

Artificial Intelligence as a New Tool for Growth of Innovation and Competitiveness of the Digital Business

La inteligencia artificial como el instrumento nuevo para el aumento de la innovación y competitividad del negocio digital

MEDVEDEVA, Anna M. [1](#)

Received: 28/06/2019 • Approved: 01/10/2019 • Published 14/10/2019

Contents

- [1. Introduction](#)
 - [2. Methodological basis for the study of digital business](#)
 - [3. Artificial intelligence as the key subject for each company in each country](#)
 - [4. Discussion](#)
 - [5. Strategy for the development of the digital business in Russia](#)
 - [6. Conclusions](#)
- [Bibliographic references](#)

ABSTRACT:

The paper details the economic content of the digital business as economic growth of Russian industrial enterprises and the economy as a whole. Specific features of the concept of modern digital business are noted. The paper considers the digital business results contributing to the growth of knowledge and reduction of transaction costs, attracting potential customers and retaining them as consumers; defines the role of digital technology; identifies the main methodological approaches to the concept of artificial intelligence (AI); it is emphasized that the AI has no perception of time; reveals specific features of AI as a new type of digital business model.

Keywords: Artificial intelligence, digital economy, digital infrastructure

RESUMEN:

Está revelado el contenido económico del negocio digital como el crecimiento económico de las empresas industriales y la economía en total. Están marcadas las características específicas de la concepción del negocio digital moderno. Están examinados los resultados del negocio digital, que contribuyen al aumento de los conocimientos y a la reducción de los costos de las transacciones, a la atracción de los clientes potenciales y a la retención de ellos como los consumidores; están identificados los principales enfoques metodológicos al concepto de la inteligencia artificial (IA); está subrayado, que la IA no tiene la percepción del tiempo; está revelada la especificación de la IA como el nuevo tipo de modelo del negocio digital.

Palabras clave: Inteligencia artificial, la economía digital, la infraestructura digital

1. Introduction

In the twenty-first century, Digital technology (DT), which include big data, artificial intelligence, neurotechnology and sensor technology, wireless technologies, etc., become the most important factor in the growth of competitiveness of Russian industrial enterprises and the economy as a whole. (Digital Technology, 2019). The use of digital technologies leads to the business digitalization causing production to become more flexible, automated with access to robotics, competitive in the global economy. We are entering the era of the intellectual world where everything is interconnected. Society recognized the value of networking, thus we see a boom in the digital economy.

Currently, making the market economy efficient requires a multiplicative effect from the digitization of all its spheres. In this regard, it is especially important to actively develop and constantly improve the digital technology (DT) market. At present, along with the traditional resource markets – land, labor and capital markets, the DT market is beginning to occupy a priority position in the activities of modern business especially in connection with the production and use of artificial intelligence. In general, this will contribute to formation of a qualitatively new economy – the digital economy (DE). In modern Russia, however, there is a low level of digitalization of industrial business. In practical terms, we cannot talk about the modern national digital business at the level of world standards. The main barrier is human resources and unproductive relationship between digital science and national business. Moreover, contacts with world science are not established. The Russian economy is showing sustained immunity to digital innovation. Russian enterprises are not sufficiently involved in digital research of foreign companies. All this holds back the growth of digital technology production and their use.

2. Methodological basis for the study of digital business

"Without a digital economy, Russia has no future." (Putin: Without a digital economy, Russia has no future., 2019). In Russia, such setting of an issue has become relevant. The approved Government Program determines the digital economy as "the digital economy is an economic activity, where the key factor in production is digital data, and contributes to the formation of the information space taking into account the needs of citizens and society in obtaining high-quality and reliable information, the development of digital infrastructure of the Russian Federation, the creation and use of Russian information and telecommunication technologies, as well as the formation of a new technological basis for the social and economic sphere." (Order of the Government of the Russian Federation of July 28, 2017 N 1632-p About the approval of the program "Digital economy of the Russian Federation", 2018). In Russia, this definition is considered to be official. It is believed that one of the first interpretations of the term "digital economy" was proposed by the American information scientist of Greek origin N. Negroponte. (Negroponte, 1995) Currently, there are a lot of researchers in this subject in Russia. There are many interpretations of the digital economy and its role in the digital business development. ("Digital economy": some aspects of pro et contra ("artificial intelligence", blockchain and cryptocurrencies, labor productivity), 2018).

