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DEFINING, CONCEPTUALISING AND MEASURING THE DIGITAL ECONOMY

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Abstract. The digital economy is becoming an important driver of innovation, economic growth and competitiveness. More than 15 countries are implementing a national programme of digitization. The formation and development of the national segment of the digital economy through the use of trusted, mainly domestic ICT, and its further integration into the global digital economy, on the one hand, provides a "window of opportunity" for the integration of the economy of the Republic of Kazakhstan in the emerging world economic order, and on the other hand – carries significant risks to economic security and sovereignty of the state. The purpose of the study is to analyze the current state and develop effective measures to regulate the digital economy to achieve sustainable economic growth, improve the competitiveness of the economy and improve the quality of life of the population of the Republic of Kazakhstan. The introduction of information technologies in the public sector brings to a qualitatively new level key aspects of life – from payment for utilities to insurance policies and treatment. The methodology is based on methods of analysis, synthesis, induction and deduction. The value of the research is that the model of digital economy development is defined. The practical significance of the study lies in the development of proposals to improve the regulation of the digital economy in the Republic of Kazakhstan. The article is executed within the project AP05135078 "Formation and development of digital economy in the Republic of Kazakhstan: theory and practical measures of realization" of grant financing of scientific researches of the Ministry of education and science of the Republic of Kazakhstan.

Key words: digital economy, digital dividends, digital state, single digital market, online sales, development of electronic networks and digital services.

Сандық экономиканың құрамы, тұжырымдамасызу және жоғалау

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Аңдатпа. Сандық экономика инновациялардың, экономикалық өсудің және бәсекеге қабілеттілікті қамтамасыз етудің маңызды драйверіне айналады. Әлемнің 15-тен астам елі цифрландыру Ұлттық бағдарламаларын жүзеге асырады. Сенім білдірілген, басым түрде отандық АКТ – ны пайдалану негізінде цифрлық экономиканың ұлттық сегментін қалыптастыру және дамыту және оның әлемдік цифрлық экономика кеңістігіне одан әрі кірігуі, бір жағынан, қалыптасқан әлемдік экономикалық тәртіпке Қазақстан Республикасының экономикасын енгізу үшін «мүмкіндіктер терезесін» ұсынады, ал екінші жағынан-экономикалық қауіпсіздік пен мемлекет егемендігінің Елеулі тәуекелдерін көтереді. Зерттеудің мақсаты-тұрақты экономикалық өсуге қол жеткізу, экономиканың бәсекеге қабілеттілігін арттыру және Қазақстан Республикасы халқының өмір сүру сапасын жақсарту үшін қазіргі заманғы жағдайды талдау және сандық экономиканы реттеудің тиімді шараларын әзірлеу. Мемлекеттік секторда ақпараттық технологияларды енгізу коммуналдық қызметтерді төлеуден бастап сақтандыру полистерін ресімдеуге және емдеуге дейінгі халық өмірінің негізгі аспектілерін сапалы жаңа деңгейге шығарады. Әдістеме талдау, синтез, индукция және дедукция әдістеріне негізделген. Зерттеудің құндылығы-сандық экономиканың даму моделі. Зерттеудің практикалық маңыздылығы Қазақстан

Республикасында цифрлық экономиканы реттеуді жетілдіру бойынша ұсыныстарды әзірлеу болып табылады. Мақала AP05135078 «Қазақстан Республикасында цифрлық экономиканы қалыптастыру және дамыту: теория және практикалық іске асыру шаралары» жобасы аясында Қазақстан Республикасы Білім және ғылым министрлігінің ғылыми зерттеулерін гранттық қаржыландыру аясында орындалды.

Түйінді сөздер: сандық экономика, сандық дивидендтер, сандық мемлекет, бірыңғай сандық нарық, онлайн сату, электрондық желілер мен сандық қызметтерді дамыту.

