“Problems of modernization and development priorities for industrial complex”

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ARTICLE INFO	Tatiana Kolmykova, Alexander Telizenko and Vadym Lukianykhin (2013). Problems of modernization and development priorities for industrial complex. *Problems and Perspectives in Management*, *11*(4)
RELEASED ON	Tuesday, 10 December 2013
JOURNAL	"Problems and Perspectives in Management"
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES **0**

NUMBER OF FIGURES **0**

NUMBER OF TABLES **0**

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Problems of modernization and development priorities for industrial complex

Abstrtact

The article is devoted to the problems of the Russian industrial complex modernization. Particular attention is paid to the role of government in stimulating the development of the national industry. The key role of government programs in implementation of major innovation projects is considered. Structural reforms must be directed to support basic research in priority areas of science and technology, the creation of high technology, the introduction of innovations in different sectors of the economy, and especially in the industrial complex.

Keywords: industry, innovation, investment, scientific and technical progress.
JEL Classification: O14, O33, O38.

Introduction

Nowadays, Russian economy faces long-term systematic challenges, reflecting both global trends and internal obstacles to development. The intensification of global competition, a new wave of technological changes, the exhaustion of raw material export development model, and other factors are among them. In this context, the problem of the industrial system modernization is represented as an urgent solution.

1. Prerequisites of modernization

In international practice, the process of modernization is not perceived unambiguously and is considered depending on time and country interpretations. Speaking about the modernization of Russian industrial complex, as a rule, there is a view of the "catch-up" model, which is based on the selection and adaptation of advanced technological and institutional borrowings that have already shown to be effective in the external environment, taking into account the specific features of the national economy.

In some situations, the "catch-up" model of modernization can give positive results. First of all, if we speak about ensuring high rates of economic growth through the borrowed technology implementation. The innovations adoption helps to optimize the use of the resource base and accelerates development due to the fact that the costs of distribution and assimilation of ready knowledge are significantly lower than the costs of new knowledge development and bringing them to the stage of serial and mass production. However, we must highlight the main purpose of the catching-up modernization model, which aim is to reduce the gap in the efficiency and competitiveness of modernized countries economy. Therefore, the above model is not able to provide neither the complete elimination of the state "backwardness", nor its leading position compared to the leading countries in the development of new technological mode production.

With the undoubted importance of solving the task of the increasing industrial products competitiveness produced by Russian enterprises for the domestic and foreign markets, the moral and physical deterioration of fixed production assets, the imbalance of the industry sectoral structure, as well as the low level of innovation activity in the industry are especially serious problems.

Fixed capital of Russian industrial enterprises is represented as a material foundation of social development. Today, fixed capital is experiencing a tremendous need for a full-scale renovation. According to the Federal State Statistics Service the proportion of fully depreciated fixed assets in manufacturing is about 13-14% and at the enterprises dealing with the extraction of minerals is 20%. Moreover, in a number of production plants, these figures are even worse. 22% of the enterprises that manufacture vehicles and equipment, have fully exhausted their resources. At plants, which produce electric equipment, as well as chemical production plants, their share is 16.9% and 15.8%, respectively.

Thus, modernization in Russia is primarily focused on the changes in the reproductive, real sector of the economy. It is impossible to create innovations and transform them into products that are in demand in the world market without an effective national industrial, scientific and technological base. This problem is particularly important in the context of Russian accession to the World Trade Organization.

2. The role of the government in the modernization of industrial complex

In this regard, an integrated approach to the management of technological and structural change in industrial complex is required. The government has the tax, fiscal, monetary, investment, industrial, competition and pricing tools to implement it (Figure 1).

