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National Industrial Policy of Russia in the Framework of Neo-Industrial Vector of Development: Conceptual Approaches



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Abstract. Currently, the majority of scientific and expert community and politicians recognize the key role of “new industry” in economic growth of countries and their competitiveness in world markets. The new industrial policy – characterized as “industrial Renaissance” – of some leading countries (after the 2008 global financial crisis) combines focus on the development of breakthrough technology and a new approach to cooperation in the framework of formation and implementation of industrial policy. The existing Russian practice of formation and implementation of industrial policy is poorly linked to national priorities and the objectives of ensuring sustainable economic growth and increase in welfare. This hampers the effective use of the country’s own resources in order to ensure competitiveness and progressive development. The author considers “national industrial policy” to be a set of measures that aim to develop the industrial sector and increase its competitiveness through the system interaction between the government, business and society; this set of measures also aims to provide sustainable economic growth and increase national

welfare. Russia needs a convergent approach that combines, in definite proportions, the advantages of vertical and horizontal measures, because the break-up of vertical (inter-sectoral) and horizontal (cross-sectoral) relationships and the antagonism between the interests of the main actors became Russia's specific features resulting from the chaos of post-Soviet reforms. Industrial policy should be carried out with the use of system-wide target-setting associated with the solution of economic tasks, and also establish specific effective mechanisms of its implementation in the framework of the "network" approach.

Key words: neo-industrialization, industrial policy, national interests, network approach

The global financial crisis, which peaked in 2008–2009 clearly demonstrated the vulnerability of the economic model, divorced from real production. In the crisis years high growth rates were retained only in those countries that refused from de-industrialization and the catching-up modernization model (China, India, Indonesia, Vietnam, Chile, Turkey, Taiwan, Malaysia, Singapore, etc.) [1].

We believe Russia has exhausted growth opportunities of the current economic model. The transition to a new model requires radical transformation of the industrial policy. In this regard, it becomes relevant to consider the essence of the new model of economic growth, principles and tools of the modern industrial policy, basic directions and problems of its formation and implementation in Russia, as well as the development of approaches to change the situation.

The purpose of this publication is to present conceptual approaches to the formation and implementation of the industrial policy aimed at boosting the industrial sector, enhancing its competitiveness, ensuring sustainable economic growth and increasing national welfare.

On this basis the following tasks are solved: analysis of modern trends in industrial development and industrial policy of various countries; study of the experience to form

and implement industrial policy in various historical and socio-economic conditions; identification of the key problems, connected with the formation and realization of industrial policy in Russia; development of the proposals on improvement of existing approaches and management mechanisms.

Nowadays the significant part of the scientific and expert community and politicians recognizes the key role of "new industry" in the economic growth of countries and their competitiveness on the world markets [4]. Neoindustrialization is characterized by technological trends, such as reduction in the number of personnel engaged in industrial production with a simultaneous increase in the level of automation and use of modern technology, skills of the labor force; a rise in the productivity of the machinery, improvement of its performance and use of robotics; an increase in the intensity of the innovation process and a decrease in changeover time of new technology generations, means of production, a rise in the share of knowledge-intensive sectors; intensification of the movement in the direction of "disposability" and "human-less" in the field of technological development.

In the post-crisis period the leading world countries promoted and formalized the processes associated with development of

“new industry”” and “return of jobs”. The new industrial policy of some developed countries (after the 2008 global financial crisis), characterized as “industrial renaissance”, combines the priority to encourage breakthrough technologies and the new approach to cooperation in the framework of its formation and implementation.

There is another especially important issue, such as the problem of ensuring energy and resource efficiency, including through increasing transition to “alternative” sources of energy. In these circumstances, Russia’s position as a fuel-and-energy exporter will subsidize.

In 2010 the European Commission announced a new approach to economic development, focused on manufacturing and “knowledge economy”. The EU development strategy until 2020 identifies six key priority areas of innovative development of European industry for the next decade: advanced manufacturing processes (3D-technology, energy- and material-efficient processes, renewable energy resources, recycling of materials, and sustainable hybrid business models); key promotional technologies (micro- and nanoelectronics, new materials, industrial biotechnology, photonics, nanotechnology, new production systems); products based on biotechnology; sustainable construction and raw materials; “clean” vehicles; “smart” grids.

In order to form the European industry on a qualitatively new basis they plan to implement a complex of measures, including functioning of the new coordination structures, including framework regulators of the Single market, coordinated development of infrastructure, coordination of research, innovation, HR policies, staffing.

In 2014 the joint communication of governing structures of the European Union “For a European Industrial Renaissance”, which considers the strong industrial base as a key factor in European competitiveness and European economic recovery [23].

In 2009 the French Government initiated a large-scale strategy for creating powerful competitive industry, which should become the engine of economic development and prosperity of the country. The national program “Investing in the future” (2010) is its key element. The government of F. Hollande created the specialized Ministry of Industrial Renewal [30].

In 2013 the new strategy “New Industrial France” came into force [24]. This document includes 34 plans to reconstruct industry on the basis of the latest achievements of science and technology. The plans lay foundation of industrial policy for the next 10 years; their main objective is to bring France back into the ranks of advanced industrial countries.

The main features of the document are the following: joint efforts of the state and the private industrial sector in the determination of those sectors where France can become a leader; active participation of business in the development and implementation of these plans. Most projects (about 80%) were selected on the basis of industrialists’ proposals and will be managed by large businesses.

The emphasis is laid on such incentives for business, as government orders, regulation of various norms and standards, provision of tax credit in case the company conducts research actively. The government believes that in these circumstances private investment should play the key role in the implementation of the plans.

In 2012 the UK published the long-term industrial strategy (with a “speaking” title: “Industrial Strategy: Government and Industry in Partnership”) [25]. The new combined (“matrix”) industrial policy of the coalition government is for the first time a combination of sectoral measures, support of the development of key technologies and measures of “horizontal” nature.

The priority industrial sectors – “locomotives” of British industrial growth and competitiveness on the world markets – include 3 types of industries:

1. Progressive industries that create a product with the highest added value: aerospace and automotive, biomedical and agricultural sector.
2. Sectors, ensuring new possibilities of environment: wind, oil and gas, nuclear power and construction.
3. “Cognitive” services: international education, information economy, professional and business services.

The industrial policy is characterized by partnership with the private sector in the formulation of sectoral strategies taking into account industry specifics in line with the general trend of “reshoring” and developing “national” competences; a significant increase in state funding priorities, including through the system of state order for the purpose of creating new opportunities for companies and efficient functioning of production chains; establishment of innovation centers promoting commercialization of R&D work at the premises of universities; enhancement of the personnel’s professional level in key sectors.

