

The digital economy as a new paradigm for overcoming turbulence in the modern economy of Russia

La economía digital como nuevo paradigma para superar turbulencias en la economía moderna rusa

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ABSTRACT:

The article formulates the conceptual provisions of the new paradigm of overcoming turbulence in the modern economy of Russia; the object of the research is the strategy of digital economy as a condition for ensuring economic, financial and technological security of the country as a result of the use of the industrial Internet and robotization of production; it is proposed to characterize the economy as a "glue" linking all directions of social and economic development of the country, which, in the end, will lead to confrontation not between social, but between information systems.; the influence of the digital economy on the growth of digital dividends is shown, which consist in the fastest provision of customers with new information services and goods due to more flexible management of production processes; the evaluation of the role of the digital economy as a factor in the growth of innovative territorial clusters that contribute to the integration of science, education, business, government (Federal, Republican and Municipal), the creation of a digital space to solve the problems of coordination of Russia's actions in the world is given; the developed mechanism for the implementation of the new paradigm creates a new basis for solving practical problems, offering and

RESUMEN:

El artículo formula las disposiciones conceptuales del nuevo paradigma de la superación de turbulencias en la economía moderna rusa; el objeto de la investigación es la estrategia de la economía digital como condición para garantizar la seguridad económica, financiera y tecnológica del país como resultado del uso de Internet industrial y la robotización de la producción; se propone caracterizar la economía como un "pegamento" que une todas las direcciones del desarrollo social y económico del país, lo que, al final, conducirá a una confrontación no entre los sistemas sociales, sino entre los sistemas de información; se muestra la influencia de la economía digital en el crecimiento de los dividendos digitales, que consiste en la provisión más rápida de clientes con nuevos servicios y bienes de información debido a una gestión más flexible de los procesos de producción; la evaluación del papel de la economía digital como factor en el crecimiento de clusters territoriales innovadores que contribuyen a la integración de la ciencia, la educación, los negocios, el gobierno (federal, republicano y municipal), la creación de un espacio digital para resolver los problemas de coordinación de las acciones de Rusia en el mundo; el mecanismo desarrollado para la

stimulating the active participation of civil society in the formation of the prestige of domestic business and the state as a whole.

Keywords: digital economy, digital technologies, turbulence, innovation, competitive advantages, e-business, innovative territorial clusters, digital dividends.

implementación del nuevo paradigma crea una nueva base para resolver problemas prácticos, ofreciendo y estimulando la participación activa de la sociedad civil en la formación del prestigio de las empresas nacionales y del estado en general. Palabras clave: economía digital, tecnologías digitales, turbulencia, innovación, ventajas competitivas, comercio electrónico, clusters territoriales innovadores, dividendos digitales.

1. Introduction

In the nearest future the digital economy will cover a large part of the world economy. With the emergence of digital media (Internet, mobile phones and all other means of collecting, storing, analyzing and delivering information), it becomes possible to replicate and distribute data in digital form quickly, accurately and efficiently and manage information "infusions".

"In the broadest sense the process of 'digitalization' is usually understood as a socio-economic transformation initiated by the mass introduction and assimilation of digital technologies, i.e. technologies of creation, processing, exchange and transfer of information". [1]

This entire process is determined by the progress of microelectronics, information technologies and telecommunications and is a natural stage of civilization development.

The famous philosopher and economist Yu. M. Osipov writes: "There is no distortion of the truth or undue exaggeration of the value of numbers relatively with the word!" [2, 85] This assessment of the figure in economic development gives the right to recognize that the evolution of the modern economy into digital is a normal phenomenon. This is clearly evident in the current practice of the economic development of the leading countries. Thus, according to Gartner research, "today the cost of "digitalization" of enterprises is an average of 18% of the IT-budget with the potential to increase this value to 28% in 2018. For market leaders these figures are 34 -44%". [3] Thus, digitalization of the economy is an objective, inevitable process and it is impossible to stop it.