Digital business is a general term used to refer to the production of goods and services based on digital technologies to automate business processes. Someone denotes a digital business as working in social networks and with clouds. Among the fundamental properties of the digital business, first of all, it is worth noting the possibility of copying and distributing information without losing its accuracy (bit to bit), and with it the opportunity to create many modern technologies, called "digital technologies" due to the use of digital representation of information therein. In the language of economics this means that the information does not disappear when consumed. In a digital format, these properties appear especially brightly, precisely because the information is not distorted when transferred from one medium to another. Digital business is a combination of physical and digital business resources, blurring the boundaries between people and processes to accomplish business objectives.

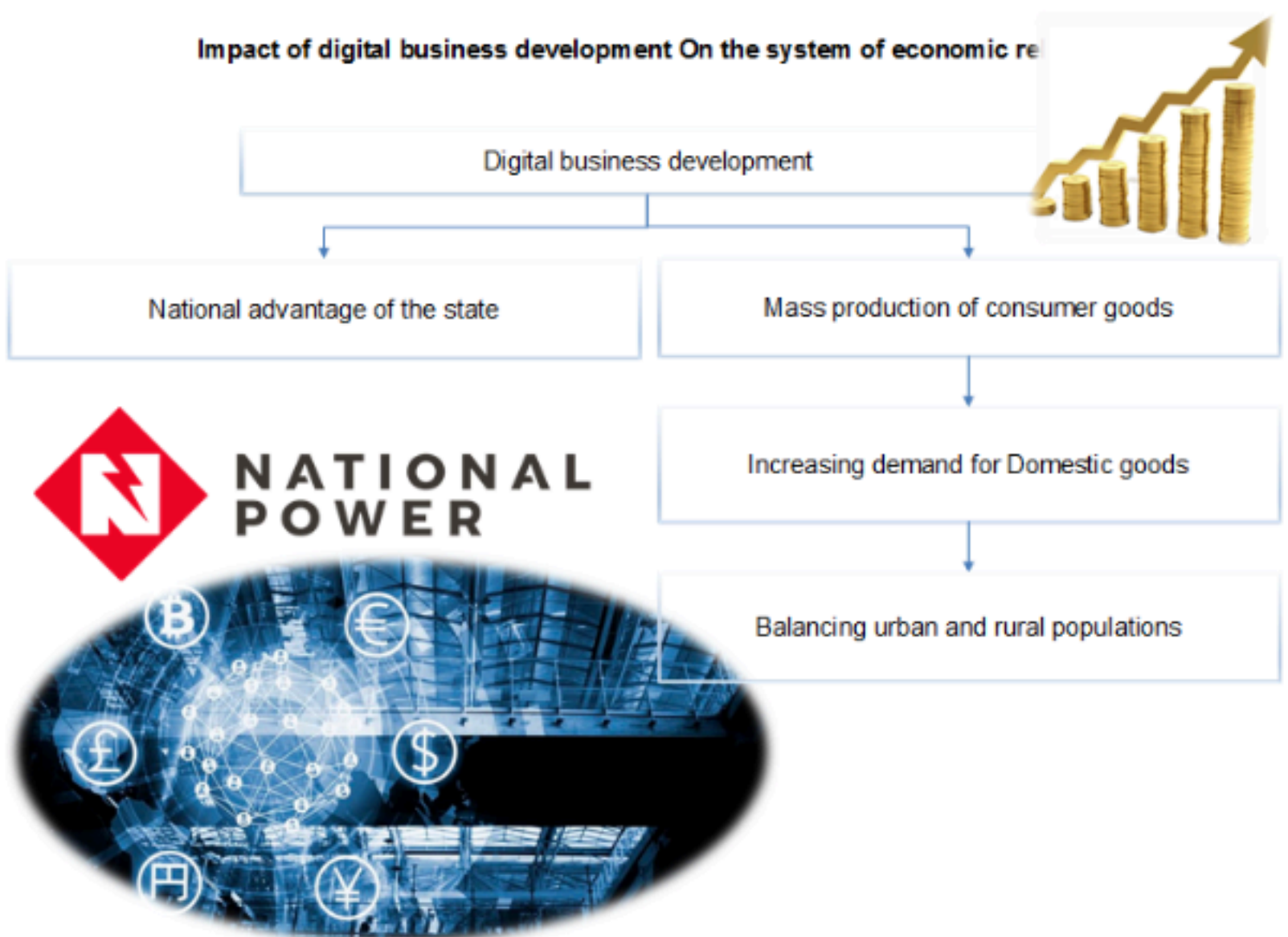
The main digital business objectives are to promote the brand and increase sales

through various techniques. Digital business includes a large selection of marketing tactics to promote products, services and brands. Digital resources help businesses increase profits, attract new customers and increase customer loyalty to the company. Business can no longer ignore digital technologies and not use them, because there are already enough tools to be able to interact with consumers through new technologies, especially business that interacts with the final consumer.

