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DIGITALIZATION IN THE CONTEXT OF THE PANDEMIC:

WORLD EXPERIENCE AND KAZAKHSTAN

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Abstract: The aim of the study is to study and investigate the economic efficiency of digitalization development in the context of the pandemic.

Methodology. The goals and objectives set in the work were achieved using the methods of economic-statistical, abstract-logical, dialectical and historical analysis and synthesis, as well as macro - and micro-economic analysis of economic phenomena and processes. The study also used the works of classics of economic theory, well-known scientists and economists, legislative acts, statistical materials and materials published in the mass media, as well as Internet resources.

The originality of the research. Ongoing social exclusion measures in most countries of the world have forced a significant part of the global trade in goods and services to go online. It is likely that in the near future the world will see further explosive growth in the capitalization of online service providers against the background of falling positions of companies in the commodity industries. Consumption patterns will change dramatically. A significant share of work and education will also go to the distance format.

Keywords: pandemic, digitalization, Internet resources, sustainable development, competitiveness, development mechanism, efficiency.

Introduction. COVID-19 has become a global challenge and has spawned a new economic order both internationally and nationally. Contrary to pessimistic forecasts, the economy of the Republic of Kazakhstan is gradually recovering. Thanks to the low level of public debt and previously accumulated financial reserves, Kazakhstan has managed to significantly increase public spending, support citizens and the economy.

Theoretical analysis. The new coronavirus infection has already become a threat to the life and health of all mankind. Now it is very important to stop the spread of the virus as soon as possible and gradually restore economic activity. The pandemic has once again reminded us that we live in a closely connected world, and only joint efforts will allow us to find a way out of this situation.

The quarantine has dealt a heavy blow to the global economy. According to experts, in 2020, the global economy lost 8-13%. According to the most optimistic forecasts, only in the fourth quarter the growth rate can return to pre-quarantine levels. Air travel and other industries most affected by the epidemic will not recover until mid-2021. It is clear that the global economy has already entered a phase of recession.

However, at the height of the epidemic, we are seeing a clear increase in the demand for digital services everywhere [1]. Digitalization is particularly needed in healthcare, education, finance, the entertainment industry, as well as companies that continue to work remotely.

One of the most relevant topics for companies today is the organization of employees' work at home. To ensure continuous operation, many companies began to actively use video conferencing services. All external and internal meetings and trainings are held online. Thanks to this, everyone continues to work normally.

Schoolchildren and students are also transferred to «remote». Online learning used to be quite a controversial topic. Only a few educational institutions have tested such solutions. Now, the majority of Kazakhstani students attend classes online. For example, the number of users of Yandex educational services has increased 2-3 times, and about 1 million people use them daily.

Residents of Kazakhstan are also getting more opportunities to use financial services online. Large banks have expanded the scope of services provided via the Internet. The opening of deposits, the

issuance of loans, the registration of insurance products and much more takes place remotely.

The experimental part. Under the quarantine, a number of free digital resources became available to users. You can watch videos and movies, read books, attend sports training and much more. Online meetings and online concerts are held in social networks. You can even cook food online. All this enriches the lives of people in isolation.

In the long term, the explosive growth in demand for such digital solutions will be a catalyst for the development of the «contactless economy», a new economic model based on such emerging technologies as 5G, artificial intelligence, and cloud services. Kazakhstan also needs to focus on building the appropriate capacity, which will allow to raise the industry development to a new level and move to intellectualization.

Perhaps the coronavirus is a wake-up call for the world to re-unite around one platform for free trade and accelerating globalization.

With the advent of the coronavirus, the rate of digitalization of the economy has increased 10-fold. Crises come and go. But we need to understand that the situation that we are currently experiencing will fundamentally change our future.

The digital divide that divided people into those who are connected and those who are not, will disappear very quickly.

«Digit» under the influence of the crisis phenomena completely changes the approach of companies to their work. 95% of respondents believe that for successful competition in the new conditions, the business must improve the quality of relations with the customer base, turning consumers into full-fledged partners (in the world-85%) [2].

One of the main technological trends today is the desire of market leaders to use artificial intelligence tools to transform business methods and change the very essence of work. 92% of Russian executives (79% globally) recognize that human-machine collaboration will be crucial for future innovation. At the same time, Kazakhstan lags behind the world indicators for the use of artificial intelligence. 60% of companies and organizations in our country pilot or adapt artificial intelligence (73% in the world).