There are "computers, mobile phones, etc., which "break" the previous idea of the priority directions in infrastructure provision". [4,7] Now it is not electric power industry and roads that solve all economic problems, but information. "Now the world is ruled by information. It instantly pierces the virtual world. It can rapidly change the financial situation of the country, region, enterprise, organization, family, individual. This is a completely different economy". [5, 518] All this is the result of STP.

Digital transformation changes the world dramatically and has a huge impact on the formation of the structure of economy. In the foreseeable future we will witness the emergence of several dozen or even hundreds of new industries, with a different scale, life cycle and management system. These changes will affect all system indicators of measurements and estimates in the current economy: GDP, investments, consumption, employment, inflation.

2. Theoretical analysis

What is the digital economy? The concept of "digital economy" (DE) has no strict interpretation in the scientific literature. In particular, in broad sense this term refers to "economic activity, the key factor in the production of which is digitally generated data..." [6] It can be noted that we are talking about data in digital form. One slogan: the number (information) is everything. The state will be transformed into an Internet platform (e-government), the actions of which will be paid by the population through the obtainment of paid electronic services, and the interaction with the population will be carried out remotely. Payments for services and goods in the DE are likely to be made with electronic money, or the so-called cryptocurrency, which has a "cloud" value, that is not confirmed by any real assets, on the basis of which money exists in the classical sense. In the DE information technology (IT) can simplify daily tasks, turning them into a simple, inexpensive process that does not require significant human effort. At the same time, the DE contributes to

improving the quality of the labor force; increasing innovation, improving the competitiveness of economic entities; increasing revenues and effective demand for goods and services; expanding international economic ties and attracting foreign capital; improving management efficiency through the growth of an integrated information space.

Businessman, bank clerk, public servant or any other person in terms of the digital economy has to solve the following tasks: attracting investments from legal entities around the world, barter with any type of assets; the signing of transnational agreements, registration and protection of patents, know-how and other intellectual property and transaction details in an encrypted form.

Digital technologies should be considered as an integral part of social and economic activities, creating general conditions (foundation) to ensure normal conditions for improving the efficiency of business, government activities and daily life of the population. They link together all sectors of the market economy, contributing to its stabilization and balanced development. The efficiency of their functioning is clearly manifested in the acceleration of the reproduction process, which inevitably leads to a reduction in costs, maximizing profits, growth of GDP and national wealth of the country.

How does digitalization of the economy contribute to its development? Digitalization of the economy is a new form of ensuring the competitiveness of the economy for a long period of time. It is possible to resist the onslaught of competitors only with its openness because a transparent economy is more stable. The concept of the digitalization research of production is reduced to the following algorithm: to accumulate the knowledge necessary for the successful conduct of the core business. [7] The main task of the DE as a control system is to determine the flow of transfers (exchange), the contractors must make a joint decision on their value. The DE as an electronic control system can not only coordinate the actions of billions of people, but does it so in a way that people in most cases can make smart choices without complicated calculations.

Justification of the mechanism of digitalization of the economy is the process of removing restrictions within the permissible costs or ensuring balance in the reproduction process as a whole. The modern economy cannot be seen as increasing the scale of production raising profits. It is characterized by an institutional approach that focuses on the evolution of the rules of business conduct, i.e. establishments (institutions) that contribute to improving the efficiency of business management and, accordingly, profit growth without additional costs. The DE focuses on reducing the average costs by reducing the value of market transactions concluding the contracts for the production and sale of the product as a result of their movement from the market system into the sphere of the operation of the firm itself and thus maximizes profits. The institutional approach is implemented on the basis of the information space. Based on this, it is considered that the effectiveness of the DE is diverse. It manifests itself in a sharp increase in sales and growth of company's capitalization due to the accelerated integration in its various forms, reducing business risks, timely receipt of export revenue, crossing the illicit export of capital and financial fraud, ensuring high production profitability.