Now more than ever, science is coming to the fore in the development of the digital economy. Moreover, a new science - digital - is being formed. We should turn big business and the state towards the development of this science. We should be able to solve issues of intellectual activity in the mode of collaboration.

In this regard, it is necessary to train domestic specialists in the field of machine learning. The state shall support the development of digital technologies according to plan, with the development of legislation, with the formation of sales markets, with support at international trading platforms. Considering that all the developed countries of the world every year tighten the rules for protecting their manufacturer in key sectors, Russia has to develop its own enterprises that make modern technological products. And if here is no such enterprises, the entire digitalization of the economy will make the country dependent on import of digital technologies from abroad. To avoid this, it is necessary to solve the problem of the digital business growth. See Fig. 1

Figure 1
Impact of digital business on the economic system development



Speaking about the digital business model, it is worth noting separately what technologies a small business can use for its main goal of making profit. Of course, those companies that use digital technologies are more successful and competitive in business than those that are lagging behind. But even those who use digital for business do not always do it to the full extent, because someone has fully integrated the DT in their project, while others only partially, use only some tools. To determine the tools that companies use, you should understand what business problems you have to solve. So,

digital technology in business is our present, without which business is unthinkable. After all, those companies that are striving to be customer-focused already create additional sources and channels of communication with customers, optimize business processes within the company, become more successful and competitive, because they keep up with the times. In addition to mobile technologies, traditional TV and radio, the digital business uses the Internet as the main communication intermediary.

Formation of the digital business solves a number of problems, among which the problem of "digital divide", or asymmetric information, is particularly distinguished. Digital business reduces information asymmetry.

3. Artificial intelligence as the key subject for each company in each country

The subject of the impending era of "artificial intelligence" which stimulates participation of companies in DE, in the next decade will become a priority in addressing the strategic development of each company in its economic growth. The AI specificity is that it does not single out the present, past and future tense. Only the time that precedes the action, the time of the action, and the time that comes after the action has been performed is singled out. The time is related to a specific action. People's lives are becoming addicted to digital workers — robots. A robot is a model of a rationally acting individual who builds its relationship with the outside world on the basis of the principles of individualism and a personal system of ethical norms and moral attitudes. Its specificity lies in the mode of mobility and round-the-clock web presence. Thus, all economic activity goes into a digital format "+ artificial intelligence". In this aspect, "the daily life of a person, the structure of the economy and education are changing, as well as new requirements for communications, computing power, information systems and services, production relations are emerging. Within the digital world, "activities that once depended on the proximity of a cluster of resources — water, food, raw materials, bank safes, library books, or business information — today rely more and more on mobile communications with geographically extensive delivery networks" (Mitchel, 2012).

The emergence and development of AI is directly related to the increase in the value of intellectual capital. It is correctly stated that "the accent of modern politics of Russia should be the process of reproduction of intellectual capital, for which we have all the prerequisites." At all levels of economic thinking, it is necessary to understand that the future belongs to intellectual capital, its reproduction is a factor of a powerful economic breakthrough of the Russian economy. "In general, the DE implementation mechanism identified creates a new base for further research and solving practical problems in the development of the Russian economy for the future, in particular, increasing the competitiveness of its economy through more active use of digital technologies."

(Medvedeva, et al. The Strategy of the Digital Transformation of the Russian Economy in the XXI Century, 2019). Thus, now it is necessary to set and solve large-scale tasks in the field of the development of science and education, on which our future really depends. It is difficult, but necessary. At present, we need to actively move to the development of automated technical systems - robotics. As is known, in 2016, electronics maker Foxconn "hired" 40 thousand robots and fired 60 thousand people. By 2025, robots will leave 7% of Americans out of work, by 2026 — 40% of Canadians, and by 2035 they will take up half the jobs in Japan. (Foxconn hired 40,000 robots and fired 60,000 people, 2019). Thus, the financial sector of Russia was the first to begin applying robotization.