Today, the usual understanding of who is the manufacturer of the product and is responsible to the consumer for its quality is blurred. Solutions are increasingly in a state of «permanent beta». This is due to the ever-growing volume of software updates. 63% of Russian company executives expect a significant increase in the volume of software updates for so-called «connected products and services» in the next three years (74% in the world). 83% of the top managers surveyed believe that customers generally do not mind or even welcome software updates to work with connected products and services that they use in their practice (in the world-68%) [3].

Robotics is one of the main directions of technological development today. This trend is perceived as a key one in Kazakhstan. 91% of managers of Kazakhstani companies believe that robotics will allow them to provide a new generation of services (73% in the world). 34% of Russian companies already implement robotics technologies in their practice or plan to launch such a project within a year (30% in the world). 31% will launch such a solution within the next two years, which corresponds to the world level.

83% of Kazakhstani managers believe that the rate on innovation has never been as high as it is today (76% in the world). Getting the most out of new technologies will require new ways to develop and implement together with digital ecosystem partners and third-party organizations. 84% of Kazakhstani executives believe that the next wave of innovation will be based on scientific research aimed at sustainable development, climate change and energy (77% in the world).

The spread of COVID-19 contributes to changing economic and social life in many countries. One of the most striking consequences of the current pandemic can already be called the accelerated introduction of digital technologies in a variety of areas.

As part of government-imposed travel restrictions and social distancing measures, businesses and consumers are actively embracing digital solutions to continue operating remotely. Digitalization contributes to the transition to the online environment of medicine, work, education, allows you to make online purchases, get more data on the spread of the virus and share information about research. The development of this trend speaks not only about the urgent need, but also about the material base created for the widespread use of digital technologies.

In comparison with the situation of the global financial crisis of 2008, over the past 12 years, the number of Internet users has grown from 1.6 to 4.1 billion, and the number of smartphones used in the world has reached 3.2 billion. At the same time, the share of Internet users among the global population

increased from 23% to 54%, the number of people using online shopping services doubled, and the volume of retail trade on the Internet increased from 1 to 3.8 trillion US dollars [4].

Of the six main trends in digitalization that UNCTAD notes in the context of the COVID-19 crisis, three are directly related to the widespread acceleration of the transition to the digital economy:

- Remote work and use of communication technologies

Due to the spread of COVID-19 in the world, more and more people work remotely, using video conferencing services and messengers. Increased demand for the use of programs such as Microsoft Teams, Skype, Cisco's Webex and Zoom.

In China, the use of remote work services from WeChat, Tencent and Ding increased significantly in late January 2020, when restrictions related to COVID - 19 came into force.

The use of online platforms encourages the development of cloud technologies for data storage and analysis, and increases the demand for renting such services from technology companies (Amazon Web Services, Microsoft, Tencent and Alibaba).

The crisis also contributed to the transition of schools and universities to distance learning. Digital tools and online training allow teachers and tutors to stay in touch with students.

- Негативное воздействие на некоторые цифровые платформы

The crisis caused by the spread of COVID-19 has had a negative impact on digital platforms, mainly in the field of movement and travel. This group includes services related to transportation (Uber, Lyft, Didi Chuxing), as well as services for renting housing (Airbnb, Booking.com). This trend reflects the overall decline in the travel and tourism industries during the pandemic.

- Changing consumer habits

At the same time, the spread of COVID-19 has led to an increase in electronic sales. For example, in the United States, there is an increase in online sales in the field of food delivery, pet food. A significant increase affected some items of medical products. According to the company Pacvue, there is a surge in requests related to the purchase of hand antiseptics and antibacterial soap.

The world's largest online retailer Amazon has decided to hire an additional 75 thousand employees in connection with the increase in the number of orders during the COVID - 19 pandemic. Have creeden special Fund of \$ 25 million. The United States, «designed to ease the situation of the partners, such as truck drivers, seasonal and freelance workers» [5].

Chinese online retailer JD.com reported an increase in sales of food products by 215% d about 15 thousand tons for the period of ten days in late January – early February 2020 (compared with the same period last year).

The European Union Agency for Cybersecurity believes that the growth of electronic sales contributes to the acceleration of the digital transformation of enterprises, especially medium and small businesses, which are forced to expand their online presence in order to survive in the current environment. Medium and small businesses account for 99% of all companies in Europe. Although 77% of these businesses have their own websites, only 17% sell products over the Internet. At the same time, about 41% of Europeans are concerned about the security of online payments.

Another area where there is an increase in user activity is represented by streaming services. The closure of theaters and movie theaters attracted a new audience for streaming services and video hosting services Netflix, HBO, Youtube, etc. School closures are also contributing to increased demand in the area, as children and teenagers spend more time at home.

