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The papers study the following problems: sustainable development of local production systems, business strategies of LPS, innovativeness of clusters, critical infrastructure protection, corporate social responsibility, environmental protection, local production system management, governance of local production systems in Bulgaria, Poland, Ukraine and Russia, policy guidelines with some measures of general application, aimed at problems observed in all LPS, and some specific measures differentiated according to a typology of local production systems.

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# INSTITUTIONAL BARRIERS AND INSTITUTIONAL SUPPORT FOR THE IMPLEMENTATION OF INNOVATIONS IN RUSSIA

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The paper presents some results of research of innovations development in Russia in the last twenty years, the formation of innovation systems in Novosibirsk since the late eighties of the twentieth century. The key problems concerning the development of innovation system in Russia are identified. From the standpoint of authors the consistent solution of these problems will significantly increase the effectiveness of the national innovation system and accelerate the economic development of Russia.

The transformation of the Russian economic and social systems taking place over the past two decades coincided with two global processes occurring in the world: innovative development and globalization. In the late eighties and early nineties of the twentieth century social, scientific, technological and economic potentials of Russia gave it a good chance to retain its leading position in the world. Unfortunately, these opportunities have not been taken advantage of. In recent years, the Russian society has realized that the processes of globalization and technological challenges are fundamentally important. The consequences resulting from a passive stand in relation to these challenges, such as irresponsiveness of industry to innovations, loss of qualified personnel, the lag in key scientific and technological areas and others have turned to real threats. The chief elements in solving all these problems become innovation development institutions (institutions of the national innovation system (NIS)), and the main issues that impede these processes – inadequate development of a number of institutions of the modern Russian society.

Today, some elements of NIS are the result of deliberate government policy. However, this policy is largely fragmentary and episodic, not taking into account the overall socio-economic background. Development effectiveness of NIS depends on the correctness and accuracy of the assessment of the problems hindering the development of the innovation, and of the ways to solve them. The analysis shows that the very presence or absence of individual institutions is not a guarantee of success or failure in the development of the innovation economy. Crucial here is the interior design, “filling” of these institutions and coordinated, balanced development.

**Results of the research.** Analysis of the existing approaches to the definition of NIS [1, 2, etc.] and our own research conducted over the past two decades suggest that the effective innovative economic development of a country, a region as well as that of individual municipalities assumes the existence and the development of NIS on a specific ter-

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territory that includes interrelated elements: 1) innovation-oriented authorities; 2) developing scientific, technical and educational complexes; 3) a motivated high-tech industry; 4) infrastructure for innovation; 5) mechanisms to support the innovations; 6) the mechanisms of interaction of elements of innovation system, and 7) the socio-cultural foundations of innovative development of society and economy.

The principles of integrated and balanced development of all elements of the innovation system are especially important.

Deficiencies in the functioning of individual components lead to the low efficiency of the whole system.

Innovation oriented authorities at any level imply goals and tasks, management structures and their remit, industrial systems, relevant social, economic, cultural, humanitarian and other processes occurring in the territory, the available budget to solve problems, the presence of a system of priorities of the development in accordance with the innovation strategy. This is the theory.

In the structure of the Government of the Russian Federation as of 01.11.2013 [3] are represented the most important spheres of the current life the society and the state, but there is no division with a title and objectives oriented to a perspective, strategy, innovation development. And this is substantially not a form.

Governance structure on a federal subject level in some extent form repeats the federal structure and form and substance [4]. And it is logical from the standpoint of the power vertical.

As for the municipal authorities, the criteria for evaluating its activities must comply with the innovation strategy. Authority shall have the strategic objectives of innovation development and decompose these objectives to the level of adoption of specific business decisions based on appropriate credentials.

Basic processes of synthesis and implementation of innovations occur at the spatial level of local government. A list of issues that relate or should relate logically to local issues depends on many factors: the area of the municipality, population, industrial, scientific, technical, educational and cultural potential, geographic location, historical peculiarities of formation and many other specific factors.

A typical example of the municipality, on the territory of which is solved or can be solved the list of issues significantly higher than the list under Art.16 of the Federal Law № 131-FZ of 06.10.2003 is the city of Novosibirsk.

