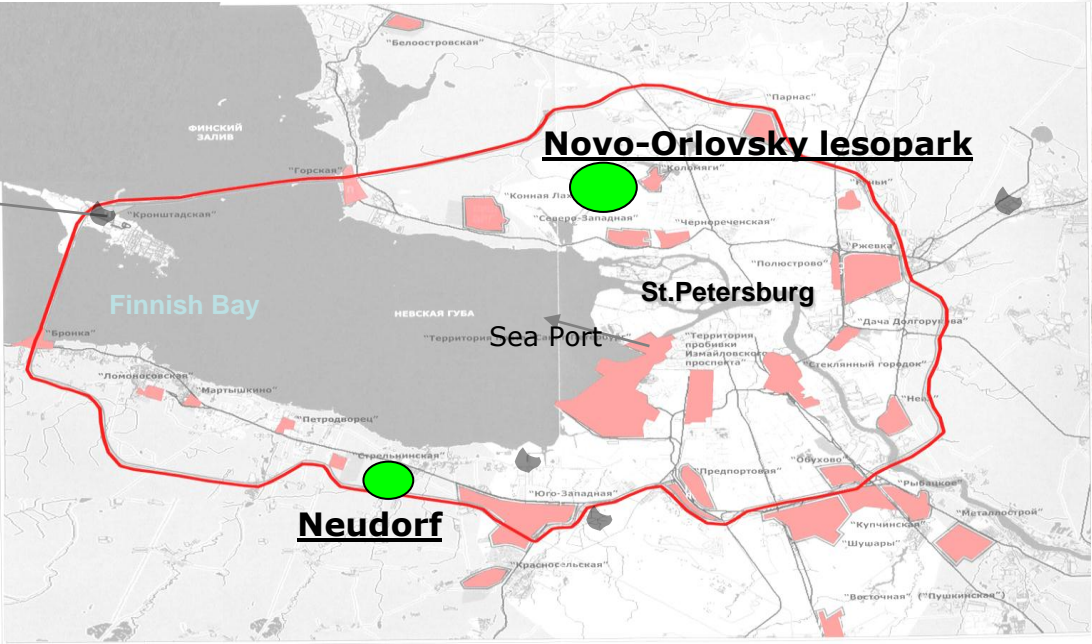


SEZ: benefits for residents

- Unified social tax – 14% instead of 26%
- Lowered real estate tax (2,2%)
- Release from land plot tax for the first 5 years
- Imported goods – release from import duty and VAT
- Profit tax 20% (instead of 26%)

Comments VAT (18%), import taxes

SEZ in St.Petersburg



«Neudorf» project



«Novo-Orlovsky» Construction project

\$350mln will come from city and federal budgets

Directions of further research:

- Forming the culture of innovation in society
- Forming the culture of knowledge-sharing and trust
- Raising prestige of education
- Building the NSI that could easily integrate into the world innovation environment.