Today there is every reason to assert that the generation of AI is becoming a key factor in the economic and social development of society. Russian economy at this stage must reduce its lag in terms of AI development behind the developed countries of the world via an increase in the quality of labor force, accelerated growth of material scientific research potential, creation of favorable conditions for the inventive activity, widespread participation in the international innovation division of labor.

Maximization of the effects of AI requires government involvement. Country leaders and

governments face with the task of creating a favorable environment for digital companies engaged in the R&D in AI mode. In other words, it is necessary to create a favorable infrastructure and institutions, to stimulate the development of digital entrepreneurship. This requires the government to work with a wide range of stakeholders, citizens, technology companies, educational institutions and entrepreneurs.

In this aspect, AI can be a separate product that industrial companies will offer to the market. AI will make it possible to substantially increase the economic effectiveness of the activity of Russian companies, to accelerate entering of new products to the market, and also to switch to the trade in their life cycle. The State corporations should actively participate in the development of robotics. In particular, the State Corporation Rosatom is pretending to become one of the key participants in the programme for transition to the DE and a leader in the related market.

4. Discussion

Digital business is the development of new business models that combine physical and digital worlds (Gartner Group). Thus, according to Gartner's research, "today the costs of "digitalization" of enterprises amount to an average of 18% of the IT budget with the potential for growth of this value to 28% in 2018. For market leaders, these figures make 34-44%." (*Six steps to building a successful digital business according to Gartner*. (2014).

We propose two approaches to estimate the effectiveness of the projects of the introduction of digital technologies into the business:

- multi-criteria, that assumes the estimation of the effectiveness of the projects according to many criteria: functional structure; information, mathematical, organizational and staff provision;
- financial, that assumes the estimation of the effectiveness of the projects according to the financial indices.

Among the disadvantages of multi-criteria methods, we can call: the absence of an integral indicator (a large number of different indicators); difficulties in using (significant time spent on checking the significance of indicators). The main disadvantages of financial methods for estimating digital technology introduction projects are: difficulty of finding information in estimating the effectiveness of the projects; the presence of a large number of adjustments related to the peculiarities of the financial statements; the need for a market revaluation of tangible assets. It is advisable to consider the market value of a business as a balance of interests between investors, shareholders and customers of an enterprise as a criterion for the effectiveness of the projects of introducing digital technologies.

In this regard, active implementation of the digital business, in all sectors of the economy and life of the population with a view to a new technological development, is of great importance. It is necessary to strive to ensure that according to this criterion (by the way, not only by it), Russia was not classified as a group of developing countries, technological marginals, not only incapable of creating technological innovations, but also perceiving them. Against the background of the growth of high technologies in developed countries of the world, there is a low efficiency of the Russian high-tech industry. It represents the achievements of the Soviet period which were privatized long ago by foreign and domestic entrepreneurs. We should believe that the domestic economy in the near future may become a technological leader in the innovation market. "There is no need to doubt that the goal of the digital economy, like the economy in general, is to increase profits. It is automation of business processes and analytics and communications related to it, caused by the use of digital technologies that become a factor of the economic growth." (Nosova S. S., *Digital Economy in the Strategy of Integration of Production in Russia*, 2019). In many ways, this forms a basis for the growth of digital technologies, which, based on sound domestic and international policies, will enable the launch of digital marketing mechanisms with a view to ensuring continuous improvement of the interaction of industrial enterprises with the consumer.

In addition to directly increasing productivity, companies have a number of indirect advantages from digital technologies, because the effect extends beyond the company: to its competitors and throughout the supply chain. Such "collateral effects of digitalization" materialize through numerous channels in the context of the multiplicative effect of digitalization. It has been established, that, on average, over the past three decades, every US dollar invested in DT has led to an increase in GDP of US \$20. This result suggests that every dollar invested in DT provides a significant increase in GDP than it does in investments in the non-technological sector. In such terms, country leaders and governments face with the task of creating a favorable environment for digital companies. In other words, it is necessary to create a favorable infrastructure and institutions, to stimulate the development of digital entrepreneurship. This requires the government to work with a wide range of stakeholders, citizens, technology companies, educational institutions and entrepreneurs.

