

возложить комплексное решение широчайшего спектра прогнозных, телекоммуникационных и природоохранных задач, может стать той ключевой идеей, которая, в случае ее практической реализации, способна обозначить начало новой, единой стратегии освоения космоса, направленной на обеспечение экологически безопасного и социально устойчивого развития всего мирового сообщества с опорой на общие, непреходящие ценности сохранения жизни на планете.

Участие СибГАУ совместно с базовым предприятием ОАО «ИСС» в качестве полноправных членов в реализации этого проекта и работе Международного общественного комитета по реализации проекта МАКСМ является крайне актуальным и свидетельствует о признании вуза на международном уровне. Своевременное со-

здание Регионального научно-технологического центра космических услуг при СибГАУ с участием КНЦ СО РАН и ОАО «ИСС» является стратегическим решением и вписывается в общую концепцию МАКСМ.

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DEVELOPMENT OF THE INTERNATIONAL AEROSPACE SYSTEM FOR GLOBAL EARTH MONITORING

The relevance and prospects for the development of international aerospace system for global Earth monitoring with the active participation of the Siberian State Aerospace University named after M. F. Reshetnev are discussed.

Keywords: aerospace monitoring, near-Earth space, forecasting and disaster management.

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INNOVATIVE POTENTIAL AS THE BASIS OF DEFENCE INDUSTRY COMPLEX ENTERPRISES COMPETITIVENESS

In this article the formation mechanism and development factors of innovative potential of defence industry complex enterprises are considered as bases of their competitiveness in the conditions of economy transformation.

Keywords: innovative potential, economy development, enterprises of defence industry complex.

The defence industry complex (DIC) is an integral part of the Russian economy and includes the research, design and experimental potential making the unified system for creation of not only modern kinds of armament and military technology, but also the high technology of commercial value and complex home appliances. DIC carries out more than 75 % of all scientific production made in the country. In defence industries over 50 % of all research assistants are occupied.

At a sufficient innovative susceptibility, DIC is capable to play an important role in maintenance of new quality and rates of economy development in Russia, strengthening its economic safety from external and internal threats.

Taking a leading place in maintenance of defensive power and safety of the state, DIC plays a considerable role in solving social and economic problems of the country and technical re-equipment of the major spheres of economy: transport, communication, fuel and energy complex, public

health services, etc. As the most hi-tech segment of domestic mechanical engineering DIC can't develop separately from a common industrial complex, its transformations and development should correspond to the general strategy and logic of national economy development as a whole.

The defence industry complex plays the key role in realization of innovative economy development, what in its turn, requires at the present stage the strengthening of innovative state policy component in the specified sphere. Therefore, accelerated DIC development is defined among priority directions of a social and economic policy of the Government of the Russian Federation.

The DIC innovative development as a system of interconnected enterprises depends on degree of competitiveness and a level of development of the given enterprises, their interrelations. The estimation of innovative potential of DIC enterprises gets the key value as it allows to

define the necessary stock of resources and possibilities for maintenance of strategic innovative and current activity.

Necessary state control in management of strategic enterprises and organizations should be thus provided, measures on prevention of their bankruptcy, and also an effective utilization of state ownership and increase of management level and quality should be realized.

The innovative potential of the enterprise actually provides possibility for its further development. But it is important not only to possess this factor, but also to be able to effectively implement it.

The analysis of the economic literature allows to allocate some approaches to «innovative potential» concept definition.

L. F. Shaybakova and Y. A. Lebedev characterize it as the readiness and ability of this or that enterprise (organization) to carry out for the first time «or to reproduce an innovation».

A. A. Trifilova, B. Lisin, B. Fridlyanov consider that the innovative potential of the enterprise is a set of scientific, technical, technological, infrastructural, financial, legal, socio-cultural and other possibilities to provide perception and realization of innovations, i. e. reception of the innovations forming the unified system of occurrence and development of ideas and providing competitiveness of end production or services according to the purpose and strategy of the enterprise.

V. N. Gunin, V. P. Barancheyev, V. A. Ustinov, S. Y. Lyapina consider innovative potential as «the readiness measure» for the enterprises to carry out the strategy aimed at implementation of new products. At the same time, the innovative potential includes, along with technological progress, the institutional forms interfaced to mechanisms of scientific and technical development, innovative culture of the society, its susceptibility to innovations.

A number of researchers, namely: K. A. Bagrinovsky, M. A. Bendikov, V. V. Mylnik, E. Y. Khrustalyov consider that the innovative potential is everything (abilities and possibilities) that can carry out and intensify innovative activity.

Thus, in view of distinctive features of DIC enterprises development, we will consider that the innovative potential of the enterprises adheres to the following formulation of the concept: it is a set of significant indicators for DIC enterprises, combining scientific and technical, technological, personnel, financial, legal, marketing, resource and organizational administrative possibilities, the efficient management of which is directed at process of creation and realization of innovations influencing the competitiveness of end production or services according to strategy of the enterprise.

