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СОИСКАТЕЛЕЙ И МОЛОДЫХ УЧЕНЫХ**

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В сборник вошли тезисы докладов и сообщений на английском и русском языках, сделанные на II Межвузовской заочной конференции аспирантов, соискателей и молодых ученых, состоявшейся 28–29 апреля 2020 г. Обсуждаются вопросы, связанные с научными исследованиями, проектно-конструкторскими и методическими работами, экспериментальными работами в области биомедицинских и машиностроительных технологий, радиоэлектроники и лазерной техники, специального машиностроения, робототехники и автоматики, информатики, систем управления, инженерного бизнеса и менеджмента, а также прикладной лингвистики.

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- [3] Fletcher J., Harrington J. High-rising terminals and fall-rise tunes in Australian English // *Phonetica*. 2001. Vol. 58. Pp. 215–229.
- [4] 29Cox F. Vowel transcription systems: An Australian perspective // *International Journal of Speech-Language Pathology*. 2008. Vol. 10. Pp. 327–333.
- [5] Harrington J., Cox F., Evans Z. An acoustic phonetic study of broad, general, and cultivated Australian English vowels // *Australian Journal of Linguistics*. 1997. Vol. 17. Pp. 155–184.
- [6] Horvath B. Variation in Australian English: The Sociolects of Sydney. Cambridge University Press, Cambridge, 1985.
- [7] Mitchell A., Delbridge A. The Speech of Australian Adolescents. Angus & Robertson, Sydney, 1965.
- [8] Tollfree L. Variation and change in Australian English consonants // Blair D., Collins P. (eds.). *Varieties of English around the World: English in Australia*. 45–67. Amsterdam: Benjamins, 2001.

Перспективы применения системы динамических возможностей в рамках российского военно-промышленного комплекса

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Современные российские производства ВПК сталкиваются с рядом различных проблем, в том числе с острой конкуренцией на внутреннем и внешнем рынках, утратой научно-технической базы, слабой координацией между участниками ВПК, снижением гособоронзаказа и расходов на НИОКР и др. Эти проблемные случаи ставят главной целью настоящей работы поиск надлежащих эффективных путей преодоления этих барьеров посредством системы динамических возможностей. Основной вопрос, который освещается в этом исследовании, заключается в том, как участники ВПК чувствуют, используют и меняют конфигурацию своих возможностей. Представленный подход базируется на эмпирических результатах, полученных на основе данных о текущем состоянии и перспективах ВПК. В исследовании предпринята попытка использовать преимущества современной теории управленческого познания в военно-промышленном секторе для сохранения конкурентных преимуществ. Следовательно, предприятия, проводящие соответствующую политику, создают благоприятную среду для функционирования военно-промышленного комплекса. Для достижения поставленных целей рассматривается положение военно-промышленной отрасли в целом, её ресурсное обеспечение, а также степень обновления её бизнес-процессов, определяющихся спецификой ВПК страны.

Ключевые слова: Динамические возможности, российский военно-промышленный комплекс, ВПК, конкурентные преимущества, стратегическое обновление, эффективность работы фирмы, конкурентоспособность, бизнес-процессы.

Perspectives on Dynamic Capabilities Framework in Terms of Russian Military-Industrial Complex

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Modern Russian MIC production facilities face a number of different problems, including acute competition on domestic and foreign markets, loss of scientific and technical base, poor coordination between MIC participants, reduction of state defense orders and R&D expenses, etc. These problematic cases are the main goal of this work to find appropriate effective ways to overcome these barriers within the framework of dynamic opportunities. The main issue addressed in this paper is how MIC members feel, use and rebuild their capabilities. The approach presented is based on empirical findings based on data on the current state and prospects of the MIC. The study attempts to take advantage of modern theory of managerial knowledge in the military-industrial sector to maintain competitive advantage. Consequently, the enterprises implementing the relevant policies create a favorable environment for the functioning of the military-industrial complex. In order to achieve such research goals, the work addresses the situation in the industry as a whole, the resource state and strategic renewal related to the format of the military organization.

