

**II International Scientific Conference GCPMED 2019**  
**"Global Challenges and Prospects of the Modern Economic Development"**

**DIGITAL TECHNOLOGIES AS AN ACCELERANT OF  
INNOVATIVE ECONOMIC GROWTH AND CIVILIZED  
DEVELOPMENT**

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***Abstract***

The role of digital technologies in modern society is analyzed in the article considering as an accelerant of innovative economic growth and life quality increase. Problem statement is determined by necessity of digital economy tools use in achieving economic recovery of the country as a method to decide a wide range of actual socio-economic problems and reach a world level of technological countries development. The analysis of Russian economy actual statement at the stage of digitization has revealed that the country is lagging behind the world in terms of the digital transformation level and speed and at the same time analyses results give reason to confirm that there is a real chance for Russia to become one of the world's technological power. The main sources of economic growth of the Russian economy based on the digital technologies use are found out. The digital technologies role in increasing population quality of life, reducing social inequality, minimizing territorial differences in living conditions is shown. The digital technology perspectives are described to create comfortable living environment, improve business and investment climate, stirring up socio-economic activities. The features inherent in digital companies are defined. The reasons of unfavorable statement of venture capital markets as an important element of digital economy are revealed. The factors determining growth of digital economy are found out. It's deduced that it's necessary to adjust the government to the digital transformation wave through institutionalization of the dialogue between government and business on a range of digital economy development problems.

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**Keywords:** Economic growth, digital technologies, innovations, society.



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## **1. Introduction**

The problem of economic growth achievement for several years has been the central problem of global discussion on the communicative areas of the country and foreign states. The opportunity of economic recovery is increasingly associated with using tools of the digital economy stimulating the emergence of a whole package of new technological branches, implementation of the digital technologies in almost all areas of life – public administration, business, urban economy, social sphere. All this influences directly on improving the quality of citizen's life, the national and public security of the country, competitiveness in global economy.

## **2. Problem Statement**

Problems of economic growth, as a rule, have become particularly important during the crisis or in transition period which is associated with increasingly uncertainty and intensity of changes in the internal and external environment of development. The digital transformation initiated by the progress of existing and emergence of new technologies has always been the leading trend of recent years. It has cardinally changed the global socio-economic area. In such terms the urgent problem is arisen to integrate tools of digital economy in the decision of actual socio-economic tasks with economic growth achievement and development of the modern society.

## **3. Research Questions**

In terms of solving ambitious problems for Russia's entry into the world technological elite associated with improving citizens' quality of life it's important to understand:

1. How does Russia fit into the global technological trends?
2. What are the sources of its economic growth and civilized development in terms of a new reality?
3. What results have been achieved from the first experience of using digital technologies and what kind of results are expected in the nearest future and what is it necessary to do to achieve them?

## **4. Purpose of the Study**

In spite of the fact that it's obvious that digital technologies influence on socio-economic systems plays an important role economic science is searching response on a range of insufficiently studied questions. First of all it's necessary to reveal digital technologies capacity in achieving separate companies and whole branches innovative growth. Besides, attention should be paid to the fact that institutional aspects mechanism of digital company's character is studied insufficiently, it's not clear the place of digital economy in the common system of modern economic relations. The given lack of knowledge has determined the aim of present research - revealing role of digital technologies in providing economic growth of the country in giving a new quality to the development of the society.

## 5. Research Methods

The research has been carried out using system approach to study a socio-economic system, methods of theoretical and statistical analysis, inductive-deductive methods, abstraction and formalization. The statistical analysis is based on the data of the Federal state statistics service and the international consulting company McKinsey. The author's interpretation of the research results conducted by authoritative Russian and foreign scientists has provided the research depth of the scientific problem.

## 6. Findings

Recent years were inaugurated by the considerable development of the digital revolution, one of the main characteristics of which should be considered the accessibility of the Internet. Today every second inhabitant of the Earth has an Internet connection, and by 2021, as a result of the development of digital and mobile technologies, all digitable information (cultural heritage) will be stored online and can be used from anywhere in the planet. In according to the data of 2017 in Russia 76% of household can have access to Internet, 42% of public services recipient have chosen online technologies (Abdrakhmanova et al., 2018). Digital culture is becoming familiar for the Russian society. During last 5 years Russia has improved its position on the international rating index of countries' readiness to network society - in the period from 2012 to 2016 the move up was 15 points (from 56 to 41) (Voeykov, 2018).