According to the Mayor [5] Law 131-FZ, although initially played a positive role in the development of local self-government in Russia, however, already during the commissioning become a brake on the development of high-tech industries in the territories. Because unjustified distinction of competences between state authorities and local governments of cities, municipalities, including the largest, essentially lost mechanisms to participate in the consideration and discussion of scientific, technological and industrial development of their cities. Violated were the natural laws of growth of the urban economy. Numerous recommendations in this regard have not been addressed, although other amendments to the law were made 84 times during 8 years. Today, accumulated a large number of contradictions of law 131-FZ to the norms of the Tax, Budget, Town Planning, Land, Housing Code and other federal laws. This law already poorly provides the legal basis for the normal functioning of local government. The local authorities now have no incentive for municipal development and expansion of their own income base, as almost all associated with these taxes go to the budgets of other levels. Unreasonably restricted the composition of municipal property and the possibility of its use to increase income of local budgets. Local self-government is largely lost its autonomy, primarily financial, and increasingly embedded in the vertical of the state power.

Successful transition to an innovative economy, referred to one of the highest priorities of public policy, cannot be implemented without large cities, where is actually accumulated human potential, scientific and technological reserve of the regions and the country, on the basis of which is formed the strategic direction of the economy.

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Innovative economic development is concentrated in the growing cities as a direct function of innovation policy in urban areas. It is a fact. Mechanisms of influence of the innovations on the development of the cities and the cities on the economic development of the countries were described by Jane Jacobs in her books “The Economy of Cities” [6] and “Cities and the Wealth of Nations” [7]. In the book “The Economy of Cities” Jacobs convincingly proved that the development and flourishing of the city's economy with market relations are driven by increasing of generation of innovative products and technologies aimed at import substitution and export, as well as the emergence of new activities in the division of labor. Human capital, a wide range of mastered technologies provides long-term opportunities for city's development. Innovative development is cyclical and goes proportionately with the cycles of renewal of fixed capital. In the second book Jane Jacobs showed that wealth of national economies concentrates in the largest cities that due to the concentration of production capital and developed systems of commodity turnover create a significant proportion of the gross domestic product of their countries. Essentially, according to Jacobs, the national economy is derived from urban economy.

As large cities are the basic elements of innovative growth of its regions and the country as a whole, they are objectively bear the main burden of making the transition from the export of raw materials to the innovative development of the economy, and they should be mandatory participants in the unified state system of innovation development. Moreover, their role and credentials must be determined accordingly to the small circle of key strategic objectives for innovative economic development in the state system of strategic planning. The list of such objectives on a long- and medium-term as the city's development institutions seen as follows [5]: first, the development of human potential of the city and its capitalization, second, the growth of scientific capacity and the generation of high-end technologies, third, active industrial policy on the basis of the dominant technologies promising technological system and, fourthly, to ensure the citizens of modern quality of life through innovative development of the urban environment and life-support systems.

Only in the realization of these objectives the dynamic development of the new economy is possible.

Today Novosibirsk has more than one and a half million population, by the area and the number of inhabitants it is the largest municipality in Russia. Within the city are concentrated the most powerful in Russian scientific and technical potential, cultural and educational centers, perform some basic reproductive processes of the development. However, due to the limited credentials, local authorities cannot participate actively in many processes, including innovation, for the benefit of social and economic development of the territory, for the benefit of the citizens.

In such circumstances, the municipal authorities should have mechanisms to adapt to the real conditions in the interests of the local community and the state. In the future, such adaptive changes should become the rule of law as a result of evidence of their viability.

Financial liabilities arising from the resolving of local issues performed at the expense of local budgets. Under the current order of the city's budget formation local government is experiencing and will experience constant lack of financial resources to address local issues even on the list approved by the federal law.

While in recent years has significantly changed the economic basis of local self-government in the direction of complications of the overall economic situation. In the period from 2007 to 2012 the property of the city of Novosibirsk, used to address local issues within the credentials has more than doubled. At the same time, the amount of property used to raise funds in the city budget fell whiter than 5 times. In 2007 the share of budget revenues from the use of the property of the city was 11.4 %, in 2012 – 5.9% in 2015 is projected at 2.1%. Growth in property used for the exercise of the credentials of local government, leads to an increase in the tax burden on the municipal budget. The yield from the use of the land in the city decreases.