Keywords: *Dynamic capabilities, Russian military-industrial complex, MIC, competitive advantages, strategic renewal, firm performance, competitive intensity, business process*

Introduction. In the 21st century, the environment in which organizations operate has changed dramatically. The modern environment can be described as dynamic, unpredictable and very competitive. The changes have affected not only the external but also the internal environment of companies. Changes include the emergence of new technologies as well as various changes in the political, social and economic spheres. Nowadays, an important challenge for companies is the ability to adapt to the rapidly changing environment. The speed of adaptation to the new environment is becoming key to a company's efficiency and competitiveness. Moreover, the enterprises of the Russian military-industrial complex are no exception. As the global strategy of the country's military industry changes, this issue becomes particularly important. As one of the ways to solve the problem of preserving competitive advantages in rapidly changing conditions, this article considers the framework of "dynamic opportunities", designed to ensure the stability of enterprises in an unstable economy, as well as rapid and effective adaptation of business processes of the enterprise to the external environment.

Methodology. The level of development of scientific and innovation activity determines the competitiveness of the country's economy and the degree of its national security. The national security strategy of the Russian Federation includes a number of initiatives concerning diversification strategies, with special attention paid to economic growth focused on the development of the national innovation system and investment in human capital, science, technology and education. The

military industrial complex (MIC) forms the basis of the country's innovative potential. This potential characterizes the scientific, technological and production potential of the State economy to create high-tech and competitive products for military, dual-use and civil purposes. In the highly competitive global arms market, sales of military products depend on the tactical and technical characteristics (TTH) of the arms and military equipment being sold. In turn, high TTCs are ensured by using innovative developments. Also, for planning innovation activity there are needs for the development of mathematical models of different levels and details, related to MIC's innovation activity concerns (Yegorov et al., 2014).

At present, the most competitive enterprises in the non-raw materials sector of the national economy are those of the defense industry. Efficient development of the domestic defense industry makes it possible to increase the efficiency and effectiveness of the entire Russian economy, reduce its dependence on raw materials exports, and stimulate the development of high-tech industries. The state of the defense-industrial complex is one of the most acute problems, including for large machine-building enterprises (Murukina et al., 2020). The overwhelming majority of new developments are only upgrades of post-soviet developed technology state. Statistics show a steady decline in the share of research and development work in government defense contracts. According to SIPRI database, most of the Russian top technological firms undergo significant decline in military expenditure metrics, resulting in vague financial stimulus transferred to civil sector production (SIPRI, 2019). It can also be seen in SIPRI's report about Arms-producing and Military Services Companies standing at 36.2 billion dollars sales in 2018, which accounted for 9.1 % of the total arms sales among all countries, respectively. Under existing conditions, the rise and development of the MIC and the increase in the competitiveness of its products are impossible without the implementation of innovative processes and the instrumental support of innovation management based on adequate management models (Dalekin and Guseva, 2019).

Based on the huge number of existing strategic approaches and the difficulties encountered in involving all of them in a full-scale construction, the proposed methodology was developed. The approach correlates with the needs of MIC development issues and has the potential to help in making management decisions within the framework of dynamic opportunities. The current conditions for the formation of proper defense potential and economic security of Russia require the defense industry enterprises to develop diversification processes that facilitate the transition of the economic system to the sixth technological stage. Qualitative fulfillment of the state defense order and at the same time competitive conditions of the external environment stipulate the necessity of advanced development, formation of hard-to-reach advantages, changes in the model of enterprise management.

In this situation, the sustainability of economic development of MIC enterprises is directly related to the formation of new competencies of business entities, both in production and creation of products, and in the management of business entities working on projects existing in the market. The conditions for the development of diversification on the basis of civil-military integration, production and

sale of dual-use products, both on a global and national scale, determine the need to introduce innovative solutions in the activities of MIC entities. At the same time, the efficiency and competitiveness of enterprises are largely determined by the development of market activities and the corresponding formation of necessary competences. In such spheres as marketing, the strategic character of economic activity of the enterprise is formed - its flexibility, mobility, adaptability, increase of capitalization, investment attractiveness.

Attempts to develop business in the markets of civil products are not accompanied by the coordinated development of market competencies of enterprises. In this article the factors limiting the development of diversification are highlighted (showed in Table). Thus, competitiveness of production and enterprise in conditions of diversification directly depends on timely application of correct methodologies and tools at formation of market network interactions, management of marketing intangible assets, improvement of strategic management of the enterprise, and also technologies and methods of operative and tactical management, conducting foresight, formation of mechanisms of advanced development. The received results testify to the necessity of formation of marketing mechanisms of diversification at the enterprises of MIC with the purpose of their use as drivers of business growth and development in the segment of civil and dual-purpose products.