Понятие, концептуализация и измерение цифровой экономики

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Аннотация. Цифровая экономика становится важнейшим драйвером инноваций, экономического роста и обеспечения конкурентоспособности. Более 15 стран мира реализуют национальные программы цифровизации. Формирование и развитие национального сегмента цифровой экономики на основе использования доверенных, преимущественно отечественных ИКТ, и его дальнейшая интеграция в пространство мировой цифровой экономики, с одной стороны, предоставляет «окно возможностей» для встраивания экономики Республики Казахстан в формирующийся мировой экономический порядок, а с другой стороны – несет значительные риски экономической безопасности и суверенитету государства. Цель исследования – анализ современного состояния и разработка эффективных мер регулирования цифровой экономики для достижения устойчивого экономического роста, повышения конкурентоспособности экономики и улучшения качества жизни населения Республики Казахстан. Внедрение информационных технологий в государственном секторе выводит на качественно новый уровень ключевые аспекты жизни населения – от оплаты коммунальных услуг до оформления страховых полисов и лечения. Методология основана на методах анализа, синтеза, индукции и дедукции. Ценность исследования заключается в том, что определена модель развития цифровой экономики. Практическая значимость исследования заключается в разработке предложений по совершенствованию регулирования цифровой экономики в Республике Казахстан. Статья выполнена в рамках проекта AP05135078 «Формирование и развитие цифровой экономики в Республике Казахстан: теория и практические меры реализации» грантового финансирования научных исследований Министерства образования и науки Республики Казахстан.

Ключевые слова: цифровая экономика, цифровые дивиденды, цифровое государство, единый цифровой рынок, продажи онлайн, развитие электронных сетей и цифровых услуг.

Introduction. The ideas of the digital economy appeared in the late twentieth century, when the global web began to penetrate into all spheres of life. At first, customers could purchase software through the network, later games and books. Over time, it became possible to buy absolutely any product without leaving your home. The market for selling software, computer games and e-books, which could be ordered and paid for without leaving home, began to actively develop.

In 1995, the American computer scientist Nicholas Negroponte (University of Massachusetts) introduced the term "digital economy". Now this term is used all over the world, it has come into use by politicians, businessmen, journalists. Last year, one of the main reports of the World Bank contained a report on the state of the digital economy in the world (the report was released under the title Digital Dividends) (N.Nazarbayev, 2015).

However, until now, the content of this concept remains vague; there is no clear definition in the World Bank report. The term "digital economy" has a lot of concepts. Doctor of Economics, Corresponding Member of the Russian Academy of Sciences – Vladimir Ivanov gives the broadest definition: "The digital economy is a virtual environment that complements our reality."

Indeed, probably, all our actions in computer virtual reality can be attributed to the system of production, distribution, exchange or consumption. But, of course, virtual reality, as such, did not appear with the creation of a computer. All human thought activity can be attributed to it. In addition, money – the main tool of the economy – is also a product of virtuality, since they are invented "measure" of the value of goods and services. But with the invention of the computer, it was possible to "digitize" money, which undoubtedly simplified commodity-money

relations, led to a tremendous time saving and increased security of operations.

Roman Meshcheryakov – Professor of the Russian Academy of Sciences, Doctor of Technical Sciences, Vice-Rector for Research and Innovations, Tomsk State University of Control Systems and Radioelectronics, believes that there are two approaches to the term "digital economy". The first approach is "classical": the digital economy is an economy based on digital technologies and, moreover, it is more correct to characterize exclusively the field of electronic goods and services. The classic examples are telemedicine, distance learning, the sale of medical content (cinema, TV, books, etc.).

The second approach is advanced: "digital economy" is economic production using digital technologies. "At present," explains Roman Meshcheryakov, "some experts believe that it is necessary to expand this understanding and include in it the chain of goods and services that come with using digital technologies, including such concepts as: Internet of Things, Industry 4.0, smart factory, fifth-generation communication networks, engineering for prototyping, etc. "

Indeed, before the virtual part of the world, which was located in the mental reality of man, was not a productive force, it was not the medium where new ideas and products are created. Now the virtual part is combined with the real: you can create a "world based on real events" world, which itself will be an "economy in the economy." The virtue of this world is that there you can do anything. This is important not only in the case when it becomes possible to create an online game where you can jump up to the height of a multi-storey building, travel around space without a spacesuit and die many times – this is important for testing, improving, testing new products.

Thus, the digital economy has got a smart chance to overtake the "analog" one, which is obliged to carry out a crash test every time, breaking machines in reality, and not in a virtual environment. Alexandra Engovatova – Candidate of Economic Sciences, Associate Professor, Department of Economics of Innovations, Faculty of Economics, Moscow State University Lomonosov, it gives the following definition: "Digital economy is an economy based on new methods of generating, processing, storing, transmitting data, as well as digital computer technologies."