It is important to emphasize that one of the dividends of DE is the reduction in transaction costs for firms, individuals and the public sector by the increase in the speed of resources unity arising after mergers and acquisitions (M&A). It is incredible to believe that the value of the transaction becomes extremely small. This increases the dividends of the enterprise, which are spent on investments that ultimately contribute to the growth of innovation that significantly increases the efficiency of existing activities. The main idea of managing the process of creating value is that company managers must constantly evaluate the market value of the enterprise, which depends on a number of factors, in particular: profitability, demand for products in the market, the state of production equipment, the availability of know-how, personnel skills, as well as the choice of information space strategy. All managerial decisions at choosing strategies for the digital economy should be directed at achieving its main goal - to increase access to the Internet, to overcome more specifically the digital divide for reproduction basis, the basis of property and the possibilities of risk, evidenced by the frequent failures of projects of information and communication technologies (ICT). Moreover, the activities of economic entities at zero transaction costs

contribute to the growth of integration, which increases access to previously inaccessible services.

Digital economy in the system of innovative territorial clusters. It is advisable to state that the construction of innovative territorial clusters (ITC) contributes to the development of the economy including the digital economy. The main task of the cluster organization is "in overcoming innovation gaps, i.e. we are talking about establishing interactions of internal relations in the cluster (business-education/education-governments) and the relationship of the cluster with the external environment (cluster-the global market)". [8,16] Another feature of clusters is the spatial location. "Clusters aimed at innovative development lead to a faster transition to modern technological ways", [9,76] in particular to the way 4.0. The main objective of the ITC is to provide digital support to existing and potential participants at all stages of their life or project cycle. This task includes the creation of an information and communication platform for all companies within the cluster, the expert community deployment, and debugging of mechanisms of interaction of the enterprises of the cluster with investors – investment companies, banks, venture capital funds, business angels, etc.

One of the first steps in the formation of the ITC infrastructure is the creation of an Internet portal of the cluster for cooperation of its participants and use as a platform for business process automation: electronic exchange of resources and orders, electronic subcontracting system, which can be implemented through the Coordination Council of the cluster. The unique competitive advantages of ITC are formed not at the national level, but at the level of specific businesses operating in the territory of regions where a high concentration of interrelated industries is possible.

The essence of the ITC formation is in the formation of a new management paradigm, the substantive basis of which is the transition from sectoral to geographically oriented management. These circumstances required rethinking the criteria for success of modern business, first of all, from the standpoint of the digital economy. "According to various estimates, the digital economy brings huge changes for more than 50% of different industries. This is due to the fact that information technologies and platforms change business models radically, increasing their efficiency by eliminating intermediaries and optimizing. According to the World Bank experts, the increase in the number of high-speed Internet users by 10% can increase the annual GDP growth from 0.4 to 1.4%". [10, 512].

The time factor should be taken into account in all areas of cluster strategic management. The "timeliness of cluster management responses to these changes" depends on it. [11]. In the context of rapid changes in the external environment, the response of cluster management to emerging threats should be not only fast, but also accurate. Therefore, it is necessary to develop a model of optimal programming that can be customized to any goal of the "tree of goals and objectives" and "destabilizing factors should be taken into account there". [12]. In this regard, the DE can be regarded as a panacea, one of the values in the activities of cluster structures, which allows developing an effective mechanism for the modernization of the economy of the region and the whole country, as well as to ensure the development of entrepreneurial culture in the interests of the individual, business, society and the Russian state. Digital space ITC determines largely the availability of high-quality, high-speed access to the Internet.

3. Results

The digital economy as a driver of economic growth. The DE creates a new digital space and provides access to a substantial array of data to numerous participants in the global economic space. The generated "big data", along with technologies, become one of the leading assets of the state, business and civil society. Moreover, there is the development of national programs for the development of a new generation of economy, including the development and implementation of high technologies, analysis of "big data" and forecasting, and the implementation of new ways of management. The task of strategic importance is not only to achieve in the context the socio-economic well-being of states, but also as a condition for the preservation of sovereignty in the context of globalization and the implementation of digital development programs by other participants in the world market.