In this case, the goal is to identify the underlying models of digital business transformation and the development of the digital economy. Studies show that long-term return on digital investment (ROI) is 6.7 times higher than income on investments in non-digital assets, and the use of intelligent technologies in managing traditional industries can maximize the associated digitalization effect. (Measuring the Real Impact of the Digital Economy. Report of Huawei and Oxford Economics, 2019) The transition to DT is held both at the level of individual companies and across the industry as a whole. We are talking about using broadband communication channels, cloud technologies, big data, artificial intelligence and the Internet of Things (IoT) – all of these are key features of digital transformation. It is true that the use of Internet technologies transforms the structure of the industry and promotes its development. The introduction of technology increases productivity and stimulates innovation. As a result, this leads to an improvement in the supply on the market in order to meet the demand and to satisfy the constantly growing needs of consumers in the future. Ultimately, AI as a whole stimulates and supports accelerated economic development.

5. Strategy for the development of the digital business in Russia

The main vector of strategic development of the digital business in Russia is the use of new opening opportunities. It is necessary to develop own information services industry, create the Russian market of electronic services. Otherwise, the Russian economy may be completely "occupied" by foreign digital products. In this regard, Russia as a whole should form an innovative situation in solving the problems of digitalization of national business, which makes it possible to "focus on reducing average costs by reducing the cost of market transactions when concluding contracts for the production and sale of a product as a result of their movement from the market system to the functioning of the firm itself and thus maximizes profit." (Nosova, et al. Digital Technologies as A New Vector The Growth of Innovativeness and Competitiveness of Industrial Enterprise, 2018) Russian ICT industry should be redirected from the creation of numerous ersatz products that copy outdated global developments to the innovative development of the industry. Apparently, Western strategists of confrontation with Russia just counted on it when they restricted our country's access to modern technologies. In this case, an adequate strategy of confrontation should not be import substitution, but the so-called export substitution – creation of unique developments in the field of DT having no analogues in the world. The use of ersatz copies of Western developments in public administration is fraught with a decrease in the efficiency of management, which is still too non-technological in Russia.

Given the experience of the global economy, it is necessary to move on to a new generation of productive capital. It must carry the DT achievements. The widespread DT introduction makes business and government management at all levels transparent. All this increases information leakage risk and requires an increase in the level of protection, the allocation of additional investments in cybersecurity. Today, the main task of Russia is not to engage in discussion, but to develop, discuss and approve a specific

strategy for creating the so-called information (digital) infrastructure, the implementation of which should be based on Russian companies, research and engineering centers of the country." (Nosova, et al. The Role of Digital Infrastructure in the Digital Transformation of the Modern Russian Economy, 2019) The threats and opportunities of the digital business in Russia are directly related to the transition to the digital economy. See Table 1.

Table 1
Characteristics, threats and opportunities
of digital business in Russia

Characteristics of digital business	Threats to Russia	Opportunities for Russia
individualized range of services	complexity of market control	ability to compete in new areas
the increase of competition	the conquest of the market by Western companies	the opportunity to attract investment
the growing role of information	services information war and the manipulation	promotion of the interests of Russia abroad
increase of socialization of the population	activation of protest moods	possibility of consolidation of the population
increasing self-service	growth of fraud and deception of the population	involvement of the population in management
increasing the transparency of management	information leakage	the increase of efficiency of management
the transition to Industry 4.0	the sabotage of production	opportunities for the promotion of new DT

Threats to the Russian digital economy: a) insufficient use of digital technologies and b) lack of highly qualified specialists. According to V.V. Putin, "we need specialists who are able to work in advanced industries, create or use breakthrough technical solutions..." (Message from the President of Russia to the Federal Assembly of February 20, 2019,, 2019) The possibilities of Russia's digital economy will not be visible in the world if the state does not purposefully support human resources update, help improve people's competencies.

Effective and safe development of digital business is possible only with adequate development of human capital in Russia

It is believed that the main indicator for assessing the effectiveness of the development of digital business should be the growth of labor productivity. Such setting of the issue requires a deep study of the factors of productivity growth, and not myth-making. In this regard, Russia and Japan "intend to develop cooperation and exchange experience in the field of labor productivity, including the exchange of information about enterprises with high labor productivity indicators." (Japan and the Russian Federation Will Sign a Document on Cooperation in the Digital Economy, 2019) From here, the state shall support the development of digital technologies according to plan, with the development of legislation, with the formation of sales markets, with support at international trading platforms. In a digital business model, the core are those factors that have never been

considered growth factors. First of all, this is openness, fairness towards entrepreneurs, respectfulness, certainly simplicity of procedures. Such a model will eliminate the archaic and redundant control and supervisory functions. So, considering that all the developed countries of the world every year tighten the rules for protecting their manufacturer in key sectors, Russia has to develop its own enterprises that make modern technological products. And if here is no such enterprises, the entire digitalization of the economy will make the country dependent on import of digital technologies from abroad

6. Conclusions

AI should be considered as a result of the digital business activities which stimulates investment in the development of robotics in order to press foreign competitors in the global DT market. In this regards, it is necessary to quickly use the experience of creating innovative territorial clusters, especially IT clusters.

