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**FOREIGN EXPERIENCE OF USING DIGITALIZATION IN THE LOGISTICSSYSTEM:
METHODS AND PROJECTS.**

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Digital technologies have become one of the main trends in the growth and technological development of the economy of many countries today.

The process of introducing digital technologies for generating, processing, storing, transmitting, and visualizing information in all spheres of human life, including the economy can be

understood as the process of digitalization [1, 2]. In the definition of the concept, Bart Banche focuses on using the full potential of digital technologies specifically on business processes, various services and products [3]. However, it would be incorrect to consider these as final options, since the very concept of digitalization is much broader, it undergoes changes over time.

For example, according to the Global Digital IQ Survey for 2017, 32% of respondents under the term "digital" understand all activities related to technological innovation, 29% believe that it is synonymous with IT, 14% under the term "digital" understand all activities related to client technologies, 14% understand as all investments that we make to integrate technologies into all processes of our business, 6% of respondents understand as a display of a mentality focused on continuous innovation, the linear structure of decision-making and the introduction of technologies at all stages of business, and only 5% of those who answered under the term "digital" understand all activities related to data and their analysis [4].

The use of digital technologies contributes to increasing the competitiveness of various sectors of the world economy, the emergence of new opportunities for the private sector in the form of connecting to new value chains, opening new and in-demand niches in the light of new products and opportunities in the market, etc.

Most companies have begun to better understand everything related to the use of technology. In the second quarter of 2021, PricewaterhouseCoopers surveyed more than 1,250 executives worldwide and found that digital transformation has increased the speed of development: 53% of survey respondents said that they have accelerated digital transformation efforts over the past 2 years. And also interesting is the fact that 57% say technology has been crucial to their productivity during this time [5].

Digitalization is already transforming all segments of the economy and the sphere of transport and logistics is no exception, according to forecasts, in the coming years it will be the strongest trend that will radically change the entire business.

The COVID-19 pandemic has made its own adjustments in all spheres of life, the consequences of the pandemic will vary from 2 to 4.5 trillion dollars in the global community. If before the coronavirus infection, according to Gartner experts, there should have been growth in the region of \$ 19 billion in 2023, then at the present time there is a forecast that by 2027 it will be \$ 12.9 billion with a 6.5% annual growth rate in the period from 2020 to 2027 [6]. The overall trend is positive.

Many logistics service providers (3PL / 4PL / freight / rail / sea / air, etc.) around the world note that the biggest challenge, the main task is digital transformation. Figure 1 shows that out of 313 companies, more than 66 have chosen the field of digitalization more complex than competitiveness, satisfaction of consumer demand, innovation, etc. with an indicator of 21.21% [7]. The reasons may be the factor how not all Internet providers have switched to improved systems, as well as the very origin of logistics companies without an initially digital origin.

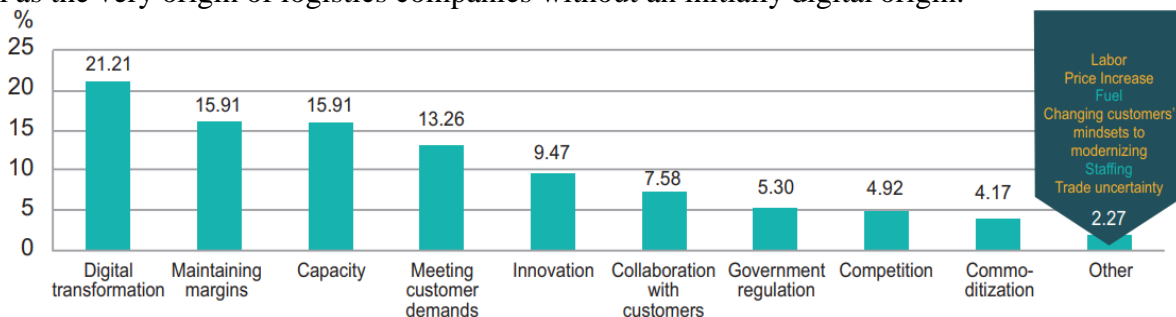


Figure 1 - The main challenges that face in the field of logistics

The level of digitalization development in all countries is different, depending on their starting point and potential, ending with the goals of further development, therefore, it is impossible to identify one leader who succeeds in all indicators. According to McKinsey, the leading countries in terms of the digital economy are the United States, China and Western Europe. In total, they

occupy more than 40% of the market. If we take into account the digitalization of logistics, it can be argued that now there is an active stage of creating digital platforms and improving them to increase efficiency.

Digitalization of logistics in China. In 2007, by order of the Central Government of the People's Republic of China, the development of the National Public Information Platform for Transport & Logistics (LOGINK) began. In 2017, the result was presented at the conference of the International Association of Port Information Systems IPCSA “Globally Connected Logistics”. It includes three large sections such as the exchange of information, the establishment of common standards and data transmission services. The advantage of LOGINK is that on the basis of holistic standards of information cooperation, a national system has been implemented that regulates the operation of logistics systems. It unites all railway stations, airports and seaports not only in China, but also in Japan and Korea.

