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On the Issue of the Perspective Directions of the Science-Driven Production Development in Russia

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Abstract

The revealed managerial capabilities of prospects to develop the modern production facilities' potential in order to ensure flexibility and adaptability to the growing demands from the market and consumers allow to propose a system of general assumptions in the methodology for managing science-driven high-tech production. Focus on the accelerated implementation of science-driven projects, possibility of improving technological processes and products to create competitive advantages of Russian products, which in turn will lead to the neutralization of threats and the development of modern management of science-driven high-tech industries, are an incomplete list of arguments in favor of changes in the existing system of strategic management of industrial enterprises in Russia. At the same time, it must be noted that the introduction of processes to improve the system of strategic management at Russian industrial enterprises has been severely limited in time since the gap in the pace of innovation and competitiveness between enterprises in Russia and developed countries is increasing.

Keywords: Science-driven production; Process management system; Innovation activity; MariNet, NTI.

1. Introduction

To date, Russian industrial enterprises have been retaining a number of competitive advantages that allow them to benefit from these advantages in the production of both military and civilian products, as well as to integrate into the world economic relations.

Due to an increasing influence of the external environment, enterprises are forced to use more complex and rapidly operating management structures.

2. Methods

Identified opportunities for improving the methodology of strategic management at enterprises, as well as the conducted analysis and generalization of scientific methodologies of modern production management, revealed that despite the above limitations and assumptions, the strategic management process at a range of Russian industrial enterprises was implemented in a dynamic mode; it is closely related to the changes that occur in business organizations around the world and has a number of strengths:

- complexity, long-term nature and flexibility of management structure increase;
- quality of the information basis for decision-making and the choice of the best options for action improve; and
- achievement of high indicators of interrelation and balance of all management elements, including strategic goals, programs, resources, etc. is ensured.

The task of developing a strategic management system is not just to adapt the enterprise to changes in the environment but also to influence this environment in a direction favorable for the enterprise. In other words, there is a need for conscious environment planning in order to match the management structure to the objectives of the enterprise (Balashova and Gromova, 2016; Barchiesi and La, 2014; Vishnevskiy *et al.*, 2015).

As a result, the main tasks of the enterprise are assessment, selection and implementation of trends in the external environment in order to meet the consumers' needs.

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Evaluation of the conditions for the implementation of strategic management at Russian industrial enterprises revealed the need to introduce a system for adapting the structure of strategic management in order to:

- use the theory of management adaptation for flexible change in the enterprise management system in correlation with the features of the management system development;
- develop a methodology for the adaptation of the strategic enterprise management system;
- develop and implement the adaptive strategic management in the activities of industrial enterprises that would ensure consistent sustainable development.

As such, the choice of the methodology for adapting the strategic management system primarily depends on the complexity and novelty of the tasks that are formed both in the external and internal environment (Ksenofontova, 2012).

During the study of the theoretical concepts of enterprise management, it was justified that Taylor's management concept based on the division and specialization of labor and currently used in most industrial enterprises in Russia did not ensure sustainability, competitiveness and product quality level at enterprises. It required a drastic change in the enterprise management system that would adequately meet the requirements of the external environment.

At the same time, currently there are some restrictions on the introduction and use of the strategic management system in the activities of industrial enterprises, the main of them being the following:

Financial resources. Even if an optimal development strategy is chosen, a question about the source of the necessary financial resources for its implementation arises. At the same time, if an enterprise secures a loan at high-interest rates, it undermines shareholders' interests while waiting for accrued dividends, even if the enterprise receives high profits.

Organizational structure and management systems. In accordance with Russian traditions, the organizational structure of industrial enterprises with an appropriate workflow system is complex and not flexible. The indisputable scientific and production potential of many Russian science-driven industrial enterprises contrasts with the undeveloped structures of business, marketing and finance.

Innovation activity is felt only at the very top of the management pyramid, hence a need emerges to delegate certain rights and powers down by management levels to involve all levels. The necessary factors are also training and practical activities, which will secure the necessary skills for innovation-driven growth in the future.

Renewal of human resources. Many science-driven industrial enterprises in Russia show a high average age of employees (ageing personnel), and this trend is strengthening every year: there is a need to replenish the staff pool with young, skilled employees.