The share of the city budget in the total financial resources of Novosibirsk is declining from 12% in 2007 to 5.6% in the forecast for 2015. The share of the development budget in executed budgets is also declining. This reduces the possibility of using the budget as a tool for development and management of the city life and, as a consequence, to reduction of the role of local government in the life of the city.

According to the Union of Russian Cities such trends are observed in most urban districts. Continuation of such trends has negative impact on socio-economic development of cities, including an innovative development.

Socio-cultural bases of innovative development have undergone major changes. Effective development of the national and the regional economy on an innovative way presupposes presence and development of the national innovation system, and essential elements of which are the socio-cultural foundations of innovation development of economy and society.

Under the socio-cultural foundations are understood the assumptions for the implementation of human activity from the perspective of the methodological approach, based on the system principles, the essence of which is to consider society as a unity of culture and sociality that formed and transformed by human activity. Education, training and tradition in this system occupy the key positions.

Currently, changes in the Russian socio-cultural system, in particular in education, have rather negative results. Deideologization and the absence of clear social development priorities, the loss of a number of traditions negatively affected the development of socio-cultural foundations of innovation processes. This explains not particularly high efficiency of economic and organizational measures taken in recent years towards the development of the innovation system and economic modernization. Understanding of the situation at the level of municipal and territorial authorities within the framework of their credentials allows to take an action to compensate for negative and to form positive trends in changing of the social and cultural foundations of economic development in the form of development and implementation of comprehensive and targeted programs aimed at the development of the individual elements of this framework, involving technical, research and economically activity subjects on the territory.

Structuring of the socio-cultural foundations of innovative development of the society reveals, from the author's perspective, the following basic elements: 1) education, focused on the formation of cognitive and transformative dominant among the students; 2) an innovative outlook among the younger generations; 3) the creativity of the working population; 4) passionarity; 5) patriotism; 6) ideological support; 7) social status and recognition of the results of such activity; 8) the tolerance of society and individuals to the mistakes and failures of others.

Of course, the socio-cultural foundations of innovation development should be a subject to a coherent state policy. However, in the framework of their credentials authorities and its executives at the level of the federal subject, municipality, federal agencies and economic operators are able to adjust and develop the individual elements of the socio-cultural foundations toward conformity with the decision of the problem – namely, the formation of the prerequisites and conditions for innovation development of the society and economy.

Example of an approach to the realization of these opportunities is the complex target program “Nurturing creative young people, the formation of social mobility and training for the innovation economy of the city of Novosibirsk” developed on the initiative of the mayor of the city of Novosibirsk.

The development was carried out by a group of independent experts, comprising the heads of organizations of fundamental and applied science, innovative businesses, educational institutions, innovative educators, officers of Novosibirsk Region and the City of Novosibirsk administration, members of the public, including members of the Novosibirsk Branch of the International Future Research Academy (IFRA). Science Team Leader – Deputy Chairman of the SB RAS on innovation and the development of scientific and educational complex Academician N. Dikanskiy.

A need to develop and implement such a program is dictated by several factors. Adoption by the state of the strategic installation at modernization of the economy and its transfer into the path of innovative technological development imposes special requirements on the choice of perspectives and resources of the city's development. For the development and commercialization of new technologies require highly qualified personnel.

Today, the training of such personnel is one of the major strategic problems and it is difficult to solve it without changing the existing socio-cultural foundations of society. Particularly acute the problem exists in relation to the engineering staff.

Demand for these personnel is already high and will grow more. According to the Ministry of Education and Science of the Russian Federation average deficit of highly qualified professionals in companies that implement innovative development program today is 35%. Larger numbers called by executives of innovative enterprises in Novosibirsk.

Preparation of highly qualified specialists, except of high-level faculty of existing scholars and professionals, availability of good conditions for learning and student participation in research activities, requires a number of applicants of appropriate quality.

In recent years, the quality of applicants for scientific and technical universities in Novosibirsk, as well as in cities in many regions of Russia, unfortunately, has deteriorated significantly. The root cause of this problem, in addition to intergenerational strains caused by the change of ideological doctrine, the state system and technological innovations, according to many experts, have become the education reform that actually neutralized the advantages of domestic secondary school, that was based on the formation and development of creative thinking of students using effective teaching methods and high quality verified textbooks, especially in mathematics and natural science disciplines cycle.