It is possible to single out key features of the new industrial policy:

- expansive approach to industrial policy, positioning of the neo-industrial paradigm as the core of the overall socio-economic policy;
- emphasis on “new” industries development, while maintaining support for basic industries;
- integrated approach to industrial policy, constructively combining sectoral and institutional support measures aimed at the development of network structures and the increase in the multiplier effect;
- “consensus” principle of formation and implementation of industrial policy, combination of equal actors’ interests focused on achieving common goals.

The concept of the new industrial policy is as follows: the modern model of industrial policy includes dialogue between public and private agents with the help of PPP tools. It is reasonable to identify problems and opportunities and address specific issues on an individual basis by means of interaction between networks, actors and institutions and a continuous process of learning (D. Rodrik [11], N. Crafts and A. Hughes [27], K. Aiginger and S. Sieber [26], K. Warwick [8], etc.).

The analysis of foreign trade turnover by type of economic activity of the Russian Federation shows that import of machine building has increased 10-fold for the last ten years. Export of fuel and energy complex products has increased 7-fold. We observe growth in export of low-technology raw goods and import of high-tech engineering products (*tab. 1*).

Table 1. Foreign trade turnover by type of economic activity of the Russian Federation (export/import/balance; billion U.S. dollars)

Economic activity	2000			2010			2014		
	Export	Import	Balance	Export	Import	Balance	Export	Import	Balance
Machine building	9.1	10.6	-1.5	21.3	102.0	-80.7	26.3	136.0	-109.7
Agro-food sphere	1.6	7.4	-5.8	8.8	36.4	-27.6	18.9	39.7	-20.8
Light industry	1.1	2.1	-1.0	1.1	15.3	-14.2	1.5	17.6	-16.1
Timber, woodworking and pulp and paper industry	4.5	1.3	3.2	9.6	5.9	3.7	11.6	5.9	5.7
Fuel and energy complex	55.5	2.1	53.4	272.0	5.2	266.8	350.0	7.2	342.8
Chemical industry	7.4	6.1	1.3	24.5	37.0	-12.5	29.1	46.4	-17.3
Metallurgical industry	22.4	2.8	19.6	50.3	16.8	33.5	52.4	20.3	32.1
Services	9.6	16.2	-6.6	49.1	75.2	-26.1	65.8	121.0	-55.2
Other	1.6	1.4	0.2	9.6	10.5	-0.9	6.9	12.6	-5.7

Source: calculated on the basis of the data of the Federal State Statistics Service of the Russian Federation. Available at: <http://www.gks.ru>

By indicator “Share of medium- and high-tech industries in the structure of industrial production and the amount of export of the “Great Eight” and China” Russia, as in the structure of industrial production (23% in 2011) and the amount of export (22%), occupies the last place; the lag is considerable (for comparison: the first indicator in the rest countries of this group ranges from 37 to 57%, the second – from 54 to 79%) [22].

In 2000–2013 the revenue receipts from technology export increased (in current prices) by 3.8 times (from 204 to 771 million U.S. dollars), payments for import of relevant product groups – by 13.5 times (from 183 to 2,464 million U.S. dollars). Foreign trade balance changed from positive to negative (from 21 million to -1,693 million U.S. dollars), i.e. the degree of country’s technological dependence continues to increase [2].

According to the rating, compiled on the basis of the economic complexity index

developed by Cesar A. Hidalgo and Ricardo Hausmann, scientists from Harvard University, Russia ranged 43d in 2013. Moreover, compared with 1995, the country moved lower by 9 points (*tab. 2*).

Commenting on these calculations, V. Korovkin notes that in Russia there is great variation across industries orientated on export: goods from different industries with low value added are exported. It is not possible to achieve “network effect” where the costs on homogeneous export items are combined. For example, it would be reasonable to use this approach in terms of marketing costs and logistics. It is necessary to consider “network effect to create products with high added value”. This is evident in the comparison of chemicals exported from Russia and the UK. If Russia exports separate products from unrelated industries, the UK – processing chains, all kinds of products manufactured in the same process [9].

Table 2. Ratings of countries by economic complexity index [3]

1995			2003			2013		
Country	Rank	Index	Country	Rank	Index	Country	Rank	Index
Japan	1	3.05	Japan	1	2.74	Japan	1	2.35
Germany	2	2.64	Germany	2	2.40	Switzerland	2	2.33
Switzerland	3	2.48	Sweden	3	2.29	Germany	3	2.04
Sweden	4	2.37	Switzerland	4	2.21	South Korea	4	1.93
Finland	5	2.29	Finland	5	2.12	Sweden	5	1.82
Austria	6	2.26	UK	6	1.97	Finland	6	1.80
UK	7	2.06	Austria	7	1.93	Austria	7	1.77
USA	8	2.04	USA	8	1.84	Czech Republic	8	1.76
France	9	1.95	Czech Republic	9	1.72	UK	9	1.71
Italy	10	1.77	France	10	1.69	Slovakia	10	1.66
Russia	34	0.45	Russia	29	0.70	China	22	1.11
China	50	0.16	China	37	0.37	Russia	43	0.40

The main causes of the low economic complexity index in Russia, in our view, are the following: weak integration ties within the manufacturing sector (using the language of sociology, we can talk about “atomization” of production) and an insufficiently systematic approach to management of the industry.

Nowadays there are many approaches to the definition of industrial policy. Following the objectives of this article, let us group them according to the criterion of goal-setting: from the perspective of structural modernization in terms of sectoral competitiveness; from the perspective of economic growth and welfare (*tab. 3*).

Taking into account these approaches, we consider the “national industrial policy” as a complex of measures to develop the industrial sector and improve its competitiveness, implemented through the system of interaction among government, business and society, aimed at ensuring sustainable economic

growth and raising national welfare. Hence, “regional industrial policies”, on the one hand, is a necessary system component of the national policy, ensuring its productivity; on the other hand, they serve to fulfil socio-economic potential of the territories.

In the system of national strategic interests the industrial policy is one of the basic elements and it should interrelate with the socio-economic and scientific-innovative policy. In our view, the combination and the balance of national interests and interests of human development are mandatory requirements (*fig. 1*).

There are 3 types of industrial policy: vertical, horizontal, integrated. Their comparative characteristics are presented in *Table 4*.

Each type of industrial policy has its advantages and disadvantages. The adequacy of choosing one or another depends on specific historical and socio-economic conditions.

