DIGITAL COLLABORATION PROJECTS IN DIGITAL ENTREPRENEURSHIP DEVELOPMENT

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ABSTRACT

Aim of the study: *In order to implement the strategy for the development of the information society for 2017-2030, approved by presidential decree No. 203 of 9 may 2017, and the program "Digital economy of the Russian Federation", adopted by the order of the Government of the Russian Federation of 28 July 2017 No. 1632-R, domestic industrial enterprises, most of which are concentrated in the military-industrial complex of Russia (hereinafter MIC), face the task of developing methods and mechanisms of their functioning in the context of the introduction of digital technologies in the production and management processes.*

Methodology: *The need to improve the functioning of industrial enterprises in General and defense enterprises in particular in the introduction of digital technologies is confirmed by the fact that the leading industrial enterprises of foreign countries are already actively using digital technologies in production and have achieved a significant economic effect in this case.*

Conclusion: *According to experts, projects in the field of digitalization of production now cost from 10 to 100 times cheaper than 5-10 years ago. There is an exponential drop in the cost of means of production with a digital component. By 2025, Russia's GDP may increase due to further digitalization of the economy by 4.1-8.9 trillion rubles. Now the share of the digital economy in Russia's GDP is 3.9%, which is 2-3 times lower than the leaders in this area.*

Keywords: Entrepreneurship, Innovation System, Risk Management, Stock, Component, Formation.

INTRODUCTION

The digital economy is currently growing rapidly and will be the most important engine of innovation, competitiveness and economic growth in the world in the next few years. This is due to the fact that it makes public and commercial services available, reduces the cost of promoting goods and products, reduces the time of payments and opens up new sources of income. The digital economy is rapidly developing in a global world. Russia also does not remain aloof from this process. The share of the digital economy in the GDP of developed countries is slightly more than 5%: in China its volume is 6.9%, in the US and India-5.4%. The volume of the economy of the Russian segment of the information and telecommunication network "*Internet*" in 2016 exceeded 1.5 trillion rubles (3% of GDP), the share of Internet-dependent sectors of the economy exceeded 19%.

The digital economy realizes the possibilities of increasing labor productivity, competitiveness of companies, reducing production costs on the basis of computerization of workplaces and production equipment, the use of digital modeling technologies and the design of three-dimensional (3D) visualization of both products and production processes throughout the life cycle (Kohno, 2016).

It is important, in my opinion, for the organization of digitalization processes in enterprises is even more concretization of these documents. In this regard, the Ministry of industry and trade of Russia during 2017 is developing and testing Guidelines for the organization of digital production at the enterprises of the military-industrial complex (Ageev, 2018). Recommendations allow assessing the level of enterprises in terms of coverage of digitalization, to monitor the processes of

priority for digitalization, to form proposals for the composition of measures for the introduction of elements of digital production (Korovin, 2018).

Digitalization issues are the number one priority for the innovative development of the industry. They find a place in the refinement of strategies for the development of industries, are constantly considered and discussed at various forums, conferences, exhibitions, round tables, meetings held at specific enterprises. They provide the flow of processes that are based on digital technology. There are more and more digital products that provide computing, telecommunications and networking devices that operate on a digital basis. While the digital economy is seen as a certain set of social relations that develop as a result of using electronic technology as well as technologies to support the analysis of large amounts of data for process optimization of forecasting and planning, production and consumption of high-tech products and raise the level of economic development of the country (Akhromeeva, 2017).

METHODOLOGY

The theoretical and methodological basis of the study was the scientific work of Russian and foreign scientists related to the methods and organizational and economic mechanisms of high-tech enterprises in the implementation of digital technologies, and their impact on the economic performance of enterprises (Kozyrev, 2011).

The article uses a set of scientific approaches and methods, such as a systematic and integrated approach, methods of financial and economic analysis, logical and comparative analysis, expert assessments, statistical and factor analysis.

The information base of the study is:

1. Legislative acts of the Russian Federation, including regulatory legal acts of the Government of the Russian Federation and the Ministry of industry and trade of Russia related to the functioning of industrial enterprises in the implementation of digital technologies;
2. Results of scientific reports FSUE "research Institute "Center", materials of scientific conferences on the subject of the thesis;
3. Russian and foreign publications on the development of digital economy and Industry 4.0 programs.

Scientific novelty of the research lies in the development of organizational-economic mechanism of functioning of enterprises of the military-industrial complex of Russia with the introduction of digital technologies enhancing productivity, quality of processes and products, thereby increasing the efficiency of the high-tech industrial enterprises of Russian defense industry.