Formation of mechanisms of a diversification is directly connected with dynamic changes in control system of the enterprises, in its functional systems, ways of interaction with an environment. In such situation the process of formation of mechanisms of functioning of internal environment of the enterprises directly has an important value. That is important not only to define, what to do for achievement of the purposes of a diversification, but also how to do — to establish forms, methods, principles, norms and regularities in the course of transition from a current condition in the future. In modern conditions the competition develops not at level of separate products, but at level of dynamic potential of the companies: control systems, systems of gathering, processing and updating of the information, systems of acceptance of administrative decisions.

In the current situation, the concept of dynamic abilities of the firm, which emerged in the second half of the twentieth century, acquires a special relevance, considering the problems of achieving and maintaining competitive advantage in a changing external environment. The concept analyzes the formation and preservation of competitive advantages of the firm, which are provided by the presence of dynamic capabilities, i.e. the ability to modify and redefine their competences to meet the dynamic environment.

From the standpoint of dynamic capabilities, complex resources management for MIC and regulation are of particular interest to global corporations whose market segment is open to worldwide competition. There are some features of these business segments. Teece (2016) describes four of these business segments' key characteristics. The first is that the business sector is open to foreign trade and rapid technological change is taking place. Second, companies need to be able to incorporate technologies and developments as technology evolves to retain the com-

petitive edge. Second, the market is global and well-developed for product and service trade. Fourthly, the industry itself is poorly developed in terms of technical and managerial know-how exchanges, which can be introduced in three levels of organizational capability:

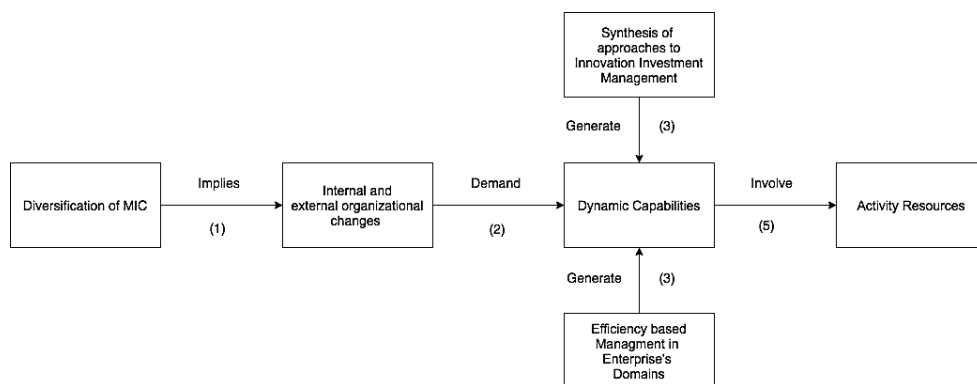
- the functional level, which includes the capabilities necessary for the survival of the company and for the maintenance of its key organizational capabilities and business processes;
- the second level, reflecting the idea of the need to dynamically improve organizational business processes;
- creative (entrepreneurial) level, including the ability of the firm to develop new strategies faster than competitors by recognizing the value of different resources.

Systematization of factors limiting the development of diversification of MIC enterprises

Diversification goals and objectives	Factors limiting the development of diversification of the MIC enterprises
Entering new markets for civil and dual-purpose products	Lack of information about the markets. Insufficiently developed market strategies. Lack of competence in market analysis and forecasting, market activity planning
Increasing the flexibility and adaptability of MIC enterprises	Long period of making and implementing management decisions. Inability to quickly form partnerships and use partner assets to enter new markets
Increasing the competitiveness of civil and dual-use products	Poor effectiveness of consumer monitoring. Lack of skills in forming pricing, product, and service policies. Lack of competence in working with consumers, meeting the needs in the segments of civil and dual-purpose products
Increasing the profitability of civil and dual-use products	Lack of competence in forming the commodity portfolio. Lack of competencies in creating and managing sales and service structures
Growth in sales volumes of civil and dual-use products	Lack of competences in the field of forming marketing policy (product, service, price, communication, sales) and work with customers and partners
Investment attractiveness	Lack of competence in business value formation and identification of development and investment directions. Lack of competencies in the field of business intangible (including market) asset management. Lack of competencies to work in the investment markets
Technology transfer, innovation development	Lack of information about the markets for civil and dual-use products, which allows to specify R&D directions. Low pace of work to adapt military technology to civil and dual-use markets

According to Wu et al. (2016) there are two groups of organizational abilities: operational and dynamic. Operating ability is a certain kind of routine activity required to implement and coordinate a variety of tasks. Dynamic abilities are used to create, integrate or reconfigure operational abilities. Thus, the place of dynamic abilities in the hierarchy of abilities of the organization can be described as financial (tangible) and skills and know-how (intangible), which is pointed in many academic researchers in the field (Døving & Gooderham, 2008).