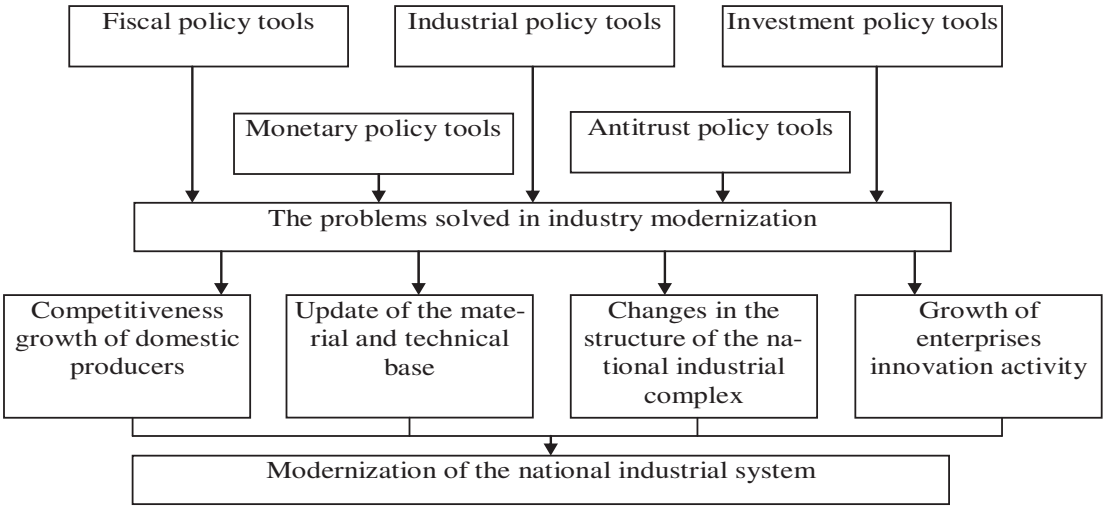

Fig. 1. State incentives for modernization of Russian industrial complex

Considering the Russian tax system impact on the industrial complex modernization, it is reasonable to talk about the special taxation mechanism, adjusted for the stated purposes and not about the specific tax benefits. In this regard, recently the term "tax incentives" began to be used more often. This term characterizes the purposeful activity of the state power and local self-government bodies to establish tax incentives and other tax nature measures that improve the property or the economic situation of certain taxpayers categories or charge payers in legislation on taxes and fees (Vasiliev, 2008). The fiscal policy, which is focused on the modernization of national industrial system goal, assumes a reduction in the tax burden on high-tech and innovative activities through the use of tools such as tax credits, accelerated depreciation, investment tax credit, reduced or zero tax rates, the creation of special tax regimes, etc.

3. Direct government participation in the modernization processes

In addition to the favorable tax regime for industry modernization and increase in innovation activity, the existence of direct public funding mechanism is needed for the economy. Today, the state participation in the modernization of the national industrial system in the form of direct financial support is carried out mainly through the implementation of the federal target programs (FTP), and government programs, as well as the creation of specialized funds.

However, the state budget cannot simultaneously solve the problem of maintaining social and economic stability in the country and the modernization of the industrial sector. In these conditions, the bank loan development has a particular significance for the industrial enterprises. In this case, in our view, the following measures are recommend:

1. To refinance the commercial banks by the Central Bank of the Russian Federation in connection with the obligations of the credit use to finance the industrial complex enterprises with a view to its structural and technological modernization;
2. To refinance the development institutions, which are focused on investment lending and provide educational loans, venture capital and micro-financing.

The credit availability and the low interest rate can accelerate the process of updating the material and technical base due to the limited financial resources for the fixed capital modernization in industrial production.

4. The investment policy as an important factor to stimulate economic growth

Another factor determining the timely and successful industry modernization and the intensity of the reproduction processes is the existence of an effective investment policy. In particular, at present there is a widespread mechanism of public-private partnership that works with the innovative techniques, which are used in a public sector to contract with a private sector. The private sector holds its capital and management capacity for the implementation of projects in accordance with the established timeframes and budget. The public sector retains responsibility for the provision of these services to people and have a positive impact on economic development and improving the quality of life. The main forms of such policy in the Russian Federation are the mechanism of concession agreements, the activity of the Investment Fund of the Russian Federation, the

creation of clusters and special economic zones, in which the state provides the necessary infrastructure to attract private investments (2).