The most important components of the DE foundation are, at first, networks and telecommunications systems (fixed broadband connection, mobile broadband connection and bandwidth of international channels), data centers and cloud services (infrastructure for data centers cloud computing services and transit data connections); secondly, digital sharing platforms (single portal of public services, compatible, mobile and social platforms, electronic procurement and payments, Internet of things and blockchain platforms).

Digital platforms can help solve urgent social and global problems, simplifying communication between science and business, government and civil society, increasing productivity, creating new opportunities for business and employment, education and constant improvement and expansion of professional qualifications, allowing taking into account the special needs of socially vulnerable groups, creating new opportunities for social research and lessen the risks of climate change, shortage of drinking water and food, lack of energy etc. As in economy of a new way the key factors of economic activity become electronic technologies and services, and also presented in digital form volume, diversified data which processing and the analysis allows in comparison with traditional forms of managing to increase significantly efficiency and quality in production and consumption of goods, works and services, and also in management procedures, competitive advantage has those states which economy is based on the most advanced electronic technologies, including big data analysis and predictive technologies. The DE is thus an important lever of economic development, offering progressive solutions to global problems, increasing the effectiveness of management decisions and stimulating the active participation of business and civil society in the formation of the economic well-being of the country.

The impact of the digital economy on overcoming the turbulence of the Russian economy. Turbulence (uncertainty) in the economy manifests itself as a gap (or crisis) in the speed or pace of interrelated processes, such as supply and demand, production, distribution, exchange and consumption, savings and investment, income and expenses, etc. "These gaps cause turbulent (unstable) state of the economic system". [13, 238] They can arise as an objective phenomenon, for example, a crisis of overproduction, natural disasters, but also as a result of artificially created phenomena, for example, abuses of sanctions by the leading countries.

It is important to emphasize the following point: that such abuse against one country give rise to global turbulence. The modern world economic system, namely, shows it. Actual events on the economic and political arenas eloquently testify to the beginning of a stage of manifestation of failures (fiasco) of the market of planetary scale which are the reason of growth of turbulence in system of global economic development. Dips (failure) of the market (market failures) are the situations when the market fails to provide efficient use of resources. [14, 9]

Today, the cause of uneven development of the countries in the era of globalism is associated with asymmetric information. It creates chaos and becomes a feature of economic development. Russia lags behind the countries-leaders of digitalization for 5-8 years. At the same time, the state of digital infrastructure in Russia has improved in recent years, primarily in terms of wired Internet penetration (70.4% of the total population). There are also major advances in broadband and mobile Internet, the spread of smartphones.

In order to overcome turbulence in Russia's current economic development, it is necessary to overcome the lagging behind the leading countries in terms of the use of digital technologies. Russia is among the countries in which there is low use of digital technologies, in particular cloud computing, as well as insufficient level of broadband access to the Internet. It is many times less than in OECD countries. Therefore, Russia has proposed to launch a large-scale system program for the development of the economy of the new technological generation, the so-called digital economy, in the implementation of which it is necessary to rely on Russian companies, research and engineering centers of the country. This program provides for measures to create legal, technical, organizational and financial conditions for the development of the DE in the Russian Federation and its integration into the economic space of the member states of the Eurasian Economic Union.

If we consider that these leading countries will not stand still, Russia should make every effort to use digital technologies at all levels of economic and social life. "Due to the growth of the quality of products and services, customer loyalty and satisfaction are increased" [15, 46] In this regard, producers who are born in industry 4.0 increase their revenues, which allow them to invest more in product improvement.