In terms of the 4th industrial revolution based on penetration in all spheres of digital technologies Russia has a unique chance to realize its potential and take a worthy place among the world's leaders of digital revolution – the economic effect of the digitization of the Russian economy makes it possible to increase GDP of the country. Thus, the volume of the digital economy of Russia from 3.2 trillion rubles in 2015 may increase by 2025 three times and reach 9.6 trillion rubles (in 2015 prices), while the share of the digital economy in Russia's GDP will increase from 3.9% to 8-10%, which will be 19-34% of the total GDP increase (Li, 2017).

The main sources of GDP growth by 2025 through digitization (Fig. 01) should become the following.

First of all, it is the optimization of productive and logistic operations through the tools use for monitoring manufacturing lines in real time, as well as the establishment of optimal logistics routes and determining the order of shipment priority (Dudin et al., 2016).

The second source should be the increase of labor market efficiency on the basis of technologies using effective and quick search of work and filling vacancies, remote work possibilities as well as emergence of new professions and jobs and, in turn, it requires operative and adequate decisions in the sphere of professional education (Šikýř, 2015).

The third source is to increase the productivity of equipment by reducing downtime, repair costs and increasing load. It's very important to increase efficiency of scientific-research and experimental constructive work and elaboration of such product as prototyping and improvement of quality control, analysis of a large amount of data in the development and improvement of products (Gorokhova & Sekerin, 2016).

Finally, the list of the main sources of GDP growth completes the decline of resource consumption and production loss by reducing electricity and fuel consumption, contraction of production loss of raw materials (Aptekman et al., 2017).

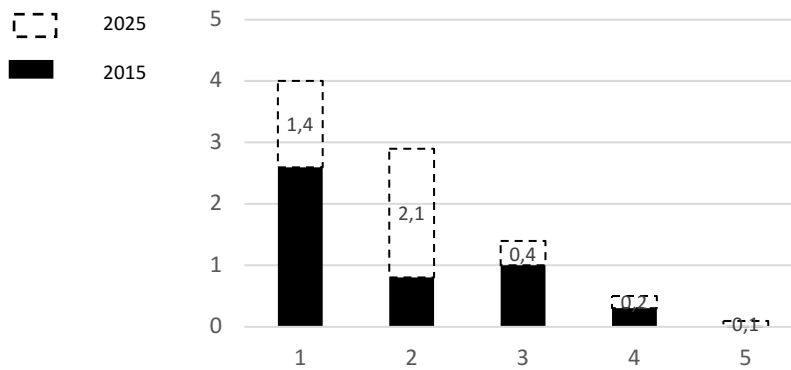
1 – Optimization of manufacturing and logistic operations

2 – Increase of labor market efficiency

3 – Increase of equipment productivity

4 – Increase of scientific-research and experimental constructive work and elaboration of product efficiency

5 – decrease of resources and production loss expenditures



**Figure 01.** Type your title here Source of GDP growth by 2025 through digitization, milliard rub, in 2015 prices

Source: authors based on data of Aptekman et al., (2017)

At the same time it should be noticed the obvious lagging of digital economy in Russia behind the world trends. In 2018 the share of digital economy in the biggest countries ranges from 11% in China to 34% in the USA. Digital economy contribution in Russia is estimated at only 5,1% of GDP. In according to the results of 2016 Russia took the 12th place in the international index of digital economy and society (Table 01).

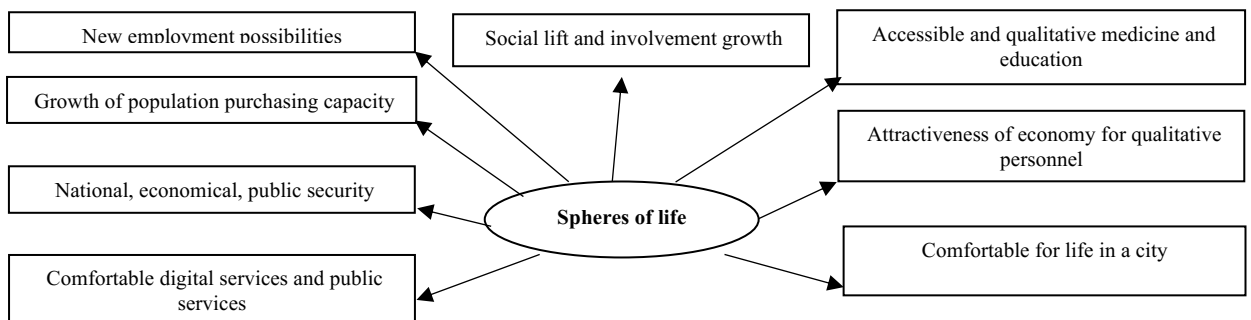
**Table 01.** International index of digital economy and society in the countries: 2016