Economy management in accordance with the concept of long-term Russian socioeconomic development till 2020 implies a major change in financial planning, which is reflected in the transition from estimate to the program-target method of budget spending. In this regard, the basis for the formation and execution of the state budget is the state program. The state program is a system of measures (interconnected by problems, timing and resources) and public policy tools that provide the core state functions to achieve the objectives and priorities of the state policy in the sphere of socio-economic development and security (Government Decree, 2010). The state program includes federal programs and subprograms, containing also the departmental target programs and individual activities of state authorities of the Russian Federation. Experts from the Ministry of Finance assume that the funding cost share for the state programs in the period of 2012-2014 will be more than 96% of the total federal spending.

The specific tools aimed at modernization of Russian national industrial complex can be highlighted as a part of state programs of economy modernization and innovative development. The state program "Industry Development and Increasing its Competitiveness" takes a special place. The strategic objective of the program is the creation in Russia a competitive, sustainable, structurally balanced industry (in the structure of industries related to the subject matter of the program), capable for effective self-development through the integration of technology into the global environment and the development of advanced industrial technology, aimed at the creation of new markets with innovative products. Such industry should also effectively solve the problem of Russian defense capacity. In the state program, the Ministry of Industry of the Russian Federation, in close cooperation with the concerned executive authorities use such financial instruments of the state industrial policy as a federal programs, grants and contributions to the charter capital, R&D funding (not under the FTP), including public contracts and through public-private partnerships, measures to support the promotion of products on the domestic markets. On the assumption of the methodological calculations and sectoral strategies till 2020, funding for the state program is defined by the federal budget in the amount of 227.5 billion rubles.

5. Federal target programs

The federal target programs can be considered as a flexible method of long-term economic policy implementation and active influence on production and economic processes. The programs include specific goals and outcomes, which have to be achieved on the basis of formed medium-term country priorities of socioeconomic development, as well as a list of investment and innovative projects that help to achieve these goals and reasonable resource provision, including the sources from the federal budget.

Despite the fact that today all FTP entered into a new form of program-target method – government programs, analysis of budget expenditures in the context of FTP is also relevant. The volume of the federal budget allocated to the federal program, in 2008-2012 exceeded 4 trillion rubles.

The dynamics of budget financing in the last 5 years is shown in Figure 2.