Table 3. Grouping of approaches to the definition of industrial policy (by goal-setting)

Type	Characteristic	Typical example
Structural modernization	Aimed at maintaining the current structure of production or its change	Set of governmental measures to <u>reallocate resources between industries or change the organizational and business structure of the industry</u> ... when the market competitive mechanism fails to achieve this goal [6].
Industry competitiveness	Aimed at improving sustainability and competitiveness of the industrial sector in general	Complex of legal, economic, organizational and other measures to <u>develop industrial potential of the Russian Federation, ensure manufacture of competitive industrial products</u> [7].
Economic growth and increase in welfare	Aimed at ensuring economic growth and enhancing welfare	Any type of intervention or government policy aimed at improving business environment or changing the structure of economic activity in terms of sectors, technologies or tasks, which is expected to <u>offer better prospects for economic growth or social welfare</u> [8].

Figure 1. Industrial policy in the system of national strategic interests

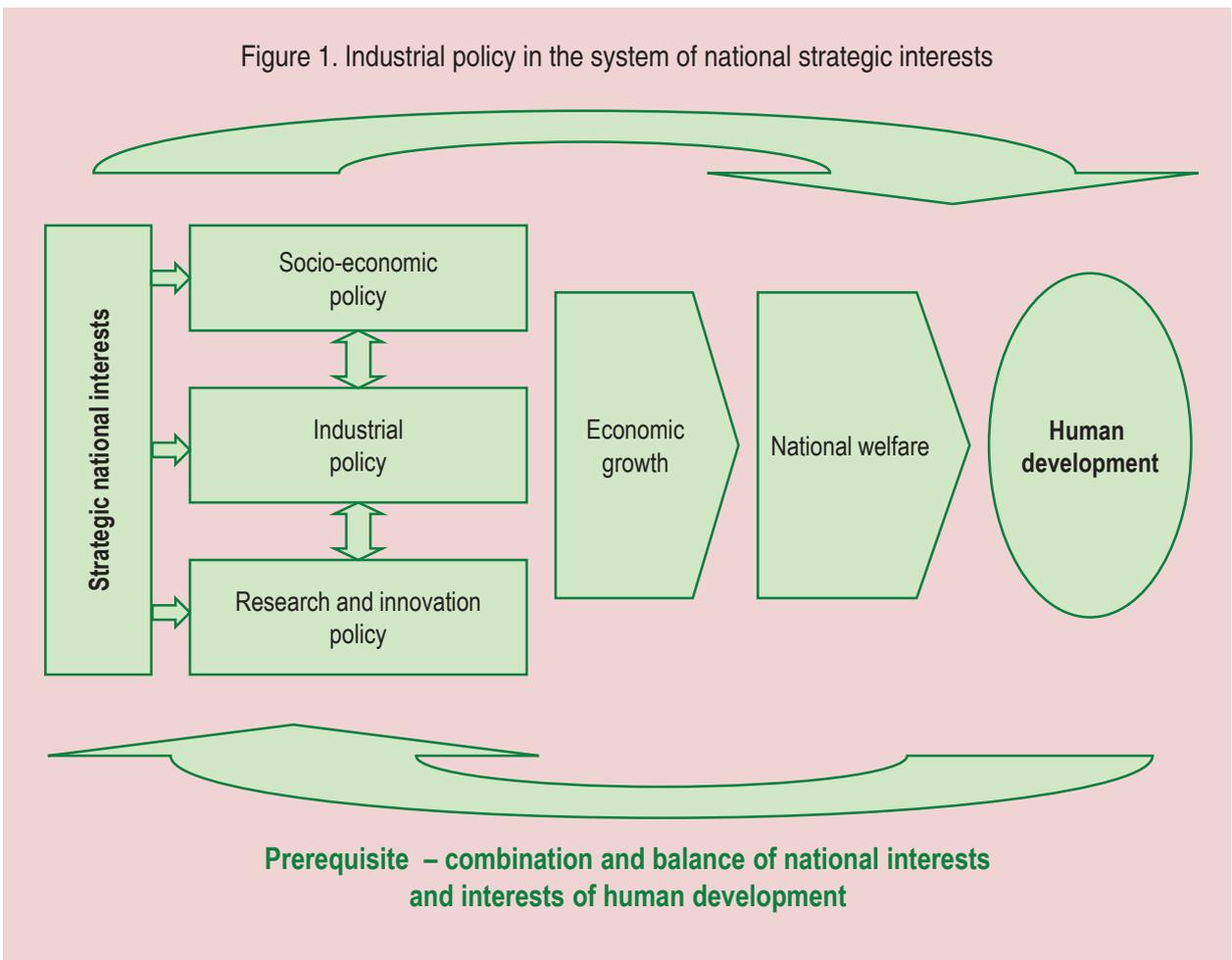


Table 4. Comparative characteristics of industrial policy types

Type of IP	Example of implementation	Advantages	Disadvantages
Vertical	Japan USSR (the 1930s industrialization)	Support of the sustainability of “basic” sectors. Relatively low organizational costs.	Low efficiency together with absence of strict control. Discouragement of competition.
Horizontal	USA	Equal opportunities for access to preferences and infrastructure. Development of competition	“Dispersion” of resources. Low controllability: reliance on market regulatory mechanisms.
Integrated	Republic of Korea	Combination (balance) of national, corporate and private interests. Strategic manageability	Relatively high set-up costs (at the initial stage).

The disadvantages of vertical algorithms in the Russian context are the following:

1. The vertical measures reproduce the imbalances in the economic structure and industrial production. As noted by President of the state corporation “Energy” Sergey Guskov, support of the major companies at the cost of others is one of the biggest distortions in the current system of state support. This approach raises many questions: most companies are established due to privatization, i.e. owners got them almost for nothing. It is unclear why the state should back an ineffective owner, as he/she was not able to organize profitable activities even at zero cost. It would be better to help medium-sized business, which is often set up from scratch and motivated to growth and profitability [12].

2. There are no mechanisms to exercise effective control over socio-economic efficiency of spending the allocated funds. The inspections conducted by the Accounts Chamber of the Russian Federation show significant violations of the spending of budgetary funds allocated for the development

of major industrial infrastructure projects due to the low quality of administration and various disorders (recent case – Vnesheconombank [32], projects of the Ministry of Communications and Mass Media of the Russian Federation [20, 21]). However, there are no legal procedures.

3. In the current economic relations the Russian budget has obligations associated with the costs of international business. According to experts, in Russia large companies can not determine industrial policy, because their owners are not the Russians in terms of place of located assets, permanent residence and all economic interests. Only 10% of the companies are registered in the Russian jurisdiction, more than 50% of the agreements and 57–90% of the contracts are signed abroad. In 2011 65% of the Russian companies had shares and deposits abroad (there were 8% of such firms in China, 4% – in Brazil, 14% – in India). Up to 90% of the large private companies are owned by offshore holdings. As a result, the capitalization of 30 largest Russian companies in 2012 was lower than of Apple Inc. (530 billion U.S. dollars) [13].

