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**DIGITAL TRANSFORMATION OF RUSSIAN ECONOMY IN
CONTEMPORARY CONDITIONS**



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Abstract

The digital transformation of the Russian economy requires a uniform algorithm for the development and functioning of all economic sectors. The emergence of large-scale digital technologies, platforms, and opportunities to conduct economic activities conditioned the introduction of innovative resources and transformed today's business in Russia. Apart from using new tools and opportunities for innovation and business, digital process systems have larger impacts on the establishment and operation of today's market in Russia. The technological and digital transformation of the current economic system predetermined the general development aspects of all economic sectors in Russia. The development of digital technologies introduces changes and new principles in the economic growth mechanisms of today's Russia. The new set of economic growth goals is formed in the new context. This is primarily due to the satisfaction of needs via the goods based on information resources. We review the problems of using and introducing digital technologies that play an increasing role in the development of Russia's market economy. We describe the structure and technological basis of the market economy using digital technologies and information resource opportunities for production. We determine the framework for the digital transformation of the Russian economy, and the problems exposed by the authors are reviewed from the point of view of technological basis at each of their development stages. We conclude that the government must participate in economy digitalization and the establishment of regional information support systems.

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Keywords: Digital technology, the transformation of the Russian economy, digital economy, technological foundation of the economy, digital resources



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1. Introduction

Nowadays, digital and information technologies have an increasing influence on the prioritized development trajectory of the market economy. It features the increase in brand-new information and the minimized use of conventional factors in production, distribution, exchange, and consumption of products and services produced by the market economy. The advances in digital technology reveal innovations that provide an opportunity to transform information resource practices (Michelman & Narayen, 2019).

We believe that the incremental development and introduction of digital technologies result in dramatic changes and new principles in the Russian economic growth mechanism. The new set of economic growth goals is formed in the new context. We believe this is primarily due to the satisfaction of needs via the goods based on information resources. In the context of the new economic growth paradigm, the production of new information is prioritized. The information-based economic growth model creates GDP mostly through new information; it relies on the fifth and the emerging sixth technological paradigms. This model preserves some of the conventional imperatives and principles of the market economy while adjusting the others. Thus, it is a logical reflection of the new information structures of the market economy and its dominant parameters.

2. Problem Statement

We believe that it is important to develop and implement a new social and economic government policy that would ensure the direct participation of Russia in the technological transformation of the economic system and the construction of regional information support structures.

The problems of prospective government regulation of the transformation processes in the Russian digital economy present another important research problem. It is necessary to understand the digital transformation of Russia's economy in detail, as well as the problem of prospective government strategy in supporting information activities in the context of today's Russian market.

3. Research Questions

The research works analyzed demonstrate correlations between innovative and business activities in Russia (Galindo-Martin et al., 2019). In this respect, innovations come with digital transformations that help create value. It is important to take into account the impact of digital dividend on society as a whole and the business activities in the context of the digital transformation of today's economy.

Some researchers like Schweitzer et al. (2019) studied digital transformation in new product design and development and the role of information systems in increasing labor productivity in their work (Galindo-Martin et al., 2019). Yet, some of the important problems associated with government policies in the context of digital economy transformation were left unrevealed. The understanding of the key problems and challenges of economy digitalization and dislocation is covered in works by De Pablos and Gayo (2019). However, we believe that these problems are not addressed comprehensively and require further academic review and solution. The works of several researchers deal with digital transformation technologies as an instrument of ensuring the sustainability of logistic processes in the context of today's

Russian market (Junge, 2019; Liu et al., 2019; Nambisan et al., 2019). The contribution of some Russian researchers like Barabanov V., Sudov E. (as cited in Davydov et al., 2002) to the study of the digital transformation of the Russian market economy is deemed significant as they reviewed the main development areas of CALS technologies.

The subject-matter of our research is information opportunities in the context of digitalization of today's Russian society, as well as the study of academic research works and approaches that require direct government regulation of the digital activities of economic entities.

4. Purpose of the Study

The goal of this research is to analyze the technological development and digital transformation of the Russian economy. This topic is relevant and requires further research, both theoretical and practical.

5. Research Methods

The theoretical and methodological basis of this research comprises conceptual provisions of fundamental and applied studies by Russian and foreign researchers that deal with the digital transformation of today's Russian economy. This problem is primarily covered by experts working at the intersection of economics and law. These may include Zaki, M., Blumensaat, F., Leitao, J.P., Ort, C., Rieckermann, J., Scheidegger, A., Vanrolleghem, P.A., Villez, K. (as cited in Zaki, 2019). Besides, the problems in question were covered by some Russian researchers and public figures, such as Barabanov V., Sudov E., Oleynik A. N., Gasanov E. A., Krasota T. G., Sukharev O. S. (Davydov et al., 2002; Krasota et al., 2020; Oleynik, 2000; Sukharev, 2013), as well as many others.

We believe that the analysis and synthesis of the existing research concepts and approaches, as well as the problems of the digital transformation of today's Russian economy, have not been addressed comprehensively and require further research at the national and international levels.

6. Findings

6.1. Research Results

The use of information technologies in the market economy resulted in great adjustments and new patterns in Russia's economic activities. This also resulted in the formation of a new system of production resourcing. This is primarily due to the satisfaction of needs via the goods based on information resources. The technological principle of the digital economy stipulates that it is based on both the fifth and the sixth technological paradigm.