The CSE also affected the decline in human potential in many regions of Russia, including Novosibirsk region, as it significantly increased the centrifugal trends in mobility of creative young people. Received a good education in Novosibirsk in advanced gymnasiums, lyceums and schools talented graduates easily passed the CSE, often apply to universities in Moscow and St. Petersburg. A few returns. Since 2009, when the CSE for high school graduates was finally implemented everywhere, flows of the traditionally strong applicants to Novosibirsk universities from the territories of the Eastern Russia also significantly reduced.

To ensure a constant influx of young scientists and engineers to fundamental and applied science, engineering design of new cutting-edge techniques and technologies, as well as in the infrastructure of high-tech production and actual production of new high-tech products and services, urban community needs to compensate the costs of education reform. As means of such compensation may be a Novosibirsk-wide system of measures aimed at fostering creativity in children and young people, and the organization of the relay generations, forming social lifts for talented young people motivated to further sustainable innovative development of the city. At the same time, these measures should be designed and implemented within the framework of existing legislation, without violating of federal standards and laws on education.



The system of measures may be declared in the form of complex target program for the deployment and coordination of efforts of the public and units of general and vocational education of the city, public authorities of the Novosibirsk region and local authorities of the city of Novosibirsk in achieving the main goal – building a system of training in cutting-edge areas of science, technology and innovation economy.

The program as an instrument of accumulation and reproduction of human capital increases the field of vision of the problem of personnel training for the innovation economy, encourages to influence the development of not only professional aspects, but also humanitarian. To prepare a good professional, one needs to help him develop appropriate personality traits. And to use these qualities for the benefit of society and the country it is needed to raise a sense of homeland and patriotism in the younger generations. The program should target the government and municipal authorities, parent and teacher communities of Novosibirsk to foster creative and educated younger generations, starting with the early childhood as the best return on efforts is possible to get in the preschool and early school stage of human ontogenesis. Awareness of the importance of the system approach to education and the development of creativity in children since birth is based on the results of numerous studies conducted in a number of countries [8]. In preschool childhood all the main parameters, characteristics of personality and human psyche are laid, the direction and quality of the further development of his or her intellectual, emotional and physical abilities, interests and capabilities are largely determined.

To continually succeed in cutting-edge areas of fundamental and applied science and the creation of new knowledge-intensive industries, is need to ensure a steady stream of well-educated creative professionals, patriotic to the city and well motivated for scientific and engineering career in it. The organization of this stream is possible in conditions of formation of an environment for staying in the city and the system of cultivation of very creative population from an early age of children and young people, learning to learn, brought up on the basis of basic national values and love to Novosibirsk, who are ready for self-determination and development of competencies for scientific and technical professions, capable creatively solve complex scientific, technical, manufacturing and managerial tasks. Representatives of such groups who enrolled in the universities of the city, after targeted training will be the main source of personnel for research and development in targeted clusters of projected Siberian center of science, education and high technology.

A structuring of problems of adjusting the socio-cultural foundations for the development of innovative economy within the competences of potential participants of Comprehensive target program, allows creating a tree of goals, objectives and activities constituting the skeleton of the program that can be used to build a system of measures aimed at achieving the targeted outcomes.

Implementation of measure system of the program allows to correct the socio-cultural foundations of innovation and expect the following results: the creation of centers of creative young people; creation of a pool of potential personnel for cutting-edge directions of science, technology and innovation economy of the city; mobilization of human capital for high-tech economic development of the city and region; the creation of social mobility for the new generations of Novosibirsk; the creation of innovation-oriented personnel reserve for Novosibirsk Mayor's Office and the Government of the Novosibirsk region; increasing the attractiveness of the investment climate in the city for domestic and foreign businesses.

**Motivated high-tech industry.** Industry in terms of economic development in general and innovation development in particular has always fulfilled a dual function, on the one hand, consumed the innovations, on the other, created a technological basis of the implementation of innovations in other industries. Over the past twenty years in the development of Russian industry major structural changes are witnessed (comparison of the RF is done with the RSFSR) (Table 1).