There are certain limitations in the Russian conditions and horizontal algorithms.

1. Negative specifics of market regulatory mechanisms.

The Post-Soviet “market environment” has led to the fact that economically viable business activities are found in the sectors that provide a quick turnover of capital. Production is an unattractive activity in terms of funds and investment.

Due to the low profitability of manufacturing industries and high interest rates on borrowed funds, the loan as a tool of the industrial complex development is almost inaccessible. In Russia the most profitable products are manufactured by enterprises of extractive industries, petroleum products production, steel and chemical manufacturing companies. They have the largest share in the structure of the industry, the greatest volume of shipped production and export.

2. Weakness of institutions that can ensure competitiveness of industrial production on their own.

The destruction of the R&D sphere in the 1990s has led to the fact that nowadays the inventive activity is at a very low level and the mechanisms to ensure implementation of technical and technological developments in production are weak. The lack of necessary links between science and industry leads to unproductive government spending on research and development.

3. Sustainable deep contradictions of business, government and third sector.

Due to the absence of the clear strategy and cross-sectoral interactions, poor communication infrastructure, the unstable

and inefficient tax system we observe antagonistic relations between the state and private business based on mutual distrust.

When choosing the type of industrial policy it is important to consider the world experience. There is a classic example of “how not to do”, such as the experience of some Latin America countries “repeatedly stepping on a rake” due to the ill-thought-out realization of both vertical and horizontal measures. As noted by Luis Alberto Moreno, the President of the Inter-American Development Bank, “the experience of industrial policy in Latin American countries shows that the main key to successful industrial policy is the authorities’ ability to distance themselves from private and political interests, which should not influence the formulation of industrial policy” [10].

According to L.A. Moreno, “the basic issues the government should address before starting carry out industrial policy are as follows: whether there is a clear failure in market self-regulation that justifies government intervention; whether the proposed measures will help effectively eliminate shortcomings of the market; whether the country has institutions necessary for conducting industrial policy?” [10].

According to one of the most respected experts in the field of industry D. Rodrik, today increasing support is provided to the point of view that in the developing countries the private initiative needs to be embedded in the set of government measures that promote restructuring, diversification and technological development to a greater extent than it would occur in the free-market environment. This is most obvious in those countries where

the market reforms went furthest and the disappointment in the results is greatest. The mitigation and convergence of extreme positions are stipulated by a “middle course” of economic policy. The market forces and private entrepreneurship should play a leading role, and the government, besides providing property rights, contracts and macroeconomic stability, should also take on the execution of strategic and coordinating functions in the manufacturing sector [11].

In our opinion, the choice between different forms of industrial policy (vertical, horizontal, or their symbiosis) should be based not on the criterion of the “rightness/wrongness”, but on the criteria of suitability (effectiveness) in some or other economic/specific historical conditions. For example, in the United States, where there is powerful regulatory potential of the market, the horizontal algorithms are effective. In Japan, traditionally oriented on the foreign market and “national champions”, the vertical approaches show high efficiency.

Regardless of the existing approach the government is a key player in the industrial policy. The amount of state participation is not associated with its type. So, in the USA, where the term “industrial policy” is taboo, the regulatory and promotional roles of the state are in fact extremely high.

Russia, characterized by breaks of vertical (inter-sectoral) and horizontal (cross-sectoral) relationships and antagonism between key actors’ interests emerged in the chaos of post-Soviet reforms, requires a convergent approach, which in certain proportions combines advantages of vertical and horizontal measures. In this regard, we propose a

network approach. The concept of social networks has been formed in Western studies for the last 30 years. The modern scientists most famous in this area are L. Freeman, D. Knoke, P. Marsden, S. Wasserman, K. Faust, B. Wellman, C. Berkowitz [5]. Domestic science has experience to apply the network approach in studies in various fields of humanitarian knowledge. So, O.N. Yanitskii considered environmental policy as a network process [15]; A.V. Kurochkin studied institutionalization of networks in management of the Russian educational system [16].

We distinguish the following specific features of industrial policy based on the network approach:

1. It is designed and implemented not to meet private or sectoral interests, but strictly in the context of national socio-economic policy.
2. It is of strategic nature: the vector to support activities (projects) that have potential of long-term effects.
3. It is not contrary to the principles of competition policy: support of most competitive activities (or projects).
4. It is characterized by the transition from the subject-object to the resource-actor principle: the government acts not as a “chief”, but as one of the actors performing important functions (disposal of public resources, development of infrastructure, including communication, etc.).
5. To change the usual bureaucratic approach “projects are based on available finance” there appears the approach “finance is allocated for a particular project”.

6. The multiplier effect is maximized due to priority support of complex projects in the framework of value chains.

7. Regional industrial policy transfers from a “poor cousin” into one of the key elements of highly productive national industrial policy, as the regions perform the functions of joining resources.

The essence of the network approach is in optimal combination of various (material and non-material) resources aimed at implementing production projects of all kinds, lowering transaction costs, maximizing the multiplier effect and increasing the added value of products.

The network approach is focused on creating conditions for the formation of “industrial-oriented networks”: differently formalized interactions of three and more actors in order to implement most effective forms of organization of production, sales and service of industrial products.

The key characteristics of industrial-oriented network can be formulated as follows.

Elements of networks: *base* (manufacturing sector enterprises); *supporting* (financial and investment structures, educational institutions, logistics organizations, etc.); *connecting* (bodies of state and municipal authorities, development institutes, consulting organizations, etc.).

Scale of networks: *local* (within individual territories); *inter-regional* (within two or more contiguous regions); *national* (combining various networks elements from a large number of regions, federal structures); *transnational* (these include enterprises providing and uniting structures from different countries).

Type of networks: *intra-sectoral* (cooperation between enterprises within the same economic activity); *inter-sectoral* (cooperation between enterprises within different economic activities); *clusters* (production-supply chains – complex network structures); *global value chains* (GVC) on the basis of non-equity forms of international manufacture (NEMs).

Networks can be also divided into problematic (they are formed with the purpose of solving one or another problem and most often are short-term in nature), design (created for a project or series of projects).

The government took important steps associated with the promotion of industrial policy: it elaborated a complex of state programs and a number of normative-legal documents of “anti-sanction character”.

The system of state programs to support the industrial complex of the Russian Federation includes the following programs: “Development of industry and increase of its competitiveness” for 2012–2020; “Development of aviation industry” for 2013–2025; “Development of electronic and radio-electronic industry” for 2013–2025; “Development of pharmaceutical and medical industry” for 2013–2020, “Development of shipbuilding” for 2013–2030.

