Global Digital Transformation Trends in Real Sectors of the Economy

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Abstract. Digital technologies cover an increasing number of areas of life, and therefore the digital revolution has a great impact on the economy both globally and nationally. An increasing number of digital companies are emerging in sectors of the economy using their own new business models and business processes, which distinguishes them from other market players and provides new competitive advantages. In this context, the survival of long-established companies in the market depends on factors such as the willingness to adapt to new models of customer relationships, change the production and value chain, and redefine their relationships with all stakeholders, introducing new technologies into these processes and creating its own innovative products and tools for business optimization. Innovation and new business models driven by the digital transformation of the economy can directly drive long-term growth and help address resource constraints.

1 Introduction

Digital transformation is a change in any area aimed at increasing the efficiency and effectiveness of processes through the use of modern technologies or by creating their own technologies. As part of the company's work, digital transformation is a change in internal and external processes, assets, products, etc. using digital technologies in order to increase efficiency and increase the value of a product or service for the consumer.[1] In order to keep up with global processes and changes in the market, companies need to adapt and implement changes in their business models or change the model in a fundamental way, which is the digitalization of business models as part of digital business transformation.[2] The digitalization process covers all sectors of the economy and all industries. At this stage, such areas as banking services (fintech), retail (active development of online retail platforms, such as Ozon and Yandex.Market in Russia), telecommunications, and media have reached the greatest digital maturity. The sectors that lag behind the most are the oil and gas, chemicals, and energy industries, due to their large scale, sluggishness, and the long time it takes to test new technologies before they are brought to market. Consumers are also changing. As part of the digitalization of society, for example, the importance of product presentation, that is, visual effects and techniques created using new technologies, is increasing. This affects the structure of advertising budgets: successful companies are increasingly using digital channels to display video, the importance of television and other

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traditional channels is noticeably decreasing.[3] The transition to a digital economy is happening everywhere, which directly affects the digitalization of business. The initiators and catalysts for the digitalization of the business model of the business are the company's stakeholders, but they only start this process and give an understanding to the company's management that changes are needed for more effective interaction. One of the important stakeholders in this case is the state, since it has not only economic goals (increase in income, added value in the state, improvement of innovative potential, etc.), but also social goals (development of an innovative culture, improvement of the quality and level of life of the population, raising the level of education, creating technological infrastructure, etc.).[4] Customers, partners and competitors also have a significant impact on business digitalization.

Any transformation of the business model, as a rule, is associated with a strategic renewal of the business as a whole. The new strategy of the company in this case should be aimed, like the business model itself, at creating and providing customers with a new value proposition or a significant increase in the value of an existing product, which in turn levels the risks and threats of destructive competition from new participants in a particular market and related markets. markets.[8] Now both in the Russian and in the world market there are digital business models that have already proved their effectiveness: platform business models, subscription and multi-subscription systems, business ecosystems, online business models, cloud business models. The platform business model is characterized by the fact that the company creates a platform for mediation between suppliers and consumers, while earning on these transactions. The platform business model and multi-subscription system can be seen in the example of Netflix, which has created its own streaming platform and operates on a subscription basis that provides access to all hosted content with an automatic recommendation system. This platform is based on cloud technologies, big data analysis and machine learning algorithms.[9] Also, Russian companies OZON, Wildberries, Yandex.Market can become examples of a platform business model. According to McKinsey, by 2025, about 30% of the global market will be occupied by business platforms and ecosystems.[10]

2 Research Methodology

First of all, we studied how the topic of digitalization is covered by foreign authors, what our partners-competitors in foreign companies and countries are doing in this direction. At the next step, the subject of analysis was the publications of various analytical centers that demonstrate trends in the development of digital technologies in Russia. The available Russian statistics related to the use of information technology was analyzed. Various aspects of regulatory policy related to the development of the digital economy were studied. Finally, a survey of Russian companies and a series of interviews with business representatives and experts were conducted, the results of which became the basis for analyzing the penetration of digital technology into the business of Russian companies. The general conclusion that can be drawn from the study is that Russian business as a whole has already joined the "digital race". Specialists and company executives understand that without the use of digital technologies, they will no longer be able to successfully compete either in the domestic or foreign markets. They highly appreciate the effectiveness of the solutions they have already implemented. At the same time, companies have a very pragmatic approach to these technologies, focusing on the things without which it is no longer possible to conduct business, slowly investing in fundamentally new areas. We have identified both bottlenecks and problems in the implementation and use of digital technologies. First of all, it is the lack of investment resources for the implementation of projects and further maintenance of IT systems. No less acute was the problem with the staffing of the "digital revolution": there are not enough IT specialists themselves, as well

as users who are able to correctly and effectively use innovative technologies. The process is also slowed down by the fact that "advanced solutions" do not always resonate with suppliers and consumers who continue to work the old fashioned way. In some places, insufficiently developed infrastructure (low bandwidth of communication channels, lack of access to mobile Internet, lack of data centers, etc.) acts as a constraint. Finally, a significant number of companies believe that receiving some state support could seriously encourage them to use digital technologies more widely.