The output of 50 major industrial products of Russia in 44 cases did not reach the level of the RSFSR in 1990, in 25 of them it was less than 50%, only 6 types of products reached the level of output of the RSFSR in 1990.

Considering the sphere representing the innovative development of technology platforms, the situation there is even more complicated. In the catastrophic conditions is the electronics industry and the situation is not better in the pharmaceutical industry, which now provides only 15% of the need for medications.

Although in general, from a formal standpoint, [10] there is an economic growth – in 2011 the total value added in the Russian economy exceeded the level of 1990 on 12.2% (hereinafter, the data for 1990 is provided for the RSFSR). However, serious concern is the quality degradation of the structure of economic growth. Volumes of high-tech production are 3–5, and sometimes 20 times less than those 20 years ago, capacity utilization did not rise above 45–50%, depreciation of fixed assets is more than 55% according to official data of Rosstat (and 75–80% according to expert estimates), the volume of capital investments in fixed assets fell by 3–5 times, and the coefficient of renewal of fixed assets decreased by 2–2.5 times compared to 1990 levels.

Table 1

**Industrial production in Russia in 2011 (compared with the RSFSR in 1990) [9]**

Industrial Production	Industrial Production
Electricity – 97%	Cranes – 3,6%
Coal – 84,6%	Excavators – 6,5%
Oil – 98%	Tractors– 5,7%
Gas – 104,4%	Harvesters – 9,4%
Cotton fabrics – 21,8%	Machine-tools – 3,4%
Woollen fabrics – 3,0%	Refrigerators – 107,1%
Knitwear– 16,6%	Vacuum cleaners – 4,8%
Coats – 40,8%	Washing machines – 55,5%
Shoes – 27,7%	TV – 100%
Industrial wood – 32,9%	Trolleys – 10,2%
Fertilizers – 116,2%	Trucks – 28,2%
Brick – 39,1%	Cars – 154,1%
Cement – 66,8%	Buses – 67,7%.
Concrete Structures – 28,8%	Rolled metal – 92,9%
Steel – 75,6%	Turbines – 53,6%

At the same time the most difficult situation is in high-tech manufacturing industries, that are not embedded in the production and processing chains of large mining companies and infrastructure monopolies. In machine building, instrument, apparatus engineering, agricultural machinery, manufacturing computing, as well as the aviation and aerospace industry, production volumes are 10–20 times lower the 20-year-old levels, and investments decreased by 4–7 times.



Amid rising imports of high-tech products of foreign producers occurred 5–20 times comparable scale collapse of the domestic manufacture of high technology products. During the period 1990–2010 the annual production of trucks in Russia decreased by 2.7 times (up to 220 thousand units), large electric machines by 4.2 times (up to 4 thousand), track-type tractors by 20 times (from 121 to 6 thousand, bulldozers by 4.5 times (from 14.1 to 3.1 thousand), excavators by 4.3 times (from 23.1 to 5.5 thousand), cutting machines by 15, 4 times (from 74.1 to 4.8 thousand), forging presses by 21.5 times (from 27.3 to 1.26 thousand), forage harvesters by 12.2 times (from 10,1 thousand to 840 units), wheeled tractors by 9.2 times (from 92.6 to 10 thousand), machinery fertilizers by 47 times (from 21 129 to 450 units), bridge and truck cranes by 6,6 and 10 times, respectively.

In such circumstances, Russia's share in the global market of high technology products for the period 1990–2011 years reduced from 7.5 to 0.3%. According to the results of 2011 the share of machinery and equipment in total exports of goods was below 3.9% (compared to the economies of Egypt and Ethiopia, the similar rate exceeds 4.6 and 4.8%, respectively).

Such evaluation adheres Varnavskiy [11], suggesting that Russia is actually elected an innovative development model, the essence of which, on the country to the United States who “buys brains” ant to Western Europe, Japan and the Republic of Korea whose patents, is getting complete plants. This model is used by the rest of the world, including China, India, Russia, and Brazil. Despite a series of short-term advantages over models of higher-level innovation development, this model has a strategic character flaws, ant the most important of them is that the country that uses such model is doomed to constantly lagging in scientific and technological progress and innovation development, that are controlled from the outside if does not implement a national program of technological breakthrough.