The state also implements the system of anti-sanction measures in the field of import substitution, stipulated by:

– Presidential decree “On adopting special economic measures to ensure security of the Russian Federation” of August 6, 2014 No. 560;

– 4 RF Government decrees on establishment of the ban to import light industrial

and machinery products from foreign states for the purposes of procurement for federal needs, as well as products for the needs of national defense and state security;

– 20 orders of the RF Minister of Industry and Trade on approval of plans on import substitution in key industries. Currently the Ministry organizes the work to implement sectoral plans, including through the provision of communication between consumers and producers of import-substituting products. It is assumed that the Ministry's support measures will be tied to specific projects of import substitution.

The year of 2015 witnessed the significant and long-awaited event: the entry into force of the federal law "On industrial policy of the Russian Federation" [7]. It stipulates the formation of high-tech, competitive industry, ensuring the state economy's transition from the export-raw material type to the innovative one.

The law involves various forms of incentives in the industry: provision of financial, information and consulting support to enterprises, support of scientific and technical activity and innovation in industry, encouragement of development of personnel potential of an enterprise and foreign economic activity, guaranteeing state and municipal preferences, etc. We can single out concrete forms of support, such as state funds for industry development, special investment contracts, industrial parks, and industrial clusters.

At the same time, we believe that the law does not fully meet the challenges and tasks

relevant at the present stage of country's development. So, the law does not clearly define the place and role of industrial policy in the country's economic development. The issues of correlation of the industrial policy and the national development strategy are not reflected sufficiently.

In this regard, it seems that the law should be supplemented by the article "Basic documents of the industrial policy strategy", which would regulate the industrial policy's incorporation into the system of state strategic planning by adopting documents, such as the Doctrine of industrial development (Industrial doctrine) of the Russian Federation; the Basic directions (Concept) of industrial policy of the Russian Federation; the State program for RF industry development; the National report on the implementation of the state program for industry development [29].

To ensure the system availability it is necessary to include provisions that oblige the government to regularly (at least once a year) report on the results of the state program. These reports should contain information not only about the amount of budget expenses on those or other events, but also about the results of industrial development and their impact on the country's socio-economic situation.

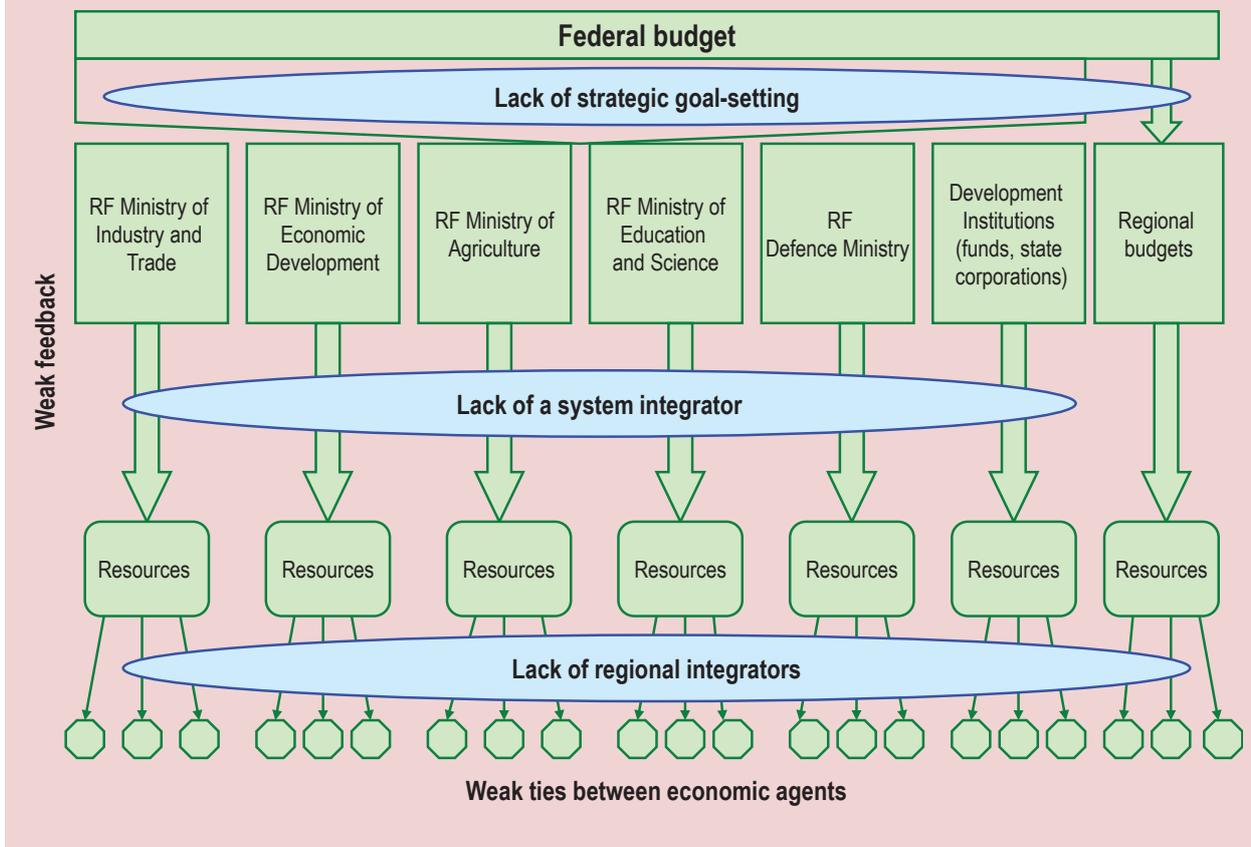
The amendments should be made in the Budgetary, Tax, Customs and Civil codes, and the federal laws regarding the industrial sphere. It is required to work out and adopt the federal law "On amendments to the legislation of the Russian Federation in connection with adoption of the federal law "On industrial policy of the Russian Federation" [29].

The new RF federal law “On strategic planning of the Russian Federation” regulates the development of strategic and program-target documents of different levels [31]. Hence, the urgent task is to include a base section associated with industrial policy in the strategy for socio-economic development of the Russian Federation for the period up to 2030. Besides, it is necessary to elaborate and adopt a sectoral strategic planning document – an industrial development strategy, based on the principles of network integration with regard to requirements of the neo-industrial paradigm.