Results and discussion. Most digital solutions are offered and supported by a fairly small number of the largest platforms created in the United States or China. For example, the UNCTAD Digital Economy 2019 report notes that Google accounts for 90% of the total Internet search market, Facebook accounts for two-thirds of the social media market, and Amazon accounts for 40% of the global retail market [6]. Accelerating the pace of digitalization contributes to strengthening their positions in the markets. The network benefit effect, as well as their ability to track, extract, and analyze information, has allowed such companies to gain an advantage. Subsequently, the data obtained can be transformed into digital knowledge and monetized in various ways.

Changes in public behavior that occurred during the spread of COVID-19 will have long-term consequences. Many organizations and users will use digital solutions more actively, as they will develop a certain habit of doing so during a crisis.

The use of data and digital platforms provides additional opportunities for countries to overcome development challenges. At the same time, despite the rapid adoption of technologies, significant digital gaps remain – significant differences in the speed of implementation and adoption of digital technologies. The crisis caused by COVID-19 has demonstrated the existing stratification both between and within

countries.

UNCTAD publications show that the least developed countries have significant limitations in various areas related to digital technologies, from information and communication technology infrastructure and payment services to the skills of workers and the formation of a regulatory framework. Responding to these challenges, they are trying to use the available digital capabilities to overcome the crisis caused by the spread of COVID-19.

In Senegal, the Ministry of Trade, Small and Medium-sized Businesses plans to create a platform to bring together businesses with digital capabilities to deliver essential goods.

The digital divide between States is particularly evident in the field of education, where the ability of students to use online learning services can vary significantly depending on the availability of a home computer and access to the Internet, the level of family income and the degree of readiness of schools.

According to the OECD Program for International Student Assessment, 5 in countries such as Denmark, Slovenia, Norway, Poland, Lithuania, Iceland, Austria, Switzerland and the Netherlands, 95% of students can use a home computer, while in Indonesia this figure is only 34% [1].

Among low-income States, more than 75% do not offer any form of distance learning. But even when the Governments of such countries take measures to provide online education, they do not cover the majority of students, since only 36% of the inhabitants of these countries have access to the Internet.

The digital divide also exists within countries: in the United States, every student from an economically advantaged school has access to a home computer, but only 3 out of 4 students from disadvantaged schools have this option. In Peru, these figures are 88% and 17%, respectively. In Mexico, 94% of students from well-off families have access to the Internet, while in disadvantaged families this figure is 29% [7].

Obviously, the isolation conditions have exacerbated these problems. For the 18 million American households with no Internet access at all, the digital divide has only become more painful and obvious over the past few weeks, whether it's schoolchildren who can't participate in online classes, adults who can't work remotely, or just a family who can't order grocery deliveries to their homes.

Given the increasing role of high-quality Internet access as society and the economy continue to digitalize, the COVID-19 pandemic will no doubt prompt governments to take new measures to close the digital divide in the form of public investment in infrastructure or tighter regulation (similar to the electricity sector), as well as trigger another surge in programs to increase the number of connections and the proliferation of Internet access devices.

One recent Congressional bill to help recover from the effects of the COVID-19 pandemic provides \$ 125 million in loans to telecommunications companies to build Internet access infrastructure in rural areas.

The crisis caused by the spread of COVID-19 will contribute to the transition to «digital capitalism» in many areas of life. However, according to OECD experts, this trend may not affect the education sector.

Education is still not associated with the sphere of significant profit - making. At least in comparison with healthcare, where many new drugs and treatment technologies are invented and produced. The OECD estimates that the capitalization of the health sector (the market value of companies) represents about 50% of the total amount spent worldwide on health (5 out of 10 trillion US dollars). In education, this figure is less than 2% (0.15 out of \$ 6 trillion). Therefore, there are concerns that investment in education may not be sufficient to develop the tools and resources that will help improve it [3].

However, due to the coronavirus, the field of education has already undergone significant changes due to the transition of educational institutions in many countries to a distance learning format. Students and teachers strive to use modern technological capabilities. For example, according to the WEF, students in Hong Kong have switched to distance learning using interactive applications, and in China, access to educational resources for 120 million citizens is carried out, including through live broadcasts on television. A detailed list of digital educational platforms used in different countries is published on the UNESCO website.

In one school in Nigeria, standard non-synchronous learning tools (such as reading using Google Classroom) were supplemented with synchronous face - to-face instructions on video.

Students in Lebanon to «visit» the lessons of physical education online: they record and send videos of their training sessions to teachers as homework. However, from a technical point of view, the process is not yet optimized. Parents of one of the students reported that sports activities take several minutes, while the process of recording, processing and sending videos requires additional time.