There are 50 key Chinese companies in this system, 91 logistics parks, 450 thousand Chinese enterprises, the ratio of which is shown in Figure 2, namely 28% from the manufacturing sector, 17% from trade, 55% from transport and logistics, all railway stations and 26 ports of China, Japan and Korea. This platform passes through itself 30 million messages per day according to 26 scenarios of the type of assistance. Small and medium-sized businesses have been given the opportunity to work more by joining the national system, the deadline for the implementation of logistics software has been reduced from 8 months to 1 week [8].

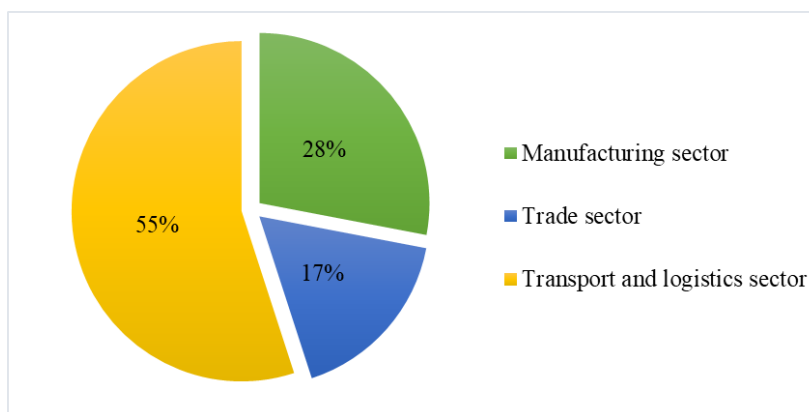


Figure 2 - Percentage of companies in the LOGINK system

The rapid creation of digital logistics systems is also noted as a driver of the development of digitalization in China. Due to it, according to the WTO, the export of transport services over the past 10 years has grown from \$ 34.2 million to \$ 57.6 million in 2020. In China. In 2020, an intelligent logistics system was developed in partnership with e-commerce platforms and logistics firms on the initiative of the Ministry of Industry and Information Technology of the People's Republic of China. Due to the digitalization of Chinese logistics operators China Post EMS, SF Express, and the creation of their own digital systems Tmail Global Cainiao, FBPD, Vip, Kaola, the delivery of the main e-commerce marketplaces was accelerated and cheaper [9]. Companies like JD.com, Alibaba, Meituan Dianping have achieved impressive success in delivering goods with the support of drones and robots.

Digitalization of logistics in European Union. The Architecture for European Logistics Information exchange (AEOLIX) system is a large project that was launched in 2016 with European Union funding. The main task is to create a cloud logistics ecosystem for more effective information management, since the previously existing logistics databases, information management systems and their analysis were not grouped and had too different specifications. Due

to the introduction of AEOLIX, time and money costs would be reduced, increasing the efficiency of work by eliminating the fragmentation of information. At the moment, the AEOLIX system is based in five European countries: Czech Republic, Germany, Greece, Romania and Serbia. This ecosystem will provide visibility of the entire supply chain, which will allow more stable and efficient transportation of various goods and cargo through Europe. AEOLIX is a system for improving the interaction of digital information systems. Using electronic transport and railway invoice for testing, logistics operators of five states can implement electronically, store and exchange information in real time using a mobile phone, computer and tablet.

Digitalization of logistics in USA. Unlike the above countries, rail transport in the United States is not very developed, despite the vast territory and large transport arm. In the country road transport has more demand in particular combined transport. Rather than platforms adopted at the national level, the results of private startups are more high-tech, for example, in the segment of marine lines with online operation models through booking platforms and digitalized systems for managing containers, parcels, as well as paperless document management. Freightos, which started its work in 2016, is a large system for the freight transportation market. A form of cloud computing is software as a service. Initially receiving funding from the OurCrowd investment platform, in March 2017 it raised \$ 25 million in GE Ventures financing, making up a total funding of \$ 50 million [10]. With the help of digital software, it integrates and links enterprise resource planning data from different companies that are participants in the supply chain. This makes it possible to manage information about cargo transportation and improve cargo handling. The Freight marketplace ecosystem sees more than a million monthly searches, thousands of shipments and tens of millions of price updates as it is the world's first online international freight market.

The use of digital technologies is one of the priority directions of logistics development all over the world, including Kazakhstan. It becomes obvious that with the improvement of a separate element of the logistics system (warehouse, means of delivery of material, etc.), bringing it to a state in which it can work quickly and efficiently, but without changing other elements of the system, the result will be unsatisfactory. Digitalization of logistics just gives a reduction in the timing of transportation planning on the route, will facilitate the coordination of transportation between adjacent infrastructures and much more according to the original orientation and purpose. For Kazakhstan, digitalization of logistics provides a great prospect for development. In the country, all digital systems are disconnected and not so convenient to use, despite the positive aspects, for example, the introduction of an Automated management system "Contractual and commercial work" in the Joint-Stock Company "National Company "Kazakhstan Temir Zholy" makes it possible to reduce the process of submitting applications for redirection from 2 days to 1 hour and transparency of the organization and implementation transportation. But after analyzing the digital platforms of China, the United States of America and the European Union, it becomes clear that Kazakhstan is still far from innovative technology. For greater coverage, it is possible to implement a large digital platform that will include not only rail transportation but also transportation by air and sea freight.

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