Today the budget and resource provision of activities in the sphere of industrial policy is carried out by various ministries, development institutions, and regional governments. However, this practice cannot be considered effective. The lack of strategic goal setting, the lack of a “system integrator”, the lack of a “regional integrator”, and weak “vertical” and “horizontal” ties are, in our view, key reasons for this inefficiency (*fig. 2*).

It should be noted that this problem is recognized at the political level, there are the first steps towards its solution, but these steps are not of systemic nature yet.

Figure 2. Inefficiency of resource support of industrial policy



So, JSC “State Corporation on Development of Small and Medium Enterprises” was set up in 2015. According to Director of the Department of Development of Small and Medium Entrepreneurship and Competition of the Ministry of Economic Development of the Russian Federation N. Larionov, “the Corporation addresses an important task, which up to date has not been solved by any of the structures – formation of the programs to develop together with large state companies the supplier system among small and medium businesses. It is advisable to understand how the world lives, and how competitive products are manufactured. It is always a wide network of suppliers competing for the access to orders of large enterprises; in this competition innovation develops faster. It is necessary to transfer to the technologies of building effective and sustainable business models. The task for the next year is to built partnership with big companies and work out a joint program... learn to understand each other, pursue the same goal and form a line of tools, using which we will achieve it” [17].

In 2015 the Ministry of Industry and Trade of the Russian Federation announced the development of the state information system of industry. It will help form the measures of support and stimulation at all management levels, provide feedback in order to monitor demand and effectiveness of incentive measures. The main tasks are outlined:

creating and developing modern industrial infrastructure; encouraging introduction of intellectual activity results and promoting manufacture of innovative products; supporting technological upgrade; modernizing basic production assets [18].

These facts show that different departments take steps in the right direction. However, if there is no inter-correlation within the framework of a unified system of strategic management, these measures are unlikely to yield tangible positive effect.

To build this system is necessary given the existing theoretical and practical experience.

The Republic of Korea has an interesting and productive example of smooth combination of industrial and regional policy. The South Korean experience is regarded as a kind of benchmark in this regard.

The new industrial policy of the Republic of Korea is aimed at the transition to new drivers of socio-economic development. This implies systematic and comprehensive solution of the issues of continuous economic modernization in accordance with the high-tech mode, a fundamentally new approach to the disclosure of growth sources and the distribution of productive forces. The country implements the program of measures formulated at the local level with the active participation of business circles, research institutes, universities, the public, and based on cooperation and coordination of central and local authorities.

Some features of “geographically oriented” industrial policy are the following [28]:

- rejection of a sectoral approach in favor of cross-sectoral in order to strengthen inter-industry ties in the conduct of R&D and the introduction of their results;

- identification of promising types of long-term production facilities and working out of targeted programs of investment in their development;

- transfer from the functional approach in the formation of the national innovation system (NIS) and the mechanisms of industrial innovation to the territorial one, creation of regional innovation systems with organizational and management structure, mechanisms of participants’ interaction with each other and at the inter-regional level;

- search for new forms of knowledge exchange, commercialization of R&D results, and promotion of their wide introduction in economic practice;

- structuring on the basis of outsourcing and subcontracting of technology transfer mechanisms in the field of industrial production and attraction of SMEs; large companies act as agents in the development and dissemination of innovation;

- increased mobility of skilled labor resources in R&D and industrial innovation and ensuring continuous training of employees in the economy.

There is an example of theoretical elaboration of this question, such as the concept of interactive management of growth proposed by Academician V.M. Polterovich

[14]. According to him, the socio-economic situation cannot be significantly improved within existing administrative structures. To make efficient indicative plans and monitoring of their performance it is necessary to complement the current management system with institutions-intermediaries, providing interaction of administrations, business, science and civil society. At the regional level this function could be fulfilled by regional development agencies (RDA). Their tasks are to ensure the cooperation of government, business and society; conduct institutional experimentation, render information and advisory services, set up a center for regional forecasting and planning, and carry out coordination of development institutions in the region.

Unlike public-private partnership or a technological platform the development agency is not tied to a specific project or fulfilment of narrow targets, but it solves large problems. The main functions of the agency are to ensure mutual trust of the main actors and on this basis – identify their preferences and select the most effective ways to improve public welfare. In this case, gaining yield can be only a secondary purpose of the agency [14].

It can be assumed that the wide-scale strategy will boost activity of only a few centers at the initial stage. It is important to determine the mechanisms of results’ diffusion to other regions or sectors. We cannot rely on the market: it generally intensifies the uneven development. The lack of effective diffusion

mechanisms is one of the significant reasons for the failure of modernization in many countries.

Our proposals on the organizational system of network industrial policy are as follows:

1. Creation of a network of effective decision making. Solution: national industrial council; regional industrial councils.

2. Creation of a “system integrator”. Solution: federal committee on national industrial policy.

3. Creation of a network of “regional integrators”. Solution: network of regional centers for the implementation of national industrial policy.

The functions of “regional integrators” (regional centers for the implementation of the national industrial policy) are the following:

1. Functions associated with providing network collaboration, embedding of small and medium enterprises in value chains, reducing transaction costs:

- interaction with the “system integrator” (federal committee on national industrial policy);

- cooperation with state corporations, large companies with state participation and other joint-stock companies;

- interaction with regional administrations and subordinated to them organizations;

- cooperation with development institutions, investment structures;

- work with high-tech companies operating in the region;

- identification, support and maintenance of start-up projects focused on producing

hi-tech products and having capacities to join the value chain.

2. Functions connected with attraction of financial resources for various purposes, due to the implementation of projects: conduct of R&D, working capital financing, implementation of upgrade and technical re-equipment of production facilities, launch of modern competitive industries to manufacture high-tech import-substituting and export-oriented products, etc.

At the same time, the centers will help businesses get financial assistance allocated by federal ministries and departments and provided on a preferential basis by Russian credit organizations and development institutions and receive non-repayable funds for innovative projects, tax incentives and various subsidies of RF subjects, etc.

So, we can draw the following key conclusions.

1. Nowadays the socio-economic, socio-political and technological spheres are characterized by a number of trends, allowing us to speak about a qualitatively new stage in the development of industry and industrial policy, which can be defined as a neo-industrial paradigm.

2. The practice to work out and implement industrial policy in modern Russia is poorly linked to the national priorities and the objectives of ensuring sustainable economic growth and welfare. In the end it hinders the effective use of their resources in order to ensure competitiveness and sustainable development.

3. The formation of industrial policy should be carried out in terms of the system target-setting associated with the decision of economic tasks; it should also envisage the creation of certain productively operating mechanisms of its implementation in the framework of the “network” approach.