There is an increase in public-private cooperation on education issues. Within a few weeks, educational consortia were formed with the participation of various stakeholders, including governments, publishers, educators, technology developers and suppliers, and telecommunications network operators. Their goal was to provide temporary technological solutions, including for the education sector.

However, as the transition to online learning is forced, the scale of the digital divide and the disproportionately large number of schoolchildren who do not have home broadband Internet access are becoming increasingly apparent.

Conclusions. According to the US Federal Communications Commission (FCC), in 2019, more than 21.3 million Americans did not have access to the Internet, especially in rural areas, which even led to the emergence of such a concept as the «homework gap» (English – homework gap), when students with lower incomes lag behind their more affluent classmates precisely because of the inability to complete some tasks in an online format. Taking into account the priority of education in modern society, as the impact of the COVID-19 pandemic on global processes is realized and studied, the elimination of the digital divide in school education should be given priority.

Another problematic issue of digitalization of education was the readiness of teachers themselves for the new format and the need for their training. For example, in Europe and South Asia, 50% of States instruct teachers on remote interaction with students during a crisis. At the same time, in sub-Saharan Africa, a third of States have introduced distance learning, but none of them conduct training in this area.

According to the WEF experts, in the future, the use of new technologies, especially in the field of 5G, will make it possible to implement the concept of «learning anywhere, anytime» in different formats. Traditional types of classroom learning will be supplemented with new methods—from live broadcasts to virtual reality. Learning can become a habit that is integrated into normal life activities.

The OECD sees three scenarios for the development of situations after overcoming the COVID-19 crisis.

The first involves a return to pre-crisis times, as far as possible.

The second scenario looks at trends through the lens of sovereignty: will countries be willing to use online learning services and tools provided by companies from a limited number of countries (given that the world's largest digital platforms are located in the United States and China).

The third scenario sees the crisis as a new opportunity for international cooperation. Closer collaboration – both between companies and through international public-private partnerships—can help create more accessible digital learning tools. It is this approach that is in demand in the healthcare sector to find a quick solution to the problem of coronavirus.

In carrying out the digitalization of the state, in Kazakhstan, the first stage was the creation of state databases of bathhouses, then the formation of the right field. After that, an interface is created, on the basis of which all public services that were carried out physically are transferred online.

Digitalization also requires that the population is ready for it. For a successful transition, the penetration of Internet users must be close to 50%, otherwise, Internet services will be unclaimed.

Another important aspect is financial instruments: banks, payment organizations that carry out their activities with the electronic money system should work.

It is necessary that the business community is actively involved in these processes and is the «locomotive» of digitalization. But, unfortunately, now this role is performed by the state, and business is still behind.

Speaking about financial independence, it is worth noting that, according to data for 2020, the population of Kazakhstan in 18 million people has 24-26 million bank cards. This means that many Kazakhstanis are clients of two banks at the same time. Of course, this is a serious incentive for digitalization.

We also have good indicators of the financial capacity of the market. In 2019, the volume of transactions through bank cards in December amounted to 1.8 trillion tenge – about \$ 5 billion.

This suggests that the population has money, it can and likes to pay online.

Despite the crisis, the tenge exchange rate increased more than twice, and the volume of transactions increased steadily: every month by \$ 200 million. The numbers speak for themselves.

In general, the quarantine in Kazakhstan showed that there are almost no crisis managers among the officials. All the things that needed to be done in advance, we decided in the fire order. Before the pandemic, of course, we had almost no significant system failures.

So far, online education is absent in both the legal and actual field of the country. We have the concept of distance education, but online education is fundamentally different from distance education.

Pupils and students who graduated from the relevant educational institutions in the last academic

year received documents issued under the bylaw, while this state paper still needs to be approved and legalized in the digital space.

As for the actual field, only in large centers and large cities could children use online playgrounds, fully study in an online format. In the regions, there were often problems with communication, many children were deprived of the normal educational process.

Accordingly, there is reason to believe that the generation that is now faced with a pandemic online education will be much weaker than what was produced earlier. Since the quality of knowledge today's children definitely lose.

Interestingly, all commercial resources worked without interruptions. This is another confirmation of the fact that today's digital state lives separately from the business.

Steps in the field of cybersecurity are carried out systematically. Previously, for example, there was no software registry, there was no authorized body in the field of cybersecurity.

Today, these functions are performed by the Information Security Committee of the Ministry of Digital Development, Innovation and Aerospace Industry of the Republic of Kazakhstan.