It is known that the main consumers of innovations in the world are the engineering, pharmaceuticals, chemical industries. It should be borne in mind that the Russian scientific and technical developments in their bulk the West does not need and will not need in the future, except the unique cases. And the Western states are very tough in protection of the interests of its producers, especially in the area of innovation.

In the result, remains the last hope for the Russian innovation system – domestic engineering. The situation with the development of the Russian engineering was presented above.

If everything will happen as it was during the last 20 years, the problem of disrupted reproductive process will rise. The entire engineering sub-sector and types of production that are potentially the major consumers of innovations are already on the verge of extinction: precision mechanics and optics, electronic engineering, instrumentation, medical equipment manufacturing, robots, automated lines, machine tools, engines, etc.

Aggregate statistics of engineering growth in value does not reflect all the underlying processes occurring in the structure of the industry as both a sharp decline in the production of some types of products and significant increases in the output of other products. For example, microwave ovens, automatic washing machines, personal computers, color TVs, VCRs and other household appliances and electronics now produced more than in 1990, however, the growth of these industries takes place almost exclusively on the Western technology and technical basis. And the place of domestic innovative products, both now and in the future is also little visible.

In fact, over the last 25 years in Russia as a result of the reforms was developed a reproduction model of the economy in which the Russian innovations are not claimed.

Currently, Russia does not have a closed production cycle for a significant part of innovation-intensive goods. The resultant deficit is compensated by import from abroad, including financing from the budget in the form of public-private partnerships, and volume increases. There is a trend of as absolute increase in imports of machinery products, as increase in the share of these products in total imports, which is evident from the data presented below (Table 2).

Table 2

**The share of machinery, equipment and vehicles in the commodity structure of Russian imports**

Year	Share in total imports, %
2000	31,4
2003	37,4
2004	41,2
2005	44,0
2006	47,7

*Source:* Federal State Statistics Service of the Russian Federation.

Current degree of integration of Russia into the world economy in terms of engineering – is unacceptable for a country aspiring to create its own national innovation system. If the economic policies will not be radically changed, further inequalities will only grow resulting from the disposal from the reproduction process of the engineering industry.

**Infrastructure of innovation activities.** In a centrally planned economy, innovation infrastructure responsible for promoting innovation from scientific results to technologies and production was a complex of sectoral research institutes, EDO, pilot production plants, reproduction system for personnel, overall about 6,000 organizations. Since the beginning of reforms implementation no measures have been taken to reorganize them into the market elements of innovation infrastructure as it was in the United States after the World War II. In general, this situation has been left out of account at the federal and regional levels.

This is evidenced by the adopted Federal Law “On Science and Science and Technology Policy” and the Novosibirsk Regional Council Decree “On the application of the Federal Law of 29.12.95, № 222-FZ "On the simplified system of taxation, accounting and reporting for small businesses" in the Novosibirsk region in 1996”.

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In the Federal Law on Science and the Science and Technology Policy was not even denoted the development of innovative business and its infrastructure, and in the Regional Council resolution the size of patent annual value for small business that entities (legal entities) activities in science and technology sphere was the highest (from 2 to 22 times higher than patents in other activities) in the Novosibirsk region, and in the city of Novosibirsk it was second only to trade.

As a result, from 1990 to the present, the country ceased to exist around 4500 applied (industrial) research institutes. Of the remaining, with rare exceptions, the majority did not managed to successfully fit into the innovation system. The concept of “industrial science” actually died except for energy and partially metallurgical and transport sectors. University-based industrial parks create in droves in the nineties were “paper”, their actual capabilities were scanty and in fact reflected the activity of scientific research sectors that functioned previously. Technopark structures and mechanisms to support innovations, including the “Skolkovo” and “Rusnano” that emerged from the middle of the first decade of the twenty first century are still scarce, weak and did not compensate for the destroyed system.

The Russian Academy of Sciences (RAS) is a unique organization in size, structure and scientific basis. Once the most important part of the innovation system of the country that preserved and increased the material and technical base that has taken on a number of

unusual features of the innovation infrastructure, today is in phase of reform with unclear goals for the society.

**Territorial aspect of creating a national innovation system in the city of Novosibirsk.** Today national innovation systems (NIS) do not appear anywhere in the world by themselves – they are the result of deliberate government policy, and the role of local authorities and the scientific community is very high.