4. The national industrial policy should be complemented by the measures to develop industry carried out at the regional level. Regional industrial policies, on the one hand, are a necessary system component of the national policy, ensuring its productivity; on the other hand, they help the territories realize their socio-economic potential.

References

1. Fedotova V. Konets dogonyayushchei modeli modernizatsii i poiski novykh putei [End of Catch-Up Model of Modernization and Search for New Ways]. *Ekonomicheskie. strategii* [Economic Strategies], 2012, no. 3, pp. 14-23.
2. *Nauka, innovatsii, informatsionnoe obshchestvo: 2014: krat. stat. sb.* [Science, Innovation, Information Society: 2014: Concise Statistics Collection]. Moscow: GU VShE, 2014. P. 54.
3. *The Atlas of Economic Complexity*. Available at: <http://atlas.cid.harvard.edu/rankings/>
4. Gubanov S.S. *Derzhavnyi proryv. Neoindustrializatsiya Rossii i vertikal'naya integratsiya* [A Breakthrough of the Power. Russia's Neoindustrialization and Vertical Integration]. Moscow, 2012. 224 p.
5. Gradosel'skaya G.V. Setevoi analiz kak metod issledovaniya sovremennykh transformatsii [Network Analysis as a Method of Research into Modern Transformations]. *Sotsial'no-ekonomicheskaya transformatsiya v Rossii. Nauchnye doklady* [Socio-Economic Transformation in Russia. Scientific Reports]. Moscow, 2001. Pp. 43-76.
6. Okuno-Fujiwara M., Suzumura K. *Economic Analysis of Industrial Policy: A Conceptual Framework through the Japanese Experience*. Tokyo: Asahi, 1985. Pp. 35-41.
7. *O promyshlennoi politike v Rossiiskoi Federatsii: federal'nyi zakon RF ot 31.12.2014 g. №488-FZ* [About Industrial Policy in the Russian Federation: Federal Law of December 31, 2014 No. 488-FZ].
8. Warwick K. Beyond Industrial Policy. *OECD STI Policy Paper*, 2003, no. 2, pp. 16-17.
9. *Strana bez proizvodstva* [The Country without Production]. Available at: http://www.gazeta.ru/growth/2015/02/19_a_6418757.shtml
10. Moreno L.A. *Getting Industrial Policy Right*. Available at: <http://www.project-syndicate.org/commentary/latin-america-industrial-policy-failures-by-luis-a--moreno-2015-01>
11. Rodrik D. *Industrial Policy for the Twenty-First Century*. Harvard University. September 2004. Pp. 1-2.
12. *Desert dlya golodayushchego. Kakoi dolzhna byt' promyshlennaya politika v Rossii* [A Dessert for a Hungry. What Should the Industrial Policy in Russia Be]. Available at: http://www.gazeta.ru/growth/2015/05/22_a_6699949.shtml
13. Blyakhman L.S. *Promyshlennaya politika – osnova perekhoda k novoi modeli ekonomicheskogo rosta* [Industrial Policy – the Basis of Transition to a New Model of Economic Growth]. Available at: <http://www.m-economy.ru/art.php?nArtId=4414>
14. Polterovich V.M. Regional'nye instituty modernizatsii [Regional Modernization Institutions]. *Ekonomicheskaya nauka sovremennoi Rossii* [Economics of Contemporary Russia], 2011, no. 4, pp. 17-29.
15. Yanitskii O.N. Ekologicheskaya politika kak setevoi protsess [Ecological Politics as a Network Process]. *Polis* [Polis. Political Studies], 2002, no. 2, p. 44.

16. Kurochkin A.V. *Institutsionalizatsiya setei v upravlenii rossiiskoi sistemoi obrazovaniya* [Institutionalization of Networks in the Russian System of Education]. Available at: <http://www.politex.info/content/view/137/30/>
17. *Komu nuzhna novaya federal'naya korporatsiya?* [Who Needs a New Federal Corporation?]. Available at: <http://www.bfm.ru/news/297379>
18. *Minpromtorg Rossii razrabatyvaet gosudarstvennyu informatsionnyu sistemu promyshlennosti* [The Ministry of Industry and Trade of Russia Is Developing a State Information System of Industry]. Available at: <http://www.garant.ru/news/627800/>
19. Tolkachev S., Andrianov K. *Zakon "O promyshlennoi politike v Rossiiskoi Federatsii": ot oborony k nastupleniyu* [The Law "On Industrial Policy in the Russian Federation": from Defense to Attack]. Available at: http://expert.ru/2014/11/11/zakon-o-promyshlennoj-politike-v-rossijskoj-federatsii_-ot-oboronyi-k-nastupleniyu/
20. *Minkomsvyazi ustanovilo "Innopolisu" fiktivnye pokazateli, chtoby ne prishlos' vozvrashchat' den'gi* [The Ministry of Communications Set Out Fictitious Indicators for "Innopolis", so That It Would Not Be Necessary to Return the Money]. Available at: http://www.cnews.ru/news/top/2015-11-20_minkomsvyazi_ustanovilo_innopolisu_fiktivnye
21. *Gosudarstvo potratilo 4,9 mlrd. na neispol'zuemye superEVM* [The Government Spent 4.9 Billion on Unused Supercomputers]. Available at: http://www.cnews.ru/news/top/2015-11-13_gosudarstvo_potratilo_49_mlrd_na_neispolzuemye
22. Industrial Development Report 2013. *United Nations Industrial Development Organization*. 2013. Pp. 196-203.
23. *Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and The Committee of the Regions. For a European Industrial Renaissance*. Available at: <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52014DC0014>
24. *La nouvelle France Industrielle*. Available at: <http://www.economie.gouv.fr/files/la-nouvelle-france-industrielle.pdf>
25. *Industrial strategy. Government and industry in partnership. Progress Report*. April 2014 Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/306854/bis-14-707-industrial-strategy-progress-report.pdf
26. Aiginger K., Sieber S. The Matrix Approach to Industrial Policy. *International Review of Applied Economics*, 2006, vol. 20, no. 5, pp. 573-601. DOI:10.1080/02692170601005507
27. Crafts N., Hughes A. *Industrial Policy for the Medium to Long-Term. Future of Manufacturing Project: Evidence Paper 37*. Foresight, Government Office for Science, 2013. (October). Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/283911/ep37-industrial-policy-medium-to-long-term.pdf
28. Abdurasulova D. Promyshlennaya politika Yuzhnoi Korei [Industrial Policy of South Korea]. *Ekonomist* [Economist], 2009, no. 1, pp. 57-65.
29. Tolkachev S., Andrianov K. *Zakon "O promyshlennoi politike v Rossiiskoi Federatsii": ot oborony k nastupleniyu* [The Law "On Industrial Policy in the Russian Federation": from Defense to Attack]. Available at: http://expert.ru/2014/11/11/zakon-o-promyshlennoj-politike-v-rossijskoj-federatsii_-ot-oboronyi-k-nastupleniyu/
30. Kondrat'ev V.B. *Svezhee dykhanie promyshlennoi politiki* [Fresh Breath of Industrial Policy]. Available at: http://www.perspektivy.info/rus/ekob/svezheje_dyhanije_promyshlennoj_politiki_2014-05-22.htm
31. *Federal'nyi zakon Rossiiskoi Federatsii ot 28.06.2014 № 172-FZ "O strategicheskoy planirovani v Rossiiskoi Federatsii"* [Federal Law of the Russian Federation of June 28, 2014 No. 172-FZ "On Strategic Planning in the Russian Federation"]. Available at: <http://www.rg.ru/2014/07/03/strategia-dok.html>
32. *Vneshekonombank Rossii nakhoditsya na grani bankrotstva?* [Is the Bank for Development and Foreign Economic Affairs (Vnesheconombank) of Russia on the Verge of Bankruptcy?]. Available at: <http://argumentiru.c>