3 Results and Discussions

The digital transformation of the fuel and energy complex (FEC) is one of the key tools for improving the efficiency of the industry and increasing the productivity of energy companies in a rapidly changing market, growing competition and tightening environmental requirements. Digital technologies provide end-to-end integration of production processes, automation of routine and dangerous operations, and more flexible management. Digital transformation today affects all segments of the fuel and energy complex, changing its architecture. Technologies of virtual prospecting and exploration, remote sensing of the earth and geographic information systems based on 3D modeling are actively used for exploration of various types of fossil energy resources. The digitization of business processes can significantly reduce labor costs and reduce time costs, increase customer focus (mining as a service, Miningas-a-Service, MaaS business model). Increasing the efficiency of resource extraction is one of the key challenges in the oil and gas sector. According to experts, the upstream segment accounts for approximately 42% of all digital solutions used in the oil industry [Future Market Insights, 2022]. The use of digital platforms in the field of sales management and the value added chain is expanding - the "digital downstream". The implementation of "digital field" projects involves the introduction of a whole range of solutions, including digital twins of energy facilities. Such technologies include asset lifecycle management, 3D modeling and visualization, remote control, and IoT platform solutions [Oilfield Technology, 2021]. The introduction of complex digital systems is actively carried out in the coal industry. As part of solutions for the creation of digital mines and digital mines, robotic special equipment, sensors, measuring instruments and mobile applications for geolocation and security management are combined into a single industrial Internet network, unmanned aerial vehicles and digital modeling solutions are used [Hexagon, 2022]. Smart grids and microgrids (smart grid, microgrid), energy supply systems based on renewable energy sources (renewable grid) have become widespread in the electric power industry. Such local distribution networks can operate offline, combining generation, transmission and storage of electricity and redistributing its flows depending on current demand [IEEE Smart Grid, 2022]. The digitalization of the fuel and energy complex stimulates the development of trends towards the creation of decentralized energy systems, the integration of "green" energy and the expansion of the range of cross-industry technologies (such as Vehicle-to-Grid). At the same time, more and more attention is paid to energy consumers: energy companies, as part of the Energy-as-a-Service (EaaS) business model, offer customized solutions and full-cycle services that improve energy efficiency and ensure high traceability of energy resources. [NRU HSE, 2021b]. In our country, the fuel and energy complex is one of the key sectors of the economy. Today, the industry forms more than 17% of GDP [Rosstat, 2021]. In this regard, the optimization and transformation of production and business processes in the fuel and energy complex is a significant factor in socio-economic development.

Fuel and energy companies make a relatively small contribution to the total cost of Russian organizations for the implementation and use of digital technologies - 3.9%, or 114.2 billion rubles. in 2020 Mining of coal, oil, gas. The share of costs of energy

producing enterprises in the total cost of Russian organizations for the implementation and use of digital technologies in 2020 amounted to 1.6%. At the same time, despite the decrease in the average price for Russian energy resources in 2020 compared to 2019, in absolute terms, the expenses of the mining segment on digital solutions increased from 41.6 to 46 billion rubles. The costs of digital technologies in the energy production segment relative to GVA remain at a low level compared to this indicator for the economy as a whole - 0.6% versus 2.7%, respectively. A significant part of the costs of energy companies for digital technologies is accounted for by software (41%), which exceeds the level of such costs in other industries. The share of purchased domestic software in production is higher than the average for the economy - 35.1% against 31.8%, respectively. At the same time, in the energy production segment, one can state a high degree of dependence on foreign software. Domestic is used mainly for non-specific solutions, such as corporate management systems and electronic document management systems (for example, Galaxy ERP systems). The absence of domestic analogues and the difficulty of adapting and refining domestic software are typical for dispatching systems and modeling the processes of pumping oil, oil products and gas through main pipelines [Oil and Capital, 2021]. Providing energy. The share of costs of energy supply organizations in the total costs of Russian organizations for the implementation and use of digital technologies in 2020 is estimated at 68.2 billion rubles, or 2.3% of the total. Despite the crisis associated with the coronavirus pandemic, in 2020 they approached the average values for the economy in relation to GVA and amounted to 2.6% against 2% in 2019, respectively. Machinery and equipment (41%) and software (31%) account for the bulk of spending on digital technologies in the energy supply segment, while these shares are in line with or slightly higher than those in the economy as a whole.

4 Conclusions

After analyzing these forecasts, we can say that the main prospects in the field of business model transformation as part of business digitalization are increased attention to data cybersecurity, business models and processes based on artificial intelligence technologies, the Internet of things and new software. The prospects and trends for the development of new business models indicate that companies that keep pace with technological development, invest in their digital growth and create their own technologies will be able to build new sustainable competitive advantages and outperform existing competitors. Digital giants that form their own business ecosystems are already influencing industries around the world, setting the technological pace and vector of economic progress and forcing lagging competitors out of the market. Ignoring the introduction of new technologies and changes in business processes by a business can lead to the fact that in the future the company will lose the interest of its consumers in their products or services, as there will be a company on the market that is more responsive to their changing needs and global technological trends. Timely response to trends in the digitalization of business models, analysis and application of emerging progressive technologies that, according to researchers, will be relevant in the market as part of optimizing business processes and improving the value chain, can help businesses remain competitive and have sustainable advantages in the long term.

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