Previously, R & D and R & D were at a low level of development in the country, today the development is beginning to develop more rapidly, grant funding is allocated.

In the context of a pandemic, the following points are important:

First, the mutual recognition of electronic documents of businesses, individuals and legal entities of the EAEU member states without any barriers on a par with regional ones.

Secondly, the integration of state systems and the identification of legal entities and individuals. For example, the opportunity to get acquainted with the identification numbers of any organization from the EAEU country, the date of registration, tax certificates, etc.

Third, in principle, the implementation of the digital transformation of the economy, business and society.

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Аннотация. *Целью исследования* является изучение и исследование экономической эффективности развития цифровизации в рамках пандемии.

Методология. Поставленные в работе цели и задачи были достигнуты с использованием методов экономико-статистического, абстрактно-логического, диалектического и исторического анализа и синтеза, а также макро - и микроэкономического анализа экономических явлений и процессов.

В исследовании также использовались труды классиков экономической теории, известных ученых и экономистов, законодательные акты, статистические материалы и материалы, опубликованные в средствах массовой информации, а также интернет-ресурсы.

Оригинальность исследования. Продолжающиеся в большинстве стран мира мероприятия по социальной изоляции заставили перейти в онлайн существенную часть мировой торговли товарами и услугами. Вероятно, в скором времени мир будет наблюдать дальнейший взрывной рост капитализации поставщиков онлайн-услуг на фоне падения позиций компаний сырьевых

отраслей. Кардинально изменятся модели потребления. Заметная доля работы и образования также уйдет в дистанционный формат.

Результаты исследования. С одной стороны, эти изменения сделают жизнь человека еще более удобной. Широкие горизонты для развития человечества открывает возможность, не выходя из дома, обеспечивать себя необходимыми потребностями, задействовать для выполнения ряда «непрестижных» или опасных задач робототехнику, получать необходимую информацию об основных социально-экономических тенденциях в формате открытых данных, лечить заболевания и противодействовать их распространению с помощью технологий дистанционного взаимодействия, использования искусственного интеллекта и анализа больших данных.

Ключевые слова: пандемия, цифровизация, интернет ресурсы, устойчивое развитие, конкурентоспособность, механизм развития, эффективность.

Түйін: Зерттеудің мақсаты пандемия шеңберінде цифрландыруды дамытудың экономикалық тиімділігін зерттеу және зерттеу болып табылады.

Әдіснамасы. Жұмыста қойылған мақсаттар мен міндеттерге экономикалық-статистикалық, дерексіз-логикалық, диалектикалық және тарихи талдау мен синтез әдістерін, сондай - ақ экономикалық құбылыстар мен процестерді макро-және микроэкономикалық талдау әдістерін қолдана отырып қол жеткізілді.

Зерттеуде сонымен қатар экономикалық теория классиктерінің, белгілі ғалымдар мен экономистердің еңбектері, заңнамалық актілер, статистикалық материалдар мен бұқаралық ақпарат құралдарында жарияланған материалдар, сондай-ақ интернет-ресурстар пайдаланылды.

Зерттеудің бірегейлігі. Әлемнің көптеген елдерінде жалғасып жатқан әлеуметтік оқшаулау шаралары тауарлар мен қызметтердің әлемдік саудасының маңызды бөлігін ғаламторға көшуге мәжбүр етті. Таяу уақытта әлем шикізат саласындағы компаниялар позицияларының төмендеуі аясында онлайн-қызметтерді жеткізушілерді капиталдандырудың одан әрі қарқынды өсуін байқайтын шығар. Тұтыну үлгілері түбегейлі өзгереді. Жұмыс пен білім берудің айтарлықтай үлесі қашықтықтан форматқа көшеді.

Зерттеу нәтижелері. Бір жағынан, бұл өзгерістер адамның өмірін одан да ыңғайлы етеді. Адамзаттың дамуы үшін кең мүмкіндіктер үйден шықпай-ақ өзін қажетті қажеттіліктермен қамтамасыз етуге, робототехниканы бірқатар «беделді емес» немесе қауіпті міндеттерді орындау үшін іске қосуға, негізгі әлеуметтік-экономикалық үрдістер туралы ашық деректер форматында қажетті ақпарат алуға, ауруларды емдеуге және қашықтықтан өзара іс-қимыл жасау технологиялары, жасанды интеллектті пайдалану және үлкен деректерді талдау арқылы олардың таралуына қарсы іс-қимыл жасауға мүмкіндік береді.

Кілт сөздер: пандемия, цифрландыру, интернет ресурстары, тұрақты даму, бәсекеге қабілеттілік, даму тетігі, тиімділік.