"Within the framework of this economic model," emphasizes Alexandra Engovatova, "the existing market business models undergo a radical transformation, the model of value-added formation changes significantly, the value of intermediaries at all levels in the economy is sharply reduced. In addition, the value of the individual approach to product, because now we can simulate anything. " Summarizing, we can say that the digital economy can cover everything that is amenable to formalization, that is, transformation into logical circuits. And life itself will find an opportunity to write this "something" into the system of production, distribution, exchange and consumption.

Literature review. Research of the main trends of the digital economy dedicated to the works by I. V. Alekseeva, A. S. Airapetian, A. Bryan, A. P., Dobrynin, A. V. Druzhinin, K. A. Zhumagaliev, V. Ivanov, V. Yu. Konyukhov, D. Marchukova, V. P. Kuprianov, I. A. Matveeva, E. V. Popova, K. A. Seed, N.. Stefanova, D. V. Sikorski, D. A. Smirnova, I. M. Tushkanova, A. Rusina, L. Yu., Chernykh, A. A. Kharchenko and T. N. Yudina.

In the Republic of Kazakhstan, the problem of formation and development of the digital economy, Internet marketing, the information sector of the economy were engaged in such scientists as A. A. Ashimov, Dnishev F. M., A. K. Koshanov, G. M. Mutanov, B. M. Mukhamediev, N. To. Theoretical and practical issues], K. A. Sagadiyev, M. S. Tulegenova A. G., and Ploshay.

Despite the scientific contribution of scientists to the theory and practice of the formation and development of the digital economy, there are issues that require further study, in particular, requires clarification of the regulation of the digital economy.

The relevance, great demand, and not the study of the main trends in the development of the digital economy in the future predetermined the choice of topics and main areas of research.

At the World Bank seminar in December 2016, the digital economy was identified as the paradigm of accelerating economic development with the help of digital technologies. In another definition, digital economics implies a virtual environment that complements our reality.

The digital economy is digital production. Currently, about half of the world's population uses the Internet in their daily lives to learn and conduct business. The volume of virtual trading in the near future will exceed the standard types of trade relations. Digitized money is easier to use, much more difficult to fake.

Virtual life is an industry where new products are produced and the craziest ideas are implemented. Tests of new inventions have become more accessible and faster – there is no need for real tests. Emulation

allows you to identify the pros and cons of new products with minimal cost. Electronic economy, according to experts, will completely change the usual business processes and economic relations.

However, until now, the content of this concept remains vague, and there is no clear definition in the WB report. In this material, RIA "Science" contains the most general ideas about what constitutes a digital economy. To begin with, it is worth remembering the definition of a conventional "analog" economy – this is the economic activity of a society, as well as the totality of relations developing in the system of production, distribution, exchange and consumption. The use of computer, Internet, mobile phones can already be considered "consumption", in this case, the digital economy can be represented as that part of the economic relations, which is mediated by the Internet, cellular communication, ICT. Doctor of Economics, Corresponding Member of the Russian Academy of Sciences – Vladimir Ivanov gives the broadest definition: "The digital economy is a virtual environment that complements our reality".

Indeed, probably, all our actions in computer virtual reality can be attributed to the system of production, distribution, exchange or consumption. But, of course, virtual reality, as such, did not appear with the creation of a computer. All human thought activity can be attributed to it. In addition, money – the main tool of the economy – is also a product of virtuality, since they are invented "measure" of the value of goods and services. But with the invention of the computer, it was possible to "digitize" money, which undoubtedly simplified commodity-money relations, led to a tremendous time saving and increased security of operations.

The term "virtual economy" is increasingly appearing in news and newspaper headlines. Scientists, politicians and businessmen use this concept in their speeches, reports and scientific papers. A great future is predicted for the virtual economy (Digital Kazakhstan, 2017).

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Material and Methods. The research methodology is based on a comprehensive analysis of the problem. The state can provide a "digital leap" in the country through the accelerated development of specific technologies. In such cases, the state assumes the role of an investor, determining the key, the most promising areas of financing, based on the assessment of long-term return on investment, competitive position, trends, as well as invested in the fundamental conditions of success, such as education and retraining. In South Korea, with the active position of the state, support companies are beginning to independently invest in breakthrough digital technologies. Virtual life is an industry where new products are produced and the craziest ideas are implemented. Tests of new inventions have become more accessible and faster – there is no need for real tests. Emulation allows you to identify the pros and cons of new products with minimal cost. Electronic economy, according to experts, will completely change the usual business processes and economic relations. Formation and advantages of the digital economy. The main direction of the digital economy is to provide quick and easy access to services through the Internet. The advantage of digital technologies are low costs, which affects the reduction of the cost of goods and prices for the end user. For example, an electronic version of a book can be purchased at least 25 percent cheaper than its printed equivalent. Virtual releases of your favorite artists are less expensive to produce than recordings on standard media.