RESULTS AND DISCUSSION

There are many methods to evaluate the implementation of information systems projects in the enterprise: from the usual methods of evaluation of the feasibility study of the project to specific techniques (Bauer, 2017). This uses cost-based methods; assessment of one-time costs for the purchase and implementation of it systems, as well as the assessment of the total cost of ownership of information systems (Total Cost of Ownership, TCO). Standard economic methods of assessing the effect are return on Investment (ROI), NPV-net present value of the project, calculation of return on assets and shareholder's capital.

However, there is no single methodology recognized by the majority of users to assess the effectiveness of production digitalization. All of them have certain drawbacks.

In order to propose a methodology for economic evaluation of the digitalization of high-tech enterprises of the defense industry, it is necessary to formulate requirements for it (Kiselev, 2017). The methodology should be comprehensive and allow to evaluate not only the traditionally allocated production resources of the enterprise (raw materials, energy, labor), but also to assess the impact of the new organization of work on the main performance indicators of the enterprise. These performance indicators include the following:

- Reduction of terms of creation of new products.
- Improving product quality.
- Reduction of costs associated with the elimination of identified errors at different stages of the LC.
- Reduction of production costs.
- Increased productivity.
- Improving the quality of after-sales service products.
- Ensuring control of the creation of products at all stages of the LC.
- Expansion of markets for products.

Ultimately, these indicators determine the competitiveness and overall capitalization of the enterprise. This technique should not be difficult, because it is required for medium-sized enterprises with the aim to justify to shareholders the feasibility of the implementation costs of digital technologies (Bachilo, 2018).

The complex nature of the methodology should be manifested in the combined use of qualitative and quantitative indicators. Calculating the effect of the implementation of the it system, we must determine not only the effectiveness of the implementation of the system itself, but also new organizational approaches in the enterprise.

The author's studies have shown that the economic aspects of the introduction of digital technologies of defense enterprises are more associated with a sharp increase in the added value of products. In this case value added or net production acts as a source of economic growth, as well as the result of an increase in production efficiency (Kashin, 2007).

To assess the contribution of digital technologies to the growth of intellectual capital of the enterprise, it is proposed to use the coefficient of added value of the enterprise, which was proposed by A. Pulik in 2000.

Added is the value of the goods or services, which increases the value of the goods in the process of processing until the sale to the consumer. It includes the wage Fund, rent, depreciation, rent, interest on the loan, as well as profits. The coefficient of added value of the enterprise is an indicator of the quality of management decisions. A constant positive value of this indicator indicates an increase in the value of the company, and a negative value indicates a decrease. This is the most famous and common indicator.

Economic value added shows the excess of net operating profit after taxes and the cost of using capital. EVA calculation formula is presented below:

- EconomicValueAdded=NOPAT-WACC×CE
- EconomicValueAdded=(EBIT-Taxes)-WACC×CE
- EconomicValueAdded=(ROIC-WACC)×CE

NOPAT (Net Operating Profit Adjusted Taxes)–profit derived from operating activities, and after taxes and before interest payments.

WACC (Weight Average Cost of Capital)–weighted average cost of capital. It actually represents the cost of equity and debt. In other words, this is the rate of return that the shareholder wants to receive on the money invested by him.

CE (eng. Capital Employed, Invested Capital, Capital Sum)–investment capital. Is the sum of total assets at the beginning of the year less interest-free current liabilities (accounts payable to suppliers, budget, advances received, other accounts payable).

To calculate the weighted average cost of capital (WACC), use the following formula:

$$WACC=R_e\ E/V+R_d\ (1-t)\ D/V;$$

where Re, Rd-expected / required return on equity and borrowed respectively;

E/ V, D / V – the share of equity and debt capital in the capital of the enterprise; t –the interest rate of income tax.

Economic value added-the excess of the profitability of the enterprise over the weighted average cost of capital (Bestuzhev, 2017). The higher the value of economic value added, the higher

the efficiency of capital use of the enterprise. Large values of EVA indicate a high rate of additional return on capital.

EVA comparison of several companies allows you to choose a more attractive investment.

To calculate the WACC, you can compare ROE (return on capital, profitability) for similar enterprises in the industry. In this example, the profitability of capital management of the enterprise both own and borrowed in the amount of 10% per annum was taken.