Country	Index of digital economy and society(I-DESI)	Including sub-index				
		Connectivity	Human Capital	Use of Internet	Integration of Digital Technology	Digital Public Services
Iceland	0.66	0.69	0.66	0.61	0.73	0.58
Republic of Korea	0.64	0.81	0.75	0.29	0.47	0.73
Norway	0.63	0.70	0.65	0.45	0.66	0.63

New Zealand	0.63	0.62	0.59	0.44	0.79	0.65
Japan	0.62	0.71	0.66	0.22	0.67	0.71
USA	0.62	0.66	0.56	0.37	0.68	0.79
China	0.61	0.75	0.61	0.30	0.78	0.49
Australia	0.60	0.59	0.56	0.42	0.75	0.69
Canada	0.59	0.63	0.62	0.42	0.58	0.67
Countries of EU-28	0.54	0.61	0.59	0.38	0.55	0.47
Ireland	0.52	0.53	0.61	0.37	0.50	0.55
Russia	0.47	0.50	0.63	0.32	0.43	0.36

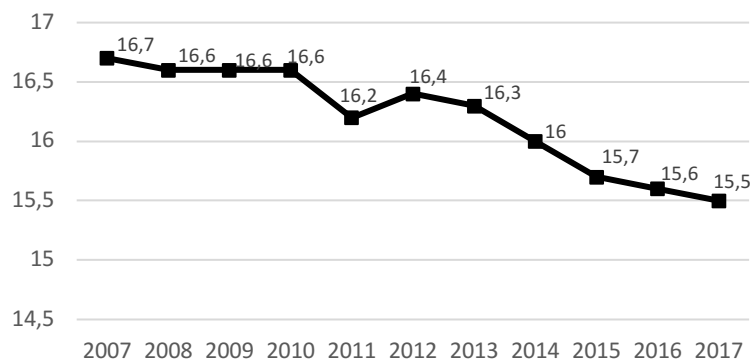
Source: authors based on data of Abdrakhmanova et al. (2018)

Russia is also lagging behind the leading countries in terms of digitization level of the leading countries. Private companies volume of contribution in digitization development ranges only at 2,2% from GDP while in the USA it achieves 5%, in European countries – 3,9%, in Brazil – 3,6%. But at the same time in Russia, in according to experts' estimation (the digital economy will increase Russia's GDP by 8.9 trillion rubles by 2025, 2017), there are all necessary prerequisites to achieve the result of the tripling of the size of the digital economy by 2025. First of all, it concerns with the solid intellectual and scientific basis, developed system of secondary and higher technical education, formed capacity of internal market of digital decisions. So, in 2018 the Russian smartphone market reached a record high of \$ 7.56 billion, overcoming the 30-million barrier in unit terms. Today more than 60% of Russian people have smartphones; this index is higher than in Brazil, India and East European countries (Alyabyev et al., 2018). The emergence of digital technologies and services in everyday lives of 147 million Russian citizens can considerably improve the quality of their life (Fig. 02), reduce social inequality because of different income levels, thus strengthening the positive trend of reducing the desile ratio (Golyshev, Pavlushina, & Brilliantova, 2018) (Fig. 03) as well as minimizing the difference in living conditions in regions with different levels of infrastructure development.



**Figure 02.** Life quality improvement on the basis of digitization

Source: authors.



**Figure 03.** Dynamics of funds decile coefficient, times

Source: authors based on data of Golyshev, Pavlushina, & Brilliantova (2018)

First of all digital technologies serve as a mechanism of social lifts – they promote social and financial involvement of the population and are able to improve accessibility, quality, assortment and convenience of getting services in such important branches as public health, education, municipal and public services, culture. It is becoming a widespread practice to get an appointment with a doctor through the Internet, remote monitoring of health using telemedicine, remote access to the world's electronic educational resources and digitized cultural heritage, distance learning technologies and virtualization of the educational process, preparation of documents and financial services online. Digital technologies significantly reduce the cost of online payments, primarily by reducing the cost of promotion, and open new sources of income (Spitsin, Mikhilchuk, Chistyakova, Spitsyna, & Pavlova, 2018).