Results and Discussion. The ideas of the digital economy appeared in the late twentieth century, when the global web began to penetrate into all spheres of life. At first, customers could purchase software through the network, later games and books. Over time, it became possible to buy absolutely any product without leaving your home. The market for selling software, computer

games and e-books, which could be ordered and paid for without leaving home, began to actively develop. The digital economy is an activity directly related to the development of digital computer technology, which includes services for the provision of online services, and electronic payments, and online trading, and crowdfunding and more.

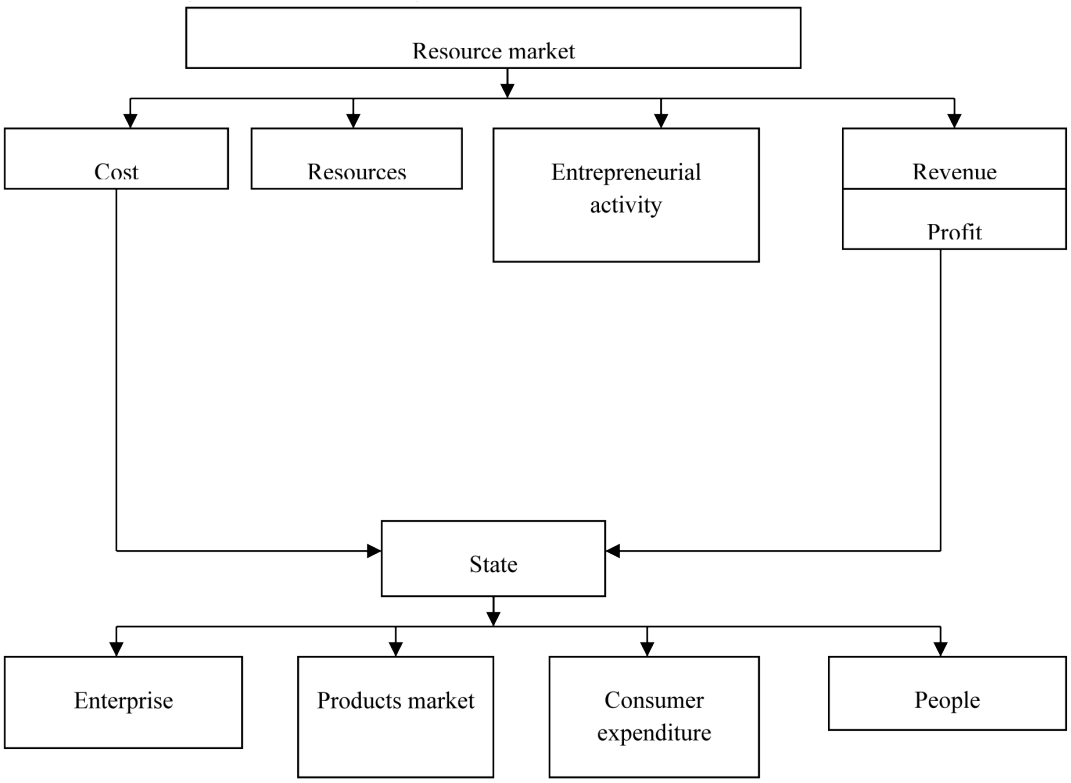

Figure 1. Economic model
*Note: according to literature 2, 3

Thus, we can assume that the essence of the digital economy lies in the fact that thanks to the development of digital technologies, the consumer can more quickly receive the services he needs, save money by buying products from online stores at lower prices. The core of the digital economy is the sector of the production of digital goods and the provision of services related to digital technologies. The growing role of the digital economy lies in the fact that the digital economy is the basis for development in general and has an impact on such diverse sectors as banking, retail, transport, energy, education, health care and many others.

The concept of a digital state is a relatively new concept that emerged with the increasing role of information technology in the functioning of the private and public sectors. The implementation of IT solutions that allow the state, business and society to effectively interact, is becoming an increasingly large-scale and dynamic process. In addition, with the development of the information technology sector in Kazakhstan, new opportunities for the labor market are emerging.

As world experience shows, each workplace in the field of IT (information technology) creates 2-4 jobs in other industries. The introduction of information technology in the public sector brings to a qualitatively new level the key aspects of the life of the population – from paying utility bills to issuing insurance policies and treatment.