Investment resources. There is an urgent need for investment in most areas of activity of industrial enterprises: information, production, training, advertising, marketing.

Competitors' actions. The process of implementing enterprise development strategies inevitably has to deal with the competitors' actions, which can significantly reduce the efficiency of the process. Along with the classic competitors' actions, such as lobbying and "price war", the methods of "unfair competition" are still common in Russia in case of shake-out.

Accounting for the Russian specifics of doing business. When new products and technologies are introduced into the Russian market, one should consider for the environment of informal contacts and relations, with the existence of specific norms of business ethics of doing business (corruption component).

The principle of limited rationality claims that if an enterprise does not opt for complicating the management system to a level appropriate to the external environment, it should choose the path of simplifying development strategies, leaving unstable markets and narrowing the range of activities.

The proposed system of general assumptions in the methodology of modern production management, which must be added (introduced) to the existing production management system, assumes that the main factors of success in production are related to:

- managing innovations, including manageable technology and manageable market;
- organizational factors, including timely launching into production and efficient organization of processes for the production of products/services;
- competence effect of management introducing modern management systems and all personnel working as a single team (human factor and primarily highly qualified personnel);
- the relationship between marketing and manufacturing technologies;
- organization of production processes, including the development of production plans that ensure the required level of quality at the lowest cost;
- knowledge of the needs of customers, through the use of such models as cost analysis, function value analysis, test sales, price forecast, etc.;
- market knowledge based on the system of information about competitors and the international coverage of activities.

3. Results

So far, "economic adaptation" as the integration of enterprises into a system of changing productive forces and production relations of the market orientation has been the most widespread in research. As a process of adaptation of the enterprise management to changes in the external environment, adaptation is used at a number of Russian

enterprises as a universal management function, as a process of enterprise restructuring, as formal and active adaptive management aimed at efficient use of existing production resources.

At the end of 2014, the President of the Russian Federation launched a long-term complex program to create conditions for ensuring the leadership of Russian companies in the new high-tech markets that will determine the structure of the world economy in the next 10-20 years - the National Technology Initiative (NTI) (List of the President's orders on implementation of the Address to the Federal Assembly, № Pr-2821, paragraph 1, subparagraph 29, December 5, 2014,).

It took more than a year to accept:

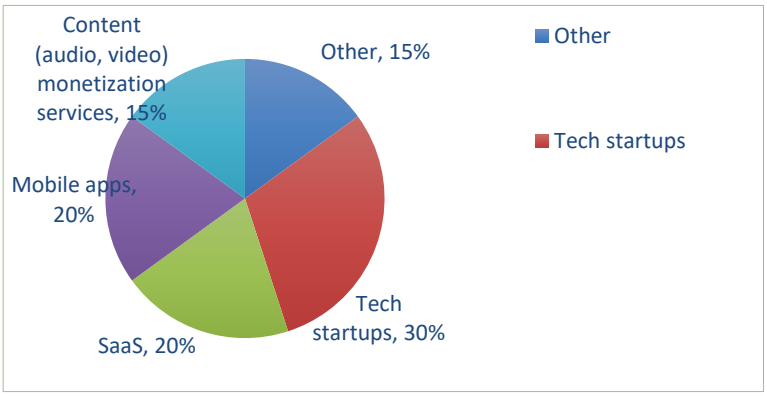
- rules for the development and implementation of the action plans ("roadmaps") of the National Technology Initiative;
- regulation on the development, selection, implementation and monitoring of the projects in order to implement the action plans ("roadmaps") of the National Technology Initiative;
- rules for granting subsidies from the federal budget for the implementation of the projects in order to execute the action plans ("roadmaps") of the National Technological Initiative (Decree of the Government of the Russian Federation № 317, April 18, 2016).

The interdepartmental working group on the development and implementation of NTI under the presidium of the Council for Economic Modernization and Innovative Development of Russia approved a series of documents regulating the consideration of the projects within the framework of the implementation of the "roadmaps" of the NTI:

- provisions on the Committee for coordination and control of NTI projects, on the NTI Project Committee, on the NTI Expert Council, on the working groups on the development and implementation of NTI "roadmaps";
- methodology of project management of the National Technological Initiative;
- rules for acceptance of the key control points and targets of NTI projects;
- instruction for the project managers of R&D;
- regulations on the procedure for conducting the examination and on monitoring and managing changes to the project;
- methodological instructions for the development of the action plans ("roadmaps") and on the description of NTI projects;
- scheme for reviewing the projects for inclusion in the project register and expertise at the stage of project selection.