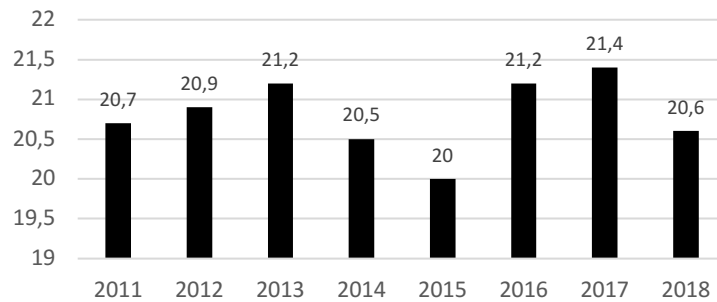
Digital technologies open wide opportunities in creation convenient and secure conditions for life – they allow to optimize energy consumption, to avoid difficulties of traffic flow, to prevent traffic accidents, to use convenient and reliable urban transport, navigation with augmented reality, do shopping at better prices using e-Commerce technologies, participate more fully in public life. With the introduction of digital technologies, centralized systems for monitoring the state of urban infrastructure are appearing: video surveillance systems, quality control of cleaning public areas, automated garbage sorters, robotic vacuum cleaners and robotic firefighters. Digital technologies allow to determine where new infrastructure is necessary and how to maintain it cheaper and more efficient. As a result, having the previous budget, the city authorities will be able to provide citizens with more comfortable living conditions (Hermann, Pentek, & Otto, 2016).

Creation of comfortable living conditions - using appropriate digital technologies - is very important as it is aimed at attraction of qualified personnel and talented people to the company, who are not deprived of healthy ambitions and are serious about choosing a place to live and work. High quality of living conditions is directly related to the improvement of the business climate and economic growth, as it becomes a compulsory requirement to attract not only highly qualified specialists, but large employers as well, especially in high-tech industries.

At last, use of digital technologies helps to improve the business and investment climate – due to accessibility increase and efficiency of public services (registration of legal entity, certification and accreditation, receiving permits, declaring and paying taxes, customs support), the development of a whole ecosystem of business services (logistics services, mobile banking), increasing the transparency of

business conditions (electronic platforms for tenders and purchasing, feedback portals) (Li, Hou, & Wu, 2017).

A feature of digital companies is becoming not only the transfer of management, control and analysis of most of their business processes to the online environment (negotiation of contracts, accounting, logistics processes, registration of transactions, purchasing, personnel training, monitoring of relationships with partners and customers, technical support, etc.), but also the introduction of an appropriate corporate culture in the company that can provide its competitive advantages - efficiency, productivity and business growth capacity (Sekerin & Gorokhova, 2017). The need and ability for continuous learning, the readiness to learn continuously new knowledge about emerging technologies and ways of working should be recognized as the main value of a digital company, a key factor for successful professional growth in digital world today. It should be recognized that unfavourable economical situation in Russia influences the investment of companies in fixed assets, including the acquisition and introduction of new technologies (Pavlushina, Brilliantova, & Kulaeva, 2018), (Fig. 04).



**Figure 04.** Dynamics of the ratio of investment in fixed assets to GDP, %

Source: authors based on data of Pavlushina, Brilliantova, & Kulaeva (2018)

An important element of the digital economy - the venture capital market suffers for the same reason. Thus, in 2015, as a result of deterioration of the macroeconomic situation, the venture capital market of the country decreased by 2 times compared to 2014. In spite of the fact that Russia has created a relatively effective mechanism to support business projects at the early stages, but at the next stage, these projects in the majority cases did not find support among the Russian business. As a result, companies grown by the local venture capital market moved to markets in other countries because of limited access to further financing in Russia. Positive trends in the development of the venture ecosystem have emerged since 2017, when the total volume of venture transactions reached \$ 410 million., and market growth was 48% (Russian Venture Company (RVC), 2018). In according to 2018, the Russian venture capital market grew by almost 64%, and investors invested in Russian startups more than 26.7 billion rubles, which is 10.4 billion rubles more than last year.

It is necessary to develop the national IT-sector for the growth of the digital economy, to stimulate the creation of innovative technologies, to cooperate for their development at the international level, while not allowing global IT- giants to borrow the developments of young companies, thereby blocking their success. It is necessary to create conditions for young talented professionals not only to stop leaving the country, but also to return them, and venture companies have the opportunity to operate successfully

in the national market and compete at the global level. It is necessary to stimulate investment and entrepreneurial activities in this industry. All parts of society - the state, the private sector, civil society, the IT-community - must participate in digital economic activities. An important component is also the provision of informational security of information and innovative technologies, which ensures public trust in the digital economy.

## 7. Conclusion

Summing up overall results, it should be noticed that for better understanding the needs of the main actor of innovative transformations in the country economy – business, finer tuning of the government on the wave of digital transformation, it's necessary to institutionalize a dialogue between government and business across the whole range of areas: regulations, personnel, education, formation of research competence and technical capacities, information infrastructure and information security. The formation of the digital economy as a key factor in development in all fields of social and economic activity depends upon the success of this dialogue. As a result, it is expected to increase the competitiveness of the country, the citizens' quality of life, economic growth and national sovereignty.

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