In the last report of the experts of the World Economic Forum (WEF) in January 2017, it is quite confidently stated that "the Fourth Industrial Revolution (already) is in full swing" (literally "is underway"). [16, 22] One of the key roles in the digital transformation of enterprises is played by Industrial Internet of Things technologies (IIoT) aimed at ensuring the interaction of various devices-detectors, sensors, automated control systems of human processes, as well as their integration without the factor of personal presence and human involvement in the process.

To get out of turbulence in the Russian economy, it is necessary to restore the reproduction chain, where production - distribution - exchange - consumption interact. We need to move away from the monetary approach in the development of the economy. Based on the fact that Russia has quite large natural resources, it is necessary to develop and implement a strategy of resource competitive advantages in the aspect of the formation of the DE, as "opportunities created by big data are characterized as unprecedented for the development of science and management". [17]

Great value in this aspect is the training of relevant professionals, in this regard, it is necessary to implement a training strategy that meets the requirements of the DE. A unified information and educational environment should be created. It is assumed that in Russia in 2020 there will be free Wi-Fi in all student campuses. With the essence of new professionals, many professions may disappear. In this regard, it is indicative that as a result of digitalization, there may be a global reduction in jobs "from 2 million to... almost 2 billion by 2030". [18] But the main feature of today's stage of digitalization of the economy is the use of artificial intelligence. This is one of the foundations of our future development. Full-fledged consistent digitalization of the Russian economy will become a platform for qualitative changes in its structure and long-term opportunities.

There is a government installation: now it is necessary to work ahead of schedule. That not technologies waited for us, and we waited for technologies. We must give priority to technologies that are based on a digital long-term approach and create an environment in which we will encourage innovation processes and investment in innovation. [19]

The digital economy offers many opportunities for the development of public administration system. The rendering of public services will be based on a single digital cloud platform, which has open interfaces of inter-machine interaction and allows expanding the possibilities of interaction of citizens with the state by creating their own applications, working on the basis of this platform (with mandatory certification on safety and compliance with legal norms). To civil society the state should offer new opportunities of realization of the personal potential and life management. To achieve this goal, the state needs to ensure the modernization of the public administration system, develop user-friendly e-government services, and provide the ability to communicate with public authorities in a simple and safe way. Inefficient use of budgetary resources leads to a violation of the principle of effectiveness and efficiency of the strategy based on the need to achieve the desired results with the lowest cost of resources in accordance with the strategic planning documents developed within the planning and programming. [20] Thus, today digital technologies should undertake the mission of the "scenario" of the Russian economy's exit from the current system of global turbulence.

4. Conclusions

The DE is rapidly changing the face of modern Russian business. Digital technologies come to the fore. The digital economy of Russia is creating a new digital space that provides access to a significant array of data to numerous participants in the world economy. At present, it is proposed to consider integration from the perspective of new social relations developing in the system of digital economy using digital technologies, digital infrastructure,

big data analysis and economic forecasting technologies in order to optimize production, distribution, exchange, consumption and increase the level of socio-economic development of Russia. Ultimately, the digitalization strategy of the Russian economy contributes to the expansion of production and commerce, the increase in the market value of enterprises, the more efficient use of means of production and labor, both in the sphere of material production and in the sphere of services, and, most importantly, the strengthening of competition and the change in the current style of economic management. The digital dividends of today's economy are to provide customers with the fastest new information services and products that will shape the markets of the future, as well as to open up new opportunities to reduce production costs through more flexible management of production processes; to collect effectively data from various sensors and intelligent devices, regardless of their characteristics and formats of data transmission; to be able to add artificial intelligence functions to things and devices, turning every thing in the industrial Internet system not only into a source, but also into a consumer of information; to injure a large amount of archival information for further analytics and setting tasks for machine learning; to provide effective mechanisms for "embedding" technology IIoT into an existing corporate system landscape by means of developed systems of dispatching and visualization of data for different groups of consumers; to provide the path to full automation of production and services through the mass application system of machine learning and artificial intelligence, built on the active use of Big Data as a source of information to predict demand and subsequent production planning; to contribute to the reduction of the share of human participation in production processes, as well as his rejection of the role of a mediator in the interactions between things; to give the possibility for instant processing and analysis of large heterogeneous data flow: separating the "noise" from the really important data to be able to aggregate information from various sources for further analysis, which is especially important for the solution of business problems related to Big Data.