Investments in technological start-ups accounted for 30% of the total volume of transactions in 2016. Figure 1 presents the structure of distributing transactions of the private equity funds in quantitative terms by branches of the national economy, 2016 (Bezdudnaya and Somov, 2016).

Figure-1. Distribution of private equity fund transactions by branches in quantitative terms, 2016



In the field of NTI implementation, along with other industries and markets for new products capable of providing long-term sustainable social and economic benefits, the shipbuilding sector actively implements digital navigation (e-Navigation), ocean resources development technologies and innovative shipbuilding within the MariNet system.

Russia has considerable experience in the construction of complex ice-class ships, underwater robotics, as well as the scientific and technical groundwork for the creation of ground effective vehicles. The development of offshore fields, deployment of power plants and other industrial facilities in the offshore area, development of new regions for transportation of goods and passengers (such as the Northern Sea Route), new ways of organizing multimodal logistics determine the long-term sustainable demand for new solutions in shipbuilding, including unmanned marine transport.

The country has significant groundwork in the extraction of hard-to-recover resources in the Arctic and the use of renewable energy from the ocean.

The "roadmap" of the intelligent maritime transport management system and the technology of the world ocean development MariNet NTI provides:

- implementation of pilot projects of e-Navigation in Russia, EEU and BRICS, distribution of standard solutions to the entire world market, their advanced practical application;
- use of the ocean development program in Russia and BRICS as a pilot site for the development of competitive products and services that are in demand on the world market in the context of ocean resources development;
- providing an opportunity for Russian companies to occupy niches of specialized vessels and innovative technologies in the world shipbuilding market, using existing intellectual shipbuilding centers and consolidating the industry.

During the implementation of the "roadmap", the presence of domestic companies in the world MariNet market is supposed to become consistently increased in the number of companies, the volume of exports of their products, the number of projects on the use of renewable energy sources of the ocean. It is planned to increase the number of institutions of higher education that provide training for the most promising professions and specialties of the MariNet market, using the new teaching technologies developed within the MariNet framework.

Russian Transas with its electronic cartographic navigation and information and traffic control systems is already the leader in the e-Navigation segment. The company Solvo implements unique solutions for the automation of ports and container terminals.

Still, the overall Russian business environment has not yet reached the optimal structure that promotes sustainable economic growth. Russia ranks 62nd out of 189 countries in Doing Business Rating 2016. This situation does not look dramatic, as a number of countries in Eastern Europe and Central Asia have similar indicators, but some positions hinder the development of business in our country (Rastova, 2016).

For instance, companies willing to sell products beyond national borders often face the problem of exports. Besides, the unfavorable macroeconomic situation does not give much ground for optimism. The Russian economy still, by and large, depends on fluctuations in oil and commodity prices and suffers from economic sanctions. The resulting decrease in the real incomes of the population and, as a consequence, consumption, had a more tangible impact on the pace of business development than previously expected. The high cost of loans hinders investing in a business (Kosheleva, 2016).

4. Discussion

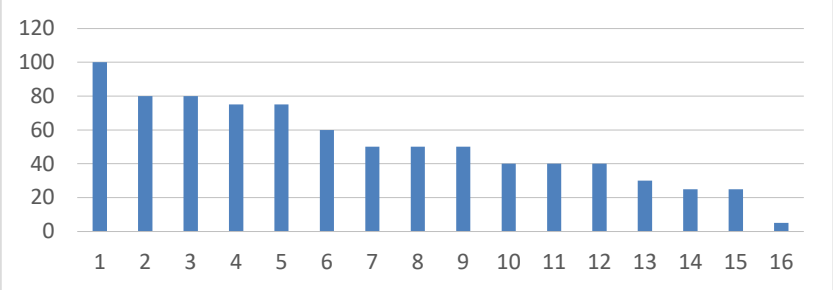
Practice shows that only 10-15% of all launched startup projects are recognized by experts as efficient in Russia. At the same time, the mechanism of government subsidies and grants in Russia funded almost 40% of deals and 1/4 of all startups registered at the specialized sites at an early stage in 2013-2016.