By employing a large-scale sample of Russian's top Rostec's corporation manufacturing firms that have internationalized, we can focus on two specific capabilities, including opportunity-recognizing capability and opportunity-capitalizing capability, and their relationships with international diversification and innovation performance. While the theoretical links of interest in this study are not necessarily confined to the Russian context, Russian's unique institutional environment and the internationalization orientation of Russian manufacturing firms provide an appropriate platform to test our hypotheses. Literature review approaches and our article formation narrowed to the companies, represented in SIPRI rank, which belongs to Rostec. According to the previously approved strategy among Rostec's firms, by 2025 its main target is to become one of the world's top ten industrial corporations in terms of revenue, to achieve an increase in the share of civil products in revenue above 50 %, and to raise labor productivity to the level of the best quarter of the world's player. In addition, the Corporation's invariable goal is to unconditionally fulfill the state defense order (Rostec, 2019).



Developed research model (relationship between modes)

With existing mechanism, Figure 1 illustrates the relationships between the constructs and their respective assumptions. Dynamic capabilities influence the economic performance of a firm because they indirectly influence the final products and services through operational capabilities (they are closely related to the internal and external management of organizational change). Research model considers the organizational ability to change as the ability of the company as a whole

to see new opportunities for development, to understand the necessary internal changes, as well as to successfully implement them, indicating that the ability to change is the only dynamic ability, because any “functional” ability, not being combined with the ability to change, will be exposed to the risk of rapid obsolescence in a dynamic environment.

Analyzing the differences between the dynamic and traditional approaches, points to three fundamental difference, according to Pisano (2017):

- the creation of the substance of the strategy, based on the company’s future vision and ambitious goals;
- taking into account and managing the behavioral aspects of the company’s personnel in order to ensure compliance with the goals set;
- an ongoing change management process based on a balanced set of criteria.

He points out, however, that the company’s success in a competitive struggle depends on three basic groups of factors: internal competencies, of external competencies, dynamic abilities. Besides internal and external competencies the company should not only consider factors that provide a significant competitive advantage but put effort that cannot be easily achieved copied by competitors. As a rule, it’s factors that require considerable experience in a military industry.

Increasing the sustainability and competitiveness of the enterprise makes it necessary in practice to combine dynamic abilities and resources-based approach for MIC’s context. The dynamic potential of the enterprise is determined by the constantly developing system of resources and ways of their organization and serves to identify and systematize the necessary conditions for the creation and retention of competitive advantage firms in a hypercompetitive economic environment. Dynamic potential is the unity of dynamic abilities of the firm and resources that are necessary for the realization of these abilities.

Results. Application of the theory of dynamic capabilities to the understanding of efficiency of marketing activity of the enterprise allows to clarify the concept of efficiency through the prism of dynamic potential of activity resources. From the point of view of the concept of dynamic capabilities, the dynamic potential of the company’s main activities is a set of abilities to change, allowing to develop and implement new business strategies in order to create difficult to copy factors of competitiveness, providing the formation and increase in business value. Thus, the efficiency of the main activities of the company is determined by the state of its dynamic potential. The formation of mechanisms of such activities as marketing, MIC enterprises in the conditions of civil-military integration is associated with changes in goals, strategic objectives and principles of activity at the enterprise. There are goals aimed at increasing the strategic character of business, increasing the level of business adaptability, formation of market and public value of business and corresponding competitive advantages. Introduction of new approaches in enterprise management requires formation of new principles of interaction between enterprise subdivisions, top managers, shareholders, investors (stakeholders), consumers, partners.

Also, a significant role in formation of dynamic potential of diversification is played by development of market competences of the personnel. The process of change in personnel values is aimed at understanding by the staff of the priority role of the consumer while ensuring functioning and development of the enterprise. Such situation requires clarification of the components of the company's dynamic potential - resources and ability to change. A key aspect of using the concept of dynamic opportunities in any enterprise is the need to constantly improve them. Thus, the use of the concept of dynamic potential makes it possible to increase the efficiency of diversification through the formation and continuous improvement of market competencies of the enterprises of the MIC.

Conclusions. The firm's diversification process involves changes in several areas of organization management, such as administration, personnel organization, systems reviews, R&D, facilities and security organization, as well as the definition and planning of the role of military production in civilian areas. By studying these principles, we can provide new opportunities to try out dynamic capability models for organizations and manufacturing enterprises engaged in the development, production, storage and deployment of military and special equipment, ammunition, etc., mainly for government power structures, as well as for export purposes by implementing modest stages of dynamic capability structure and increasing the resources of the activity (including government and government, industry and academia).