On the basis of the above formula can be identified levers and factors of economic value added management (NOPLAT,

WACC and CE), the main of which is to increase the profitability/profitability of the enterprise by increasing sales. This can be achieved by reducing production costs through the use of new it technologies. Other factors, such as the cost of materials, raw materials, debt capital, highly qualified personnel, and so on, will not be considered in this model (Grammatchikov, 2017).

Any company is interested in increasing the added value, because this figure will subsequently affect the final profit of the enterprise. In order to increase the added value, it is necessary to reduce the costs of the enterprise.

Based on the EVA indicator, the enterprise management model VBM (Value Based management) is built, where all enterprise indicators affect changes in added value.

Value added of tangible (computers) and intangible (qualified personnel) assets for high-tech enterprises the author proposes to use the value added coefficient VAC (Value Added Coefficient, determined by the formula:

$$VAC = CEE + HCE + SCE$$

Where CEE (capital employed efficiency)-the value added of physical capital, determined by dividing the value added by the invested capital shows how much added value creates one unit of physical capital.

NSE (human capital efficiency)-the added value of human capital, determined by the division of added value by labor costs, the ability of labor to create added value.

SCE (structural capital efficiency)-the value added of structural capital, determined by dividing the difference between value added and human capital (structural capital) by value added. There is an inverse relationship between human and structural capital (Dobrynin, 2016).

Consider an example of calculating the value added coefficient VAC for JSC "*NPK "Uralvagonzavod*". This Corporation uses innovative approaches in production management, improving the efficiency of interaction through the introduction of digital technologies with the priority of end-to-end management of production processes of participants at all levels at all stages of the product life cycle. Works on the organization of end-to-end information interaction of participants in the process of creation, production and further maintenance of products within a single information space are carried out. The priorities of the Corporation are the implementation of management systems for production programs and inter-plant cooperation, planning and operational management of production to the level of the technological workplace, as well as the management of R & d projects and production preparation.

CONCLUSION

In a number of shops of Corporation replaced Electro mechanical devices with microprocessor regulators. These devices are more accurate, reliable and easier to maintain. The further development of the digital technology system will be the replacement of all analog devices with digital ones and their integration into a single network. Due to this, the production process will be much more stable. Digital devices are easier to maintain: if earlier one person set up 5-10 devices per shift, now he will be able to serve all the devices at once in the allotted area. At the digital technologies section of the chief Metallurgist Department of Uralvagonzavod, the first industrial-scale 3D printer at the enterprise is ready for commissioning: construction and installation works are in the stage of completion. The transfer of information from physical media to "digital", the use

of mathematical models and virtual modeling allow enterprises to increase the quality of production and reduce costs.

Much attention is paid to the standardization and unification of methodologies and technologies, as well as used in the implementation of digital business processes of enterprises that are part of the Corporation. For the purpose of effective interaction of divisions in Corporation creation of the competence Center on digitalization of production is planned. These measures certainly contribute to the technical re-equipment and development of new digital technologies in mechanical engineering. Due to the introduction of digital technologies increases productivity and quality of equipment, reduced production costs and production costs.

The paper proposes a model of information support for the production of high-tech products defense industry. This model, in contrast to the known ones, reflected the composition and interrelation of the components of the enterprise's business processes, the stages of the life cycle of high-tech, science-intensive products and digital information technologies. It allowed to identify the main areas of work on the self-assessment of the existing level of digitalization of the enterprise, on the basis of which measures were developed for the introduction of digital production technologies.

The author developed a method of determining the priority directions of introduction of digital technologies based on assessment of the depth of introduction of digital technology on the enterprise adapted to the industrial defense enterprises new set of key indicators building an effective information systems of industrial enterprises. This technique has made it possible to increase the efficiency of digitalization of the enterprise and to increase the efficiency of its activities.

The author has developed a methodology for assessing the economic efficiency of the introduction of digital technologies in the enterprise based on the growth of the intellectual capital of the enterprise in the introduction of digital technologies by calculating the value added coefficient. This ratio is defined as the sum of the results of dividing the added value on invested capital, characterizing the growth of value added per unit of physical capital, dividing the value added per labor costs that characterize the contribution to the incremental cost of qualified personnel, as well as the result of dividing the difference between the value added and cost of labour value added, describing the value added of structural capital. Given the author a significant impact of digital technology on the value added of the enterprise, the proposed method allows to increase the accuracy of estimation of economic efficiency of the introduction of digital technology.

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