Modern views on the NIS are very diverse. Analysis of existing approaches and our own research suggest that the effective development of the economy of the country, the region and the individual municipalities on an innovative way depends on the optimal combination of all elements of the national innovation system in the territory, as a developing area of scientific and technological development. In modern practice, such territories are called technopolis, which are understood as the territory of scientific and technological development, (1) combines residential, recreational and industrial areas, (2) organized on the basis of geographically separate multi-functional complex scientific center (a major university, scientific center of RAS, etc.), (3) has an extensive social and domestic, industrial and technopolis infrastructure, (4) having an organized system of state and municipal government, (5) focuses on the development of scientific, educational, scientific-technological and innovation system through the budgetary support and benefits for the development of innovation and high-tech industry.

The principles of integrated and balanced development of all the elements of the innovation system are especially important. Herewith, an innovative system must have an optimal position with existing, emerging and newly created elements, spatial organization and optimal separation of powers for the development and organization of the individual elements of the innovation system between the levels of government. An example of the organization of the NIS in a certain area in Russian is the city of Novosibirsk.

To address the state's defenses and solve complex issues of economic development of the eastern regions of the country, scientific and technical problems of development of new industries, space exploration, microelectronics, microbiology, medicine, agriculture in Novosibirsk by the end of the 80s was formed a powerful scientific-industrial complex presented by the branch of the USSR Academy of Science, Academy of Agricultural Science, Academy of Medical Science, a large group of industrial research and design and high-tech industry enterprises for microelectronics, precision mechanics, optics, radio, microbiology and other industries.

In the context of existing socio-political paradigm the state attempted to apply previous methods of “embroidery” of bottlenecks in the development of scientific and innovative activity. A centralized system of departmental “implementation” of the results of basic research in the national economy was created.

Thus, in 1960–1970's around Akademgorodok a “zone of implementation” consisting of R&D bureaus and industrial research institutes focused on the promotion of the R&D results of the Siberian Branch of the USSR Academy of Science in the form of high technologies in industry and agriculture was created. As a result a number of large sectoral scientific-production associations and research institutes were established there:

- Scientific-Production Association “Vector”;
- Scientific-Production Association “Sistema”;
- Institute of Applied Physics;
- Special Design and Technological Bureau and pilot production of catalysts;
- Institute “Gidrosvetmet”;
- Branch of the Institute of Precision Mechanics and Computer Engineering;
- Branch of All-Union Scientific Research and Design Institute of Chemical Engineering.

In Novosibirsk and Novosibirsk region was actively developing production in radio, precision mechanics, optics, microelectronics, microbiology, and other branches at the peak of scientific and technical progress.

These organizations had a significant production and personnel potential and due to its geographical proximity had close contacts with the institutes of Siberian Branch of the Russian Academy of Science and used its R&D results on a contract basis, which was a positive factor.

Reorganization of these structures under the terms of a new development paradigm of innovation could give good results. And this opportunity is not missed. A holistic view on the models of the NIS of the city of Novosibirsk is needed and consistent implementation of it into practice. Development of the NIS in Novosibirsk today has a patchy, sporadic, spontaneous nature and requires management consolidation. Today Novosibirsk has such consolidation opportunities and should use them. Within its mandate, the city of Novosibirsk developed and implemented in 2005 a comprehensive target program "Territory scientific and technological development – Technopolis "Novosibirsk"".

**Conclusions.** Experience in the development of the innovation system in Novosibirsk last 20–25 years, unfortunately, showed the presence of a large time lag between taking the initiative on the ground and start of its implementation. The scientific community and local authorities in modern conditions always have sponsored development of certain institutions of the national innovation system and its complex in general.

Today, the successful establishment and development of the national innovation system requires, first, modernization of its manufacturing industry, secondly, a more rapid development of infrastructure for innovation and scientific support, thirdly, remodernization of pre-school, school and vocational education, fourthly, expansion of credentials of local authorities in the implementation of economic and innovation policy.

Paradoxically may sound, but for the successful development of the innovation system for the new cycle in Russia today necessary to go all the way, the same traveled by the USSR in 1950–1970's in the era of large national programs to create new industries and the upgrading of existing areas, but on the basis of new economic relations. Concept of the development and the objective prerequisites exist.

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