REFERENCES

- [1] Bogodistov Y., Botts M. Dynamic capabilities in extremely dynamic environments: Where “competitive advantage” equals “lives”, 2016.
- [2] Dalekin P., Guseva I. Problems of diversification of the Russian Federation military-industrial complex and ways of solving them. Presented at the 2nd International Scientific conference on New Industrialization: Global, national, regional dimension (SICNI 2018), Atlantis Press, 2019. DOI: 10.2991/sicni-18.2019.66
- [3] Døving E., Gooderham P.N. Dynamic capabilities as antecedents of the scope of related diversification: the case of small firm accountancy practices // *Strategic Management Journal*. 2008. Vol. 29. Pp. 841–857. DOI: 10.1002/smj.683
- [4] Moccia S., Zhao S., Flanagan P. Innovation, dynamic capabilities, leadership, and action plan // *Journal of Enterprising Communities: People and Places in the Global Economy*. 2019. Vol. 14. Pp. 113–127. DOI: 10.1108/JEC-10-2019-0108
- [5] Murukina A.D., Tipner L.M., Kalinina N.E. Factors of successful diversification for machine-building enterprises // *IOP Conf. Ser.: Mater. Sci. Eng.* 2020. Vol. 709. P. 033048. DOI: 10.1088/1757-899X/709/3/033048
- [6] Pisano G.P. Toward a prescriptive theory of dynamic capabilities: connecting strategic choice, learning, and competition // *Ind Corp Change*. 2017.. Vol. 26. Pp. 747–762. DOI: 10.1093/icc/dtx026
- [7] Rostec, 2019. Rostec Updates Its Development Strategy Until 2025. Available at: <https://rostec.ru/en/news/rostec-updates-its-development-strategy-until-2025/> (accessed April, 19, 2020).
- [8] SIPRI, 2019. SIPRI Military Expenditure Database | SIPRI. URL <https://www.sipri.org/databases/milex> (accessed April, 18, 2020).
- [9] Teece D., Peteraf M., Leih S. Dynamic Capabilities and Organizational Agility: Risk, Uncertainty, and Strategy in the Innovation Economy // *California Management Review*. 2016. Vol. 58. Pp. 13–35. DOI: 10.1525/cmr.2016.58.4.13

- [10] Wu H., Chen J., Jiao H. Dynamic capabilities as a mediator linking international diversification and innovation performance of firms in an emerging economy // Journal of Business Research. 2016. Vol. 69. Pp. 2678–2686. DOI: 10.1016/j.jbusres.2015.11.003
- [11] Yegorov I., Yegorov Y. Задача синтеза оптимального управления инвестициями в инновации оборонно-промышленного комплекса. Информатика, вычислительная техника и управление: Сб. науч. тр. Вып. 5 / под ред. А.В. Князева, Д.А. Ловцова. М.: ИТМиВТ РАН, 2014. С. 8–18.

Повышение эффективности движения колесно-гусеничного автомобиля

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Описаны основные достоинства и области применения колесных и гусеничных наземных транспортных машин. Известно, что существуют задачи, требующие в рамках одного маршрута передвижение с максимальными скоростями по дорогам с твердым покрытием и способность преодолевать серьезное бездорожье. Показано, что единственным наземным транспортным средством, удовлетворяющим указанным условиям является автомобиль с комбинированным колесно-гусеничным движителем. Также известно, что при совместной работе движителей с различной тангенциальной эластичностью движитель с меньшей эластичностью нагружается сильнее. Утверждается, что с ростом удельной мощности транспортных машин растут и средние скорости их передвижения. Сделаны выводы, что для повышения безопасности и энергоэффективности движения при высокоскоростном маневрировании, а также для согласования работы движителей, необходимо применение системы распределения потоков мощности силовой установки.

Ключевые слова: колесно-гусеничный движитель, гусеничный движитель, комбинированный движитель, кинематическое рассогласование, распределение крутящего момента, высокоскоростное маневрирование.

Enhancement Motion Efficiency of a Wheeled-Tracked Vehicle

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The main advantages and applications of wheeled and tracked ground transportation vehicles are described. It is known that there are tasks that require movement with maximum speeds on good roads and the ability to overcome serious off-road conditions within the same route. It is shown that the only land vehicle that satisfies the specified conditions is a car equipped with a combined wheel-caterpillar drive. It is known that when the movers with different tangential elasticity work together, the mover with less elasticity is overload-

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