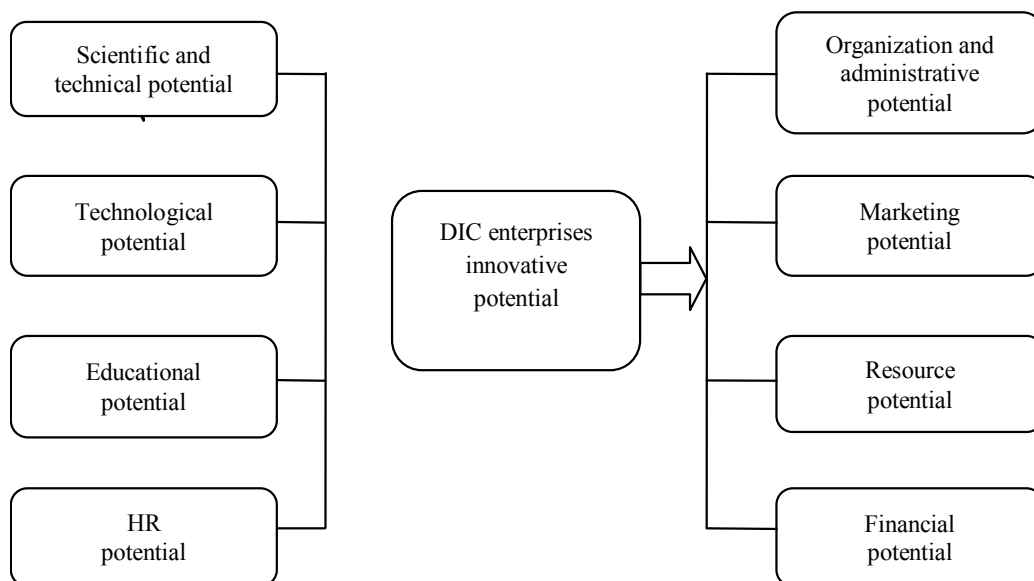
Visually the definition of the DIC enterprises innovative potential concept is presented in figure.

The interconnected components of innovative potential of DIC enterprises make the basis of its structure, each of which defines possibilities for development of the enterprise and its innovative activity.

It should be taken into account that innovative activity includes four basic components: manufacture (generation) of knowledge (science), working out of technical and economic projects (engineering), manufacture of products or services (manufacture) and achievement of economic benefit (commerce).

The DIC traditionally stimulates innovative activity in civil sectors of economy, promotes development of allied industries and diversification of economy structure as a whole, increases its competitiveness.

Certainly, integration of science, education and industry gives a considerable effect, without demanding huge capital investments as it is based on system-organizational principle instead of financial principle. However, importance of the problem is in the fact that training of more than 90 % of scientific personnel in postgraduate study and doctoral studies of the higher school of the Russian Federation gets budgetary financing not more than 10 %. In Russia there are 5 times more scientists per one thousand population, than in China, and 2,5 times higher the number of graduates in engineering specialities. And at the same time in the world market of high technology production the share of China



Innovative potential of the DIC enterprises

has reached 6 %, and Russia – less than 0,5 % [1; 2]. For elimination of the present situation it is necessary to define and solve the problems corresponding to priority directions of DIC development in interests of branches of economy, that is: aircraft engineering development and shipbuilding, the space-rocket industry, which keep competitive advantages, also at the foreign market; development of the radio-electronic complex keeping potential of import replacement, and providing state information security and solving communication problems; development and manufacture of the competitive equipment for thermal power industry to position Russia as a powerful country; development of high technology medical equipment for public health services in the country; development and manufacture of cars and the machinery for the agrarian and industrial complex (agrarian and industrial complex), domestic industry of road and housing construction and transport communications.

At level of research schools and universities it is necessary to carry out research works stimulating creation and development of innovations. In its turn, innovative potential of the enterprise is necessary for realization of innovative activity.

Estimating innovative potential of the enterprise, the management defines possibilities to develop innovative activity, implement innovations. The following stages of the organization of innovative activity at the enterprise can be defined [3]:

1. Estimation of innovative potential of the enterprise and definition of the adequate innovative aims.
2. Establishment of partnership with the research or design organizations or creation of the own innovative division.
3. Development of scientific and technical decisions to achieve innovative purposes.
4. Working out of innovative projects.
5. Integration of the innovative project into the innovative program.
6. Carrying out of organizational-structural changes.
7. Working out of a new corporate strategy on the basis of the innovative approach.

It is necessary to notice that organization of innovative activity is not limited to the above-stated stages. Such aspects, as: innovation feasibility reports, resource maintenance, estimation of investment appeal of the innovative project, risk factors estimation which can prevent successful realization of projects, are the key components for realization of innovative programs.