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Cited Works

1. Fedotova V. End of Catch-Up Model of Modernization and Search for New Ways. *Economic Strategies*, 2012, no. 3, pp. 14-23.
2. *Science, Innovation, Information Society: 2014: Concise Statistics Collection*. Moscow: GU VShE, 2014. P. 54.
3. *The Atlas of Economic Complexity*. Available at: <http://atlas.cid.harvard.edu/rankings/>
4. Gubanov S.S. *A Breakthrough of the Power. Russia's Neoindustrialization and Vertical Integration*. Moscow, 2012. 224 p.
5. Gradosel'skaya G.V. Network Analysis as a Method of Research into Modern Transformations. *Socio-Economic Transformation in Russia. Scientific Reports*. Moscow, 2001. Pp. 43-76.
6. Okuno-Fujiwara M., Suzumura K. *Economic Analysis of Industrial Policy: A Conceptual Framework through the Japanese Experience*. Tokyo: Asahi, 1985. Pp. 35-41.
7. *About Industrial Policy in the Russian Federation: Federal Law of December 31, 2014 No. 488-FZ*.
8. Warwick K. Beyond Industrial Policy. *OECD STI Policy Paper*, 2003, no. 2, pp. 16-17.
9. *The Country without Production*. Available at: http://www.gazeta.ru/growth/2015/02/19_a_6418757.shtml
10. Moreno L.A. *Getting Industrial Policy Right*. Available at: <http://www.project-syndicate.org/commentary/latin-america-industrial-policy-failures-by-luis-a--moreno-2015-01>
11. Rodrik D. *Industrial Policy for the Twenty-First Century*. Harvard University. September 2004. Pp. 1-2.
12. *A Dessert for a Hungry. What Should the Industrial Policy in Russia Be*. Available at: http://www.gazeta.ru/growth/2015/05/22_a_6699949.shtml
13. Blyakhman L.S. *Industrial Policy – the Basis of Transition to a New Model of Economic Growth*. Available at: <http://www.m-economy.ru/art.php?nArtId=4414>
14. Polterovich V.M. Regional Modernization Institutions. *Economics of Contemporary Russia*, 2011, no. 4, pp. 17-29.
15. Yanitskii O.N. Ecological Politics as a Network Process *Polis. Political Studies*, 2002, no. 2, p. 44.
16. Kurochkin A.V. *Institutionalization of Networks in the Russian System of Education*. Available at: <http://www.politex.info/content/view/137/30/>
17. *Who Needs a New Federal Corporation?* Available at: <http://www.bfm.ru/news/297379>
18. *The Ministry of Industry and Trade of Russia Is Developing a State Information System of Industry*. Available at: <http://www.garant.ru/news/627800/>
19. Tolkachev S., Andrianov K. *The Law "On Industrial Policy in the Russian Federation": from Defense to Attack*. Available at: <http://expert.ru/2014/11/11/zakon-o-promyshlennoj-politike-v-rossijskoj-federatsii--ot-oboronyi-k-nastupleniyu/>

20. *The Ministry of Communications Set Out Fictitious Indicators for "Innopolis", so That It Would Not Be Necessary to Return the Money.* Available at: http://www.cnews.ru/news/top/2015-11-20_minkomsvyazi_ustanovilo_innopolisu_fiktivnye
21. *The Government Spent 4.9 Billion on Unused Supercomputers.* Available at: http://www.cnews.ru/news/top/2015-11-13_gosudarstvo_potratilo_49_mlrld_na_neispolzuemye
22. Industrial Development Report 2013. *United Nations Industrial Development Organization.* 2013. Pp. 196-203.
23. *Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and The Committee of the Regions. For a European Industrial Renaissance.* Available at: <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52014DC0014>
24. *La nouvelle France Industrielle.* Available at: <http://www.economie.gouv.fr/files/la-nouvelle-france-industrielle.pdf>
25. *Industrial strategy. Government and industry in partnership. Progress Report.* April 2014 Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/306854/bis-14-707-industrial-strategy-progress-report.pdf
26. Aiginger K., Sieber S. The Matrix Approach to Industrial Policy. *International Review of Applied Economics*, 2006, vol. 20, no. 5, pp. 573-601. DOI:10.1080/02692170601005507
27. Crafts N., Hughes A. *Industrial Policy for the Medium to Long-Term. Future of Manufacturing Project: Evidence Paper 37.* Foresight, Government Office for Science, 2013. (October). Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/283911/ep37-industrial-policy-medium-to-long-term.pdf
28. Abdurasulova D. Industrial Policy of South Korea. *Economist*, 2009, no. 1, pp. 57-65.
29. Tolkachev S., Andrianov K. *The Law "On Industrial Policy in the Russian Federation": from Defense to Attack.* Available at: http://expert.ru/2014/11/11/zakon-o-promyshlennoj-politike-v-rossijskoj-federatsii_-ot-oboronyi-k-nastupleniyu/
30. Kondrat'ev V.B. *Fresh Breath of Industrial Policy.* Available at: http://www.perspektivy.info/rus/ekob/svezheje_dyhanije_promyshlennoj_politiki_2014-05-22.htm
31. *Federal Law of the Russian Federation of June 28, 2014 No. 172-FZ "On Strategic Planning in the Russian Federation".* Available at: <http://www.rg.ru/2014/07/03/strategia-dok.html>
32. *Is the Bank for Development and Foreign Economic Affairs (Vnesheconombank) of Russia on the Verge of Bankruptcy?.* Available at: <http://argumentiru.c>