The digital economy is becoming the most important driver of innovation, economic growth and competitiveness. Today, the attention of the Government of Kazakhstan and society to digitalization as a global trend, including the expectations of the socio-economic effect of their implementation, is very high. And this level is primarily determined by the scale and specificity adopted by the President of Kazakhstan N.A. Nazarbayev Nation Plan “100 concrete steps.” In

particular, one of the "100 steps" is the creation of the state corporation Government for Citizens: a unified provider of public services modeled after Canada Service in Canada and Centrelink in Australia. Kazakhstan within the framework of current reforms is focused on the countries that have achieved significant success in creating a digital state. As you know, these are Austria, USA, Denmark, Australia, Canada, Singapore. For example, in Vienna, the principle of "smart" planning of the city budget allows the municipality to save over 2 million euros annually. In Boston (USA), the mobile utility control application has helped to reduce the number of calls related to solving utility problems by 66%.

According to a study by the Boston Consulting Group (BCG), reflected in the article "Kazakhstan on the way to the digital economy", in 2016, by the level of digitalization of the economy, Kazakhstan occupied the 50th line of the rating from 85 countries and is in the emerging digital economy group.

According to forecasts of leading world experts, by 2020 25% of the world economy will be digital. In connection with the above-mentioned aspects, the State Program "Digital Kazakhstan" was developed. It is designed for 2017-2020 and is of strategic importance for the country. The main objective of the program is "improving the quality of life of the population and the competitiveness of the economy of Kazakhstan through the progressive development of the digital ecosystem". It is not by chance that the basis for its development was the Decree of the President of the Republic of Kazakhstan of February 1, 2010 No. 922 "On the Strategic Development Plan of the Republic of Kazakhstan until 2020". The foundation of the "Digital Kazakhstan" program was the state program "Information Kazakhstan-2020", approved in 2013.

The expected results for the country from the implementation of the state program "Digital Kazakhstan" are defined and designated in accordance with the strategic objectives of the state – improving the efficiency and transparency of public administration, providing employment, improving the quality of education and health, improving the investment climate, increasing productivity and increasing the share of small and medium-sized businesses in the structure of GDP.

According to the results of three years of implementation of the state enterprise "Information Kazakhstan-2020", its execution was achieved by 40%. Economic experts have calculated that as a result of the implementation of the state-owned enterprise Digital Kazakhstan, the share of the IT sector in Kazakhstan's GDP will reach 4.85% by 2020, and labor productivity in this industry will grow by 31%. Digital literacy of the population will be 80%, the share of Internet users will increase to 78%, and the percentage of e-government services provided in relation to the total number of services received in paper and electronic forms will increase to 80%.

For 10 years, the e-Government portal (eGov) has been functioning. During this period, the legal framework, architecture and infrastructure of the "electronic government" was formed. Today, eGov uses almost 50% of the economically active population of the republic, which is about 5 million people. The ecosystem of the "Open Government" is also developing: 338 sets of publicly available data of government agencies are posted on the open data portal. One of the largest implemented projects in the public sector was e-Ministry of Finance – the creation of a consolidated reporting system for the public sector based on SAP solutions for the Ministry of Finance of Kazakhstan.

The President of the Republic of Kazakhstan, Nursultan Nazarbayev, in his message "The Third Modernization of Kazakhstan: Global Competitiveness" noted the need to develop in the country such promising sectors as 3D printing, online trading, mobile banking, digital services, including in health care and education, and others . The widespread digitalization of the economy will lead to the disappearance of entire industries and the creation of fundamentally new ones.

These industries have already changed the structure of the economies of developed countries and have given new quality to traditional industries. Worldwide studies confirm the initiative of the President of the Republic of Kazakhstan. According to the consulting company Gartner, which specializes in information technology markets, the world is actively entering the era of digital globalization. So, in 2015, the volume of the global IT market amounted to 3.5 trillion. US dollars or 4.8% of global GDP.

In particular, Kazakhstan in the World Bank's Doing Business ranking in 2020 should be in the list of the first 35 countries. The e-government index (according to the UN methodology) in 2020 should be among the top 25 countries. Accessibility of information and communication infrastructure in households of the Republic of Kazakhstan should reach 100%, and the number of Internet users in 2020 – 75% .