AI can be considered as a phenomenon of the modern Russian economy, since it contributes to increasing labor productivity, increasing the competitiveness and innovativeness of companies, and most importantly - obtaining high dividends from its use.

AI has an important place in the implementation of the "Digital Economy" national project in Russia. But at the same time, it is extremely important to understand that any digital technology, even initially neutral, gets its qualitative assessment only in the context of security for society and the state.

Maximization of the effects of AI requires government involvement. Country leaders and governments face with the task of creating a favorable environment for digital companies. In other words, it is necessary to create a favorable digital infrastructure and institutions, to stimulate the development of AI. This requires the government to work with a wide range of stakeholders, citizens, technology companies, educational institutions and entrepreneurs.

Bibliographic references

"Digital economy": some aspects of pro et contra ("artificial intelligence", blockchain and cryptocurrencies, labor productivity). (25 December 2018 г.). Получено из Tower-libertas: <http://tower-libertas.ru/www/tsifrovaya-ekonomika/>

Digital Technology. (2019, March 13). Retrieved from Wikipedia: <https://ru.wikipedia.org/wiki/>

Foxconn hired 40,000 robots and fired 60,000 people. (2019, March 13). Retrieved from russianinterest.livejournal.com: <https://russianinterest.livejournal.com/1749215.html>

Japan and the Russian Federation Will Sign a Document on Cooperation in the Digital Economy. (2019, May 04). Retrieved from readweb.org: <http://readweb.org/117559-yaponiya-i-rf-podpishut-dokument-osotrudnichestve-v-cifrovoj-ekonomike.html>

Six steps to building a successful digital business according to Gartner. (2014). <http://channel4it.com/publications/Shest-shagov>

Medvedeva, et al. (2019). The Strategy of the Digital Transformation of the Russian Economy in the XXI Century. *International Journal of Civil Engineering and Technology (IJCIET)*. Vol. 10, Issue 02, 1638–1648.

Measuring the Real Impact of the Digital Economy. Report of Huawei and Oxford Economics. (2019, March 13). Retrieved from решение-верное.рф: <http://решение-верное.рф/digital-economy-2017>

Message from the President of Russia to the Federal Assembly of February 20, 2019,. (2019, May 10). Retrieved from ria.ru: <https://ria.ru/20190220/1551106999.html>

Mitchel, U. (2012). *Me++: People, city, networks*. Moscow: Strelka Press.

Negroponte, N. (1995). *Being Digital*. <https://www.ebay.com/p/Being-Digital-by-Nicholas-Negroponte-1995-Hardcover/264268>

Nosova, S. S. (2019). Digital Economy in the Strategy of Integration of Production in Russia. *Economic strategies. No. 4.*

Nosova, S. S., et al. (2019). The Role of Digital Infrastructure in the Digital Transformation of the Modern Russian Economy. *International Journal of Innovative Technology and Exploring Engineering (IJITEE). Volume-8 -Issue-7, May, 2314.*

Nosova, S. S., et al. (2018). Digital Technologies as A New Vector The Growth of Innovativeness and Competitiveness of Industrial Enterprise. *International Journal of Civil Engineering and Technology (IJCIET) Vol. 9. Issue 6, 1411–1422.*

Order of the Government of the Russian Federation of July 28, 2017 N 1632-p About the approval of the program "Digital economy of the Russian Federation". (2018, November 04). Retrieved from Systemagrants: <http://base.garant.ru/71734878/#ixzz4xa7EKLoG/>
Date of application

Putin: Without a digital economy, Russia has no future. (11 March 2019 г.). Получено из Forklog: <https://forklog.com/putin-bez-tsifrovoj-ekonomiki-u-rossii-net-budushhego/>

1. Ph.D., Associate Professor, Moscow Aviation Institute (National Research University)

Revista ESPACIOS. ISSN 0798 1015
Vol. 40 (Nº 35) Year 2019

[\[Index\]](#)

[In case you find any errors on this site, please send e-mail to [webmaster](#)]