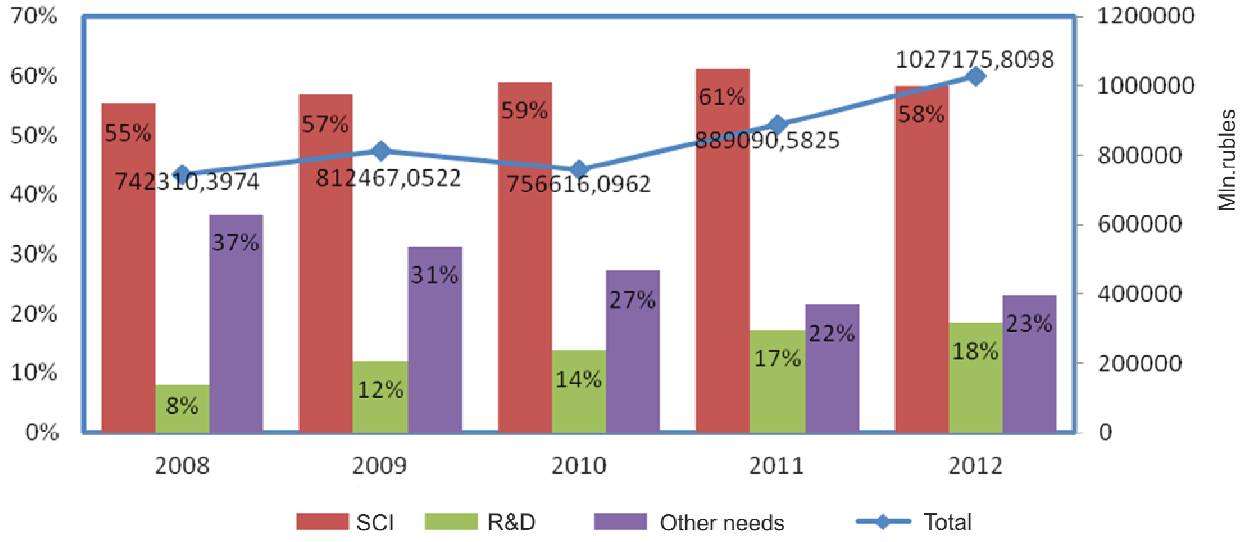

Fig. 2. Budget financing of federal target programs in 2008-2012

Throughout the whole period there was a steady growth in budget allocations. The only exception was in 2010, which noted the reduction in the rate at 6.87%. The funding structure in 2008-2012 remained unchanged. More than half of the allocated funds are state capital investments (SCI). The "other needs" share accumulated an average of 28% cash. And during the period that value had been gradually reducing and finally in 2012 was 23%. There was a steady upward trend in the R&D funding share in 2008-2012. During the period, the index share of the total budget increased from 8% to 18%.

The federal target program realization assumes an investment in the following priority areas:

- high-tech development;
- housing;
- transport infrastructure;
- Far East;
- rural development;
- social infrastructure;
- safety;
- regions development;
- state institutions development.

Areas of budget allocations are shown in Figure 3.

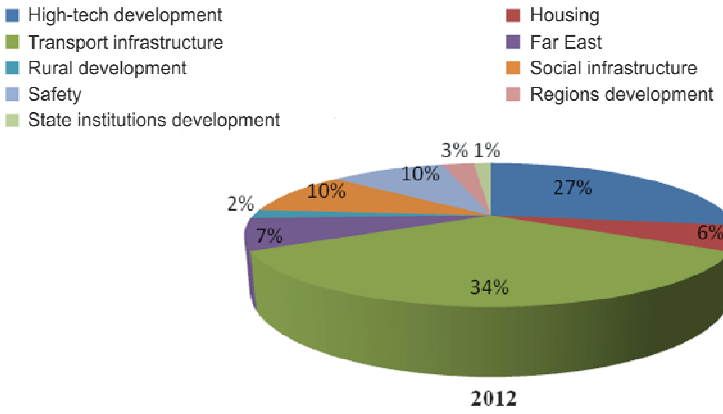

Fig. 3. Funding structure of federal target programs in the priorities context

Thus, the following FTP have received funding during realization of "High-tech development" program:

1. Russian Federal Space Program for 2006-2015.
2. Development of nuclear energy industrial complex of Russia for 2007-2010 and up to 2015.
3. Development of Civil Aviation Technology of Russia in 2002-2010 and up to the year 2015.
4. Development of electronic components and radio electronics for 2008-2015.
5. Research and development for priority directions of science and technology complex of Russia for 2007-2013.
6. Civil marine facilities development for 2009-2016.
7. Development of Broadcasting in the Russian Federation for 2009-2015.
8. Development of Russian Space Centers in years 2006-2015.
9. Nuclear Power Technologies of the New Generation for 2010-2015 and until 2020.
10. Development of Pharmaceutical and Medical Industry of the Russian Federation until 2020 and beyond.

Figure 4 below shows the dynamics of FTP funding in 2012.