Today, in many developed countries, the well-known program of Bill Gates "Oracle" is used for this, which allows mobile scanning of all land areas and providing data on their condition in a matter

of time. In most advanced countries of the world, such as, for example, Canada, Korea, Malaysia, Singapore, the United States, strategies or integrated information development programs are developed and implemented both for society as a whole and for individual spheres of activity. Kazakhstan is confidently moving along the path of digital transformation.

There are risks of irrational development of the digital economy. In particular, digital technologies strengthen state control over citizens, increase inequality between regions and companies, and also cause a monopoly in the market. Negative consequences occur precisely in the case of the intensification of the so-called digital inequality, in which there is a different level of IT development in different regions.

The World Bank names three important categories of problems that are indications of the possibility of digital transformation: legal regulation, the presence of skills among the population, and the creation of appropriate institutions of digital governance.

Therefore, in order to transform the economy into a digital one, it is necessary to create an appropriate legal and regulatory framework for e-business, reforming the education system and attracting citizens to governing the state through electronic services. It seems necessary to combine the standard tasks of ministries, including accounting and personnel records, office management, with the key functions of the Ministry of Finance – public debt management, work on improving capital, transparency and control over the expenditure of budgetary funds.

Conclusion

The essence of the digital economy lies in the fact that thanks to the development of digital technologies, the consumer can quickly get the services he needs, save money by buying products in online stores at lower prices. The core of the digital economy is the digital goods and services sector.

The growing role of the digital economy is that the digital economy is the basis of development in General and has an impact on a variety of industries such as banking, retail, transport, energy, education, health and many others. Currently, a number of factors affecting the development of the digital economy can be identified. Internal factors are managerial. External factors – infrastructure and General economic.

For the growth of the digital economy it is necessary to develop the national it sector, to stimulate the creation of innovative technologies, to cooperate with foreign market actors for their development. It is necessary to attract investment and motivation of entrepreneurial activity in this industry.

All strata of society – the state, the private sector, civil society and the it community-must participate in digital economic activities. Ensuring information security of information and innovative technologies is also an important component.

References

Digital Kazakhstan: realities and prospects. [Electronic resource.] Mode of access: https://primeminister.kz/ru/news/all/tsifrovoi-kazahstan-realii-i-perspektivi-16155.Дата treatment 10.03.2018.

Decree Of the President of the Republic of Kazakhstan № 922 "on the Strategic development plan of the Republic of Kazakhstan until 2020" dated February 1, 2010

Kazakhstan ranked 59th in the competitiveness index. [Electronic resource.] Access mode: https://24.kz/ru/news/economyc/item/271998-v-indekse konkurentosposobnosti kazakhstan-zanyal-59-mesto. Date of application: 17.10.2018

Named the most developed countries in the field of It [electronic resource]. Mode of access: https://www.kommersant.ru/doc/998722.Дата treatment: 29.10.2018

Nemtsov, A. K., the Russians waiting for the digital economy. High technology can revive a weak economy.– M.: 2017 – 320 p.

National Plan-100 concrete steps to implement the five institutional reforms of the Head of state Nursultan Nazarbayev from 05.2015.

National action plan for the implementation of The President's Address to the people of Kazakhstan "Third modernization of Kazakhstan: global competitiveness" dated January 31, 2017.

Stefanova N. Evaluation of the digital economy//Vestnik of the Volga state University of telecommunications and Informatics.-2018. – № 11. – P. 122-124.

State program "Digital Kazakhstan". Approved by the government of Kazakhstan № 827, from 12.12. 2017.

State program "Information Kazakhstan-2020". As amended on 19 March 2010

The welfare of the Kazakh dance: increase incomes and quality of life. Message Of The President Of The Republic Of Kazakhstan N. Nazarbayev to the people of Kazakhstan from 5 October 2018.

The Digital economy has been transformed. [Electronic resource.] Mode of access: http://www.connect-wit.ru/tsifrovaya-ekonomika-transformirovalas-transformirovalas.html. Date of access 1.04.2018.

Top 10 countries with advanced it Technologies. [Electronic resource.] Mode of access: https://www.vestifinance.ru/articles/73084. Date of access: 10.07.2017.

Tulegenova M. S., Syzdyk N. With. The digital economy and new directions of social development of Kazakhstan // Bulletin of the University of Turan. – 2017 – №4. – Pp. 12-131.

World ranking on the level of economic freedom according to HeritageFoundation [Electronic resource]. Mode of access: http://gtmarket.ru/ratings/index-of-economic-freedom. Date of access: 20.12.2017