SIEs and startups exist on the same terms as consistently operating mature companies, and their further sustainable development requires stable economic conditions for the business environment (Kosheleva, 2016).

One of the mechanisms that were positively proven in practice was raising investment through crowdfunding platforms, such as Kickstarter.

Kickstarter is an online platform for raising funds by startups from potential investors from around the world (Figure 2).

Figure-2. 20 main reasons for the startup failures in Russia*



*1- Not knowing their consumer; 2- No need in the market; 3 - Improper team selection; 4 - Poor marketing; 5 - Exhausted budget; 6 - Business model required; 7 - Wrong time for a product; 8 - Lack of enthusiasm; 9 - Failure to promote the idea; 10 - Unsuccessful product; 11- Price problems; 12 - Not using social networks; 13 - Disagreements in the team; 14 - Loss of concentration; 15 – Burnout; 16 - Shook out by competitors

Such forms of innovation business as SIEs and startups are mobile and capable of easily responding to changes in the external environment. These characteristics make SIEs and startups competitive and provide some advantages in the market over large companies which, in turn, cannot quickly refocus the products they produce and which are at great risk when launching new projects.

The modern basic concept of developing the industrial enterprises' management system, presented as a *system of process management*, determines not only the current but also the perspective direction of development. When justifying the choice of the principal method of forming the methodology for adapting the strategic management system of an enterprise, one should take into account the experience of developing and introducing management concepts of adaptation in the practice of managing the Russian science-driven industrial enterprises (Green and Medlin, 2003; Hopkins *et al.*, 2013).

5. Conclusion

Implementation of NTI in accordance with the established procedure should help remove barriers to the use of advanced technological solutions, create incentive systems for their implementation, improve the educational system to ensure the prospective staffing requirements of the new global markets, and develop a system of professional communities.

Increasing competitiveness in the shipbuilding technology market will strengthen the positions of Russian ports and shipping companies, increase the efficiency of the sea and river domestic transport complex, and strengthen prospects for the use of ocean resources.

References

Balashova, E. S. and Gromova, E. A. (2016). Resource-based view as a perspective management model in Russian reality. Problems and Perspectives in Management. 14(2-2): 325-30.

Barchiesi, M. A. and La, B., A. (2014). An analysis of the organizational core values of the world's most admired companies. *Knowledge and Process Management,* 21(3): 159-66. Available: https://doi.org/10.1002/kpm.1447

Bezdudnaya, A. G. and Somov, V. V. (2016). *Trends of development of innovation-active enterprises. In modern management, Problems and perspectives.* Saint Petersburg State Economic University: Saint Petersburg, Russia. 128-32.

Green, K. W. and Medlin, B. J. (2003). The strategic planning process, The link between mission statement and organizational performance. *Academy of Strategic Management Journal,* 2: 21-30.

Hopkins, W. E., Mallette, P. and Hopkins, S. A. (2013). Proposed factors influencing strategic inertia/strategic renewal in organizations. *Academy of Strategic Management Journal,* 12(2): 77-94.

Kosheleva, T. N., 2016. "State support of the innovation-driven growth of small business structures in the form of creating a new system of financial interrelations. In socioeconomic role of money in society." In *Proceedings of the XI International Research-to-Practice Conference. Saint Petersburg: Saint Petersburg State Economic University.* pp. 106-10.

Ksenofontova, T. Y. (2012). Formation of the russian model of managing the intellectual capital of enterprises. Intellectual property. *Industrial property,* 8: 13-20.

Rastova, Y. I. (2016). Benchmarking kak instrument effektivnogo upravleniya innovatsionnoy deyatelnostyu, Benchmarking as a tool of efficiently managing the innovation activity. *Management Sciences in Modern World,* 2(2): 32-36.

Vishnevskiy, O., Meissner, D. and Karasev, O. (2015). Strategic foresight: State-of-the-art and prospects for russian corporations. *Foresight,* 17(5): 460-74.