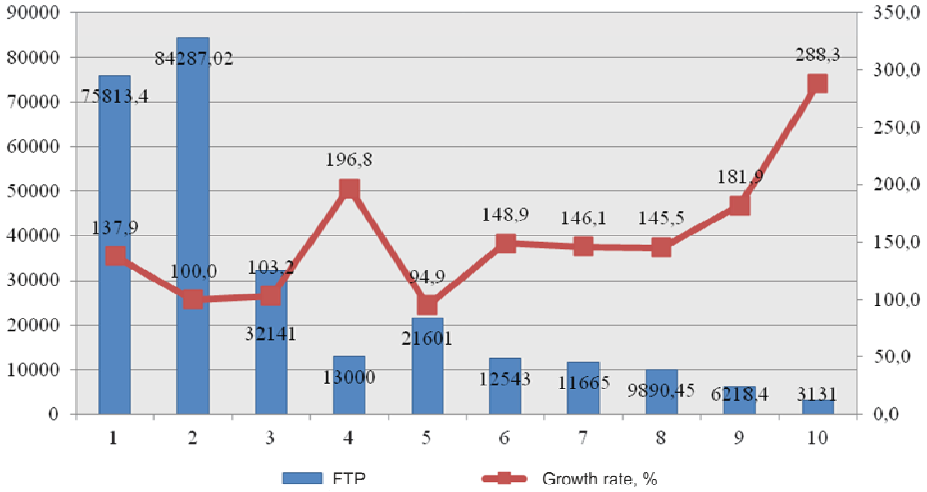

Fig. 4. FTP funding under the "High-tech development" program in 2012

The amounts of funding in 2012 increased in almost all programs. The exceptions were: the FTP "Development of nuclear energy industrial complex of Russia for 2007-2010 and aspects for the period up to 2015", which was maintained in the funding amount of 2011, and the FTP "Research and development for priority directions of science and technology complex of Russia for 2007-2013", where there was a slight reduction of allocated funds (5.1%).

The largest relative increase in funding, almost 3 times, was demonstrated by the FTP "Development of Pharmaceutical and Medical Industry of the Russian Federation until 2020 and beyond". This program is the most low-funded in the group, so the absolute change in the index is not that high in relation to other federal program and is about 6 billion rubles. The situation is similar with regard to programs such as the FTP "Development of electronic components and radio electronics for 2008-2015" and the FTP "Nuclear Power Technologies of the New Generation for 2010-2015 and until 2020". Their funding increased by 96.8% and 81.9%, respectively. However, the absolute change of indexes in monetary values was not the most significant.

The funding amounts of such FTP as "Civil marine facilities development for 2009-2016", "Development of broadcasting in the Russian Federation for 2009-2015" were increased almost one and a half times. In monetary value, the FTP "Development of Russian Space Centers in 2006-2015" – 28.7 billion rubles (37.9%) showed the largest increase.

Funding shares for ten listed above target programs in the expenditure side of the budget are presented in Figure 5.