In general, the revealed mechanism for the implementation of the DE creates a new basis for further research and solving practical problems in the development of the Russian economy in the future, in particular improving the competitiveness of its economy through digitalization of industry and the economy as a whole. This will contribute to the innovative renewal of industrial production through more active development of digital technologies and their implementation into economic activities and improving the quality of infrastructure.

Russia is actively cooperating with other partner states on the subject of the digital economy. The most important is the coordination of efforts with the EAEU countries, within the framework of which the digital agenda until 2025 is defined. Russia is actively working within the G20, the World Economic Forum, the UNO and other organizations. All this suggests a truly state approach to digitalization of the economy and its substantial transformation.

The general conclusion that can be drawn from the study is that the Russian business as a whole has already joined the "digital race". Specialists and managers of companies understand that without the use of digital technologies they will not be able to compete successfully either on the domestic or foreign markets. They appreciate the effectiveness of the solutions they have already implemented. However, companies are approaching these technologies very pragmatic, focusing on something without which it is impossible to run a business, do not hurry to invest in fundamentally new directions. Russia will be able to get the most payback out of the use of digital technologies only if the business climate is constantly improving and the funds invested in education and healthcare are increased. If this does not happen, digital technologies will not reduce the turbulence of the Russian economy.

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Digital economy is an economic activity caused by billions of everyday online connections between people, businesses, appliances, data, and processes. The basis of the digital economy is hyperlinks, which interconnect people, organizations, and technical devices based on the Internet, mobile technologies, and the Internet of Things (IoT). New technologies are increasingly developing on a global scale. The explosive growth of social networks, the smartphone market, broadband access to the Internet and artificial intelligence is changing the world space. The digital economy promotes the development of new business models, allows to unite efforts for creation of innovations, investments, search for employees, partners, resources and markets. Digital technologies can play a key role in training employees, sharing knowledge, implementing innovative ideas, including in the social sphere.Â Avdeeva I.L. Analysis of the prospects for the development of the digital economy in Russia and abroad [Analiz perspektiv razvitija cifrovoj jekonomiki v Rossii i za rubezhom]// In the book: Digital Economy and Industry 4.0: Problems and Prospects of the Scientific and Practical Conference with International Participation. 2017. pp. 19-25. This pocket data book by HSE contains the most recent statistical data representing the level and dynamics of the digital economy development in the Russian Federation. International comparisons are provided for a number of indicators. The data book includes information of the Ministry of Digital Development, Communications and Mass Media of the Russian Federation, Russian Federal State Statistics Service (Rosstat), Russian Central Bank (Bank of Russia), Organisation for Economic Co-operation and Development (OECD), European Statistical Office (Eurostat), International Telecommunication Union The purpose of the paper is to evaluate the level of Russia's digital economy readiness. By analysing approaches used to understand its nature, the article identifies the key production factor in the digital economy and assigns maturity of the information and communication technologies a special role to determine the capabilities for transition to the new digital reality. The methodological basis of the research includes conceptual principles of the post-industrial society theory within the context of the digital economy. The study employs the methods of comparative and functional analyses, sy The digital economy has brought many new services which were inconceivable before, such as online home deliveries for grocery to dating apps. Creates significant data which can give new insights. The mass production of data can help inform governments and charities about what is happening in the economy. For example, in tracking of COVID-19 spread, the use of an app on mobile phones may indicate where local hotspots emerge. Benefits for developing world. The digital economy is opening up opportunities for the developing world. For example, computer programmers in India can easily underbid west