Currently, there is a new interaction principle for the information factors of production. It is based on a system of positive feedback through digital technologies that diminish the significance of space and time. The efficient use of information as a strategic production driver determines the development of the crucial economic sectors, science, education, and labor force quality improvement. Arrow (1995) highlights that "knowledge is not just a useful and necessary good but also a commodity to be bought and sold" (p. 94). According to B. Daniel, the modern economy perceives "knowledge as the primary source of value,

rather than labor” (as cited in Blumensaat et al., 2019, p. 8488). Foster (1987) provides numerous examples of rapid technological paradigm changes in various sectors and countries.

The representation of technological paradigm life cycles as S-shapes proposed by Menshchikov (2014) allows us to visualize innovative changes.

Currently, the sixth technological paradigm is emerging. The development and implementation of research-and-engineering projects based on new information require integration of all necessary knowledge (mathematics, physics, biology, chemistry, computer science, etc) at the theoretical and practical levels (Han, 2019).

The development of technology, as well as all contemporary science, is impossible without high-performance computing and the exchange of big data resources. Within the framework of the fifth technological paradigm, fundamental science, R&D, production, and consumption of products are functionally separated. The sixth technological paradigm based on CALS-technologies combines all these stages.

These principles and technologies are implemented in accordance with international standards regulating management and interactions primarily through electronic information exchange (Brock et al., 2019). Thus, the sixth technological paradigm is closely related to the digitalization program and the improved integration of adjoint information processes.

The fifth and sixth technological paradigms are based on unique IT clusters. These are specific places that concentrate brand-new adjoint productions and sectors, as well as specialized institutions for the establishment and development of digital technology and production tools in the economy. The resulting product is an integrated base for many interrelated productions and structural sectors that form clusters. According to Young and Rogers (2019)

the only rational competitive ability concept at the national level is the production output” It must be noted that “the competitive ability of a specific science depends on the ability of the respective industry to implement innovations and upgrade in the current context”. Another point is that “in the context of competition, the efficiency of products and services is based on national and regional environments. (p. 684)

We believe that digital transformation must take the form of a fundamental platform and the technological reorganization catalyst for today's Russian economy. Besides, Russia still lacks a uniform digital transformation strategy for the modern society that would evenly cover all of the county's regions. The global digital experience of Russia shows that our country needs to develop digital partnerships where the constituent entities of the federation and federal authorities can cooperate in eliminating fundamental barriers for the development of information activities in the regions of Russia in the context of digital transformation.

The success of regional technological policies in Russia is determined by a combination of several interrelated resources:

- 1) The political will of regional authorities that are forward-looking;

2) The efficient communication between research institutions, large and small businesses and organizations.

3) The social and cultural specifics (organization and research culture, researcher and entrepreneur mobility, etc.) (Brock et al., 2019).

It seems obvious that regional technological policies in today's Russia can be a basic development tool for the digital economy of regions if they can help achieve leading positions in one or more research or engineering clusters.

We believe that the implementation of these government policies results in the natural selection of companies that can withstand market competition not only at the national but also at the international level, as well as the increased opportunities for exports and imports of unique products and services.

As the regions' competitive edge in digital technology increases, the interregional diffusion of technological innovation must accelerate, which should result in the increased growth of the digital economy.

As more digital technologies (automation, cameras, sensors, touch screens, artificial intelligence, etc) are introduced, more companies will be forced to use them to obtain extra profits (Young & Rogers, 2019). The digital transformation of the Russian economic system must go beyond the simple introduction of new digital information technologies in all of the economic sectors. It is also an opportunity to expand market institutes and the digitalization capacities of all production sectors in Russia's economy as a whole. The above said predetermines the objective economic growth conditions in the context of a total transformation of Russian society (McKinnon, 2019).

Thus, the analysis we performed allows us to make the following conclusions. The efficient and sustainable establishment and development of institutions in the context of introducing and employing digital technologies in Russia, and overcoming the problem of current development rate that is too slow for a modern digital society require large scale government regulation and active participation in the digitalization of the economic system and the planning and forecasting digital activities in the economy of the Russian Federation. It seems obvious that government participation and regulation must be powerful and fundamental stimulation for the digitalization of economic activities in Russia.

7. Conclusion

The acceleration of economic development and overcoming the delays in the establishment of institutions of contemporary Russian society in the context of economic system digitalization require direct and active government participation and interference in the formation of dominant basic institutions (Herrmann et al., 2019). The digital transformation of Russian society must become a national idea. Its practical implementation in each of the national companies and Russia as a whole will allow for a rapid transition to efficient and sustainable social and economic development and restore the technological supremacy in the global economy.

We believe that government participation must become fundamental and the most powerful motivation behind the transformation of Russia's economy. The quality management for the digital transformation of business structures and economic sectors must be seen as a rationalized necessity in the context of large-scale and intensive technical integration of modern society. We believe that it is crucial to

establish efficient digital economy institutions that would ensure the efficiency and productivity of its ongoing development (Krasota et al., 2019; Krasota et al., 2020). These institutions promote digital development through on-going processes in the economy and form the foundation for the efficient development of modern-day Russian society. Therefore, solving the problems mentioned by us is extremely important for the formation of the institutions required for the digitalization of the Russian economic system.

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