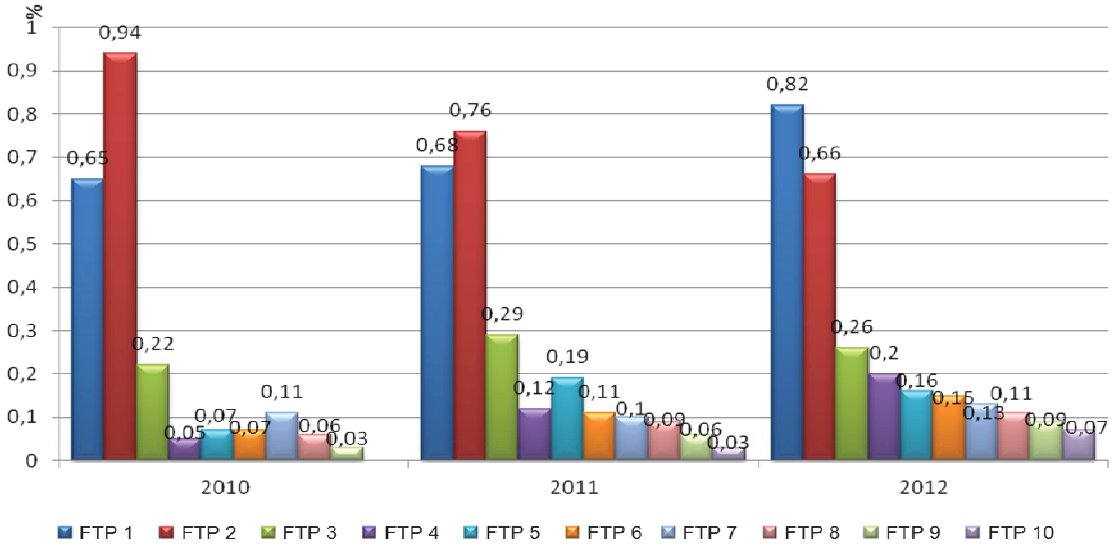

Fig. 5. Share of the analyzed FTP in the expenditures of Russian federal budget

Among the analyzed FTP the greatest share takes the Russian Federal Space Program and the FTP "Development of nuclear energy industrial complex of Russia for 2007-2010 and aspects for the period up to 2015". Their values for the period of 2010-2012 range from 0.65% to 0.94%. In 2010-2012 the share of funding the FTP "Development of Civil Aviation Technology of Russia in 2002-2010 and up to the year 2015" on the expenditure side of the budget was 0.22%, 0.29% and 0.26%, respectively. The value of other FTP indicators during the whole period did not exceed 0.2%. The lowest values have the following FTPs: "Development of Russian Space Centers in 2006-2015", "Development of nuclear energy industrial complex of Russia for 2007-2010 and aspects for the period up to 2015" and "Development of Pharmaceutical and Medical Industry of the Russian Federation until 2020 and beyond" – less than 0.1%.

An important tool for the budget program financing of modernization and technological renovation of fixed assets in key industries is a federal target investment program (FTIP). Budget investments in the form of FTIP in providing the development of a national industrial complex, are concentrated in three areas: power generation, engineering and medical industries. Thus, the greatest funding amount has been documented for power industry, exceeding 55 billion rubles in 2008. In subsequent years, in all other areas, there was a sharp decline in budget investments, which is directly related with the influence of global financial crisis on the Russian economy, on the one hand, and the setting of new priorities of development on the other.

It should be emphasized that the widespread use of program-target methods allows the formation of the budget to ensure the continuity of economic and fiscal policy in the middle-term prospective.

Conclusion: directions of Russian industrial complex modernization

In our view, the main directions of Russian industrial complex modernization should be:

- the transformation of scientific, technological and industrial capacity through the application of advanced domestic and foreign high-end technologies;
- the creation of infrastructure for the promotion of scientific research and its commercialization, increasing interest in industrial innovation;
- formation of the federal and regional information systems for scientific and technological achievements, market research;
- stimulating industrial or high-tech industries in the conservation, creation and development of their own scientific and technical units, supporting new forms of progressive integration of scientific, technical and industrial organizations.

The management of modernization processes is based on the principles of innovation development, which should be a combination of market and state regulation, with a gradual usage increase of market mechanisms, but with the state mandatory participation. The following principles are among them:

- program-oriented planning of scientific and technological development;
- direct and indirect regulation of scientific and technical activities;
- legal regulation of scientific and technical activities;
- organizational and structural changes in science, technology and innovation.

An important tool for science and technology policy should be the federal target program of comprehensive measures aimed at addressing major socioeconomic problems in accordance with national and regional priorities. The presented development level and degree of state programs support are unsatisfactory. There must be a fundamental change in their design and implementation. The list of programs must be approved annually by the Federal Assembly of the Russian Federation at the same time with the state budget.

The criteria for the competitive selection of programs in the fields of industry should be:

- accordance of the target programs to the major areas of structural changes in the economy;
- production of competitive goods and services, export promotion and import substitution orientation;
- efficient use of resources and energy, production of science-intensive products;
- increasing productivity through technological modernization and scientific and technological innovation;
- development of industrial infrastructure.

During the structural transformation period the Russian scientific and technical policy should focus not only on the development and support of basic researches, but primarily on the development and implementation of high-tech innovations in the various sectors of the economy, and especially in the industrial complex. There is a need to create the conditions for the development of innovation and applied research in industry, to develop effective methods and techniques for public support of scientific and technological innovation and enhance the innovative potential of an industrial complex. Among the major challenges for improving the innovative capacity of industrial complex should be highlighted the following:

- creating the environment that encourages producers irrespective of their legal form and ownership, to the technological renovation of production, the introduction of advanced domestic and foreign scientific and technological achievements, the creation of new competitive in domestic and foreign markets for goods and services;
- concentration of budget funds and other forms of state economic support, extra-budget resources and public sources on the priority areas of scientific and technological development and technological upgrading of production;
- the creation of new jobs in the field of innovative entrepreneurship and social security and maintaining the authority and prestige of scientists, engineers, inventors and manufacturers of high technology products and services.

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