Dynamics of DIC development essentially depends on personnel maintenance that is the component of innovative potential. In «Bases of policy of the Russian Federation in the field of defence industry complex development» three priority personnel problems are defined: creation of the unified system of training (retraining) and employee retention; perfection of state planning and economic incentives for training (retraining) of experts; use of industrial, scientific and methodical base of DIC organizations for the educational purposes.

Last years in the DIC certain measures on retention and development of personnel potential were implemented,

including those within the federal target programs «National technological base» for 2006–2010 and «Development of a defence industry complex (2006–2011)». The complex specialized program for improvement of professional skills of DIC managers, taking into account features of the integrated structures, was developed. The issues connected with organization and realization of target programs of continuous education for scientific and technical personnel in leading technical universities, were developed, but no cardinal change of the situation has occurred. To a considerable degree this discrepancy of declared aims to the received outcomes testifies a system character of this problem. A variety and scale of the problems facing DIC, dictate necessity to form the personnel basis on a wide spectrum of specialities in applied areas of science, techniques and technology. DIC prospects and success are connected with development of the system to train highly skilled experts of the new generation, capable to solve difficult technical and technological problems, get adapted quickly to dynamically changing conditions. The responsible ministry should give particular attention to technical and technological directions of personnel training and retraining and together with the Ministry of Education and Science of the Russian Federation, authority structures in subjects of the Russian Federation, local governments and other interested organizations to participate in formation of quantitative and qualitative parameters of DIC requirement in corresponding experts. Experts should receive knowledge and expertise, allowing them to work, taking into account features and requirements shown at all stages of modern innovative process. Obligatory participation in federal and industry scientific-educational projects will allow to influence the content of the programs for training and retraining of personnel for DIC [4].

Analyzing realization of innovative model of the Russian economy development and in particular at the DIC enterprises now, it is necessary to note some restrictions, namely:

1. Unavailability owing to the various reasons of real sector of economy to apprehend results of the newest domestic scientific research works and developments.
2. Depreciation of the productive facilities and its out-of-date technological structure. A lack of own means for investment in development.
3. Low solvent demand for new products, a lack of qualified personnel, information and commodity markets, insufficient activity of the enterprises at high technology markets.

Considering the specified circumstances the following basic issues should be solved:

- reduction in time of the process of transferring from sphere of «knowledge generation» to the sphere of production to get economic benefit in economy branches, maintenance of thorough planning and management of processes from the development cycle to the stage of their commercial use;
- updating of industrial-technological base and organization of hi-tech manufactures, capable to apprehend an innovation;
- formation of demand for new products, creation of new ones and use of existing innovative, educational, financial infrastructures;

– strengthening of business activity and the initiative of the enterprises and organizations, increase of level and quality of management;

– consolidation of resources at the expense of various sources, creation and use of institutes and functioning of development mechanisms.

In view of new tendencies and directions of technological development in the world, the decision of the specified problems is planned in complex within the limits of the new federal target programs developed and confirmed by the Government of Russian Federation, including:

1. «The National technological base» for 2007–2011 (NTV) is aimed at working out and development of the newest critical base technologies necessary for creation and manufacture of competitive high technology civilian production.

2. «Development of a defence industry complex of the Russian Federation for 2007–2010 and for the period till 2015» provides working out and development of a significant amount of the industrial technologies focused on creation and manufacture of modern kinds of technology, and also aerospace materials. This program is urged to play a key role in updating of the DIC industrial-technological base (about 70 % from total amount of expenses under the given program make the investments directed at modernization of scientific-technological base and capacities of the organizations of the defence industry – developers and manufacturers of the major samples of military armed forces defining image of perspective system of armament).

3. «Development of civil aviation technologies in Russia for 2002–2010 and for the period till 2015» (new edition),

providing formation of a scientific reserve and working out of new technological decisions in interests of creation of perspective samples of aviation technologies.

Basic changes of a competitive position in the world and internal markets, maintenance of sustainable DIC development is planned to be carried out within the close interaction of the state and business, interested in development of the domestic industry, and inclusion of Russian DIC into the international cooperation without damage to interests of national safety.

Use of a set of innovative factors in development of the enterprise activity makes the basis for its transfer to the qualitatively new stage of its development, allowing to get economic stability in the market environment and competitiveness.

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ИННОВАЦИОННЫЙ ПОТЕНЦИАЛ КАК ОСНОВА КОНКУРЕНТОСПОСОБНОСТИ ПРЕДПРИЯТИЙ ОБОРОННО-ПРОМЫШЛЕННОГО КОМПЛЕКСА

Рассматривается механизм формирования и факторы развития инновационного потенциала предприятий ОПК как основы их конкурентоспособности в условиях трансформации экономики.

Ключевые слова: инновационный потенциал, экономическое развитие, предприятия оборонно-промышленного комплекса.

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