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### DIGITAL TRANSFORMATION IN KAZAKHSTAN AND THE ROLE OF KAZAKHTELECOM JSC IN THE DEVELOPMENT OF THE DIGITAL ECONOMY IN THE COUNTRY

*The article, using the example of the activities of the national company Kazakhtelecom JSC, presents an analysis of what changes are taking place in Kazakhstan today in terms of digitalization of the economy, digital transformation of companies and what changes in management processes this has caused. Recommendations have been developed for companies that will have to adapt their management processes to the changes that are taking place in the economy of Kazakhstan, presents proposals on how to develop a digital strategy in such a way that the company adapts to the new time in time and doesn't lose its competitiveness or go bankrupt. The research methodology consists in the use of such general scientific and specific methods as the monographic method (the method of studying literature and sources), system analysis, comparative method, regulatory methods based on the use of corporate regulatory materials of Kazakhtelecom JSC. The analysis of the digital economy of Kazakhstan has shown that the Republic is currently at the stage of rapid changes and is quite advanced in many positions in the world. This applies to e-government, the development of digital infrastructure, and other areas of digitalization. The analysis of the digital transformation of Kazakhtelecom JSC showed that its main elements were a new strategy and a new digital model of the company based on customer orientation and the transition to online working methods. But the company also had to rebuild the corporate culture and motivation in the Company. All of them are fundamentally different from those that were in the previous model, based on offline presence and working with clients.*

**Keywords:** digital economy, management processes, digital transformation, Kazakhtelecom, digital strategy, digital model, digital environment, the impact of the digital environment on management processes.

**Кілт сөздер:** цифрлық экономика, басқару процестері, цифрлық трансформация, Қазақтелеком, цифрлық стратегия, цифрлық модель, цифрлық орта, цифрлық ортаның басқару процестеріне әсері.

**Ключевые слова:** цифровая экономика, управленческие процессы, цифровая трансформация, Казахтелеком, цифровая стратегия, цифровая модель, цифровая среда, влияние цифровой среды на управленческие процессы.

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**Introduction.** The current state of the Kazakhstani economy, as well as the entire world economy, is characterized by an active transition to a new technological order. The world economy today is striving for its sixth technological order, which, according to some estimates, will finally be achieved by 2030 and the digital economy will become the basis of this way of life. Already today, the digital economy is actively developing in the country and the world. In this regard, the study of theoretical and methodological issues of

studying the problems of the digital economy is an important direction, because, unfortunately, there is not even a stable definition of the digital economy in theory yet. There is still a stage of discussions among scientists to finally decide on a more or less generally accepted definition.

The basis of the modern so-called digital economy is the decentralized technology «blockchain», cloud computing, big data, cybernetic systems, the Internet of things. Collectively, this is now called the «Industry 4.0» concept. Industry 4.0 is the latest ap-

proach to the integration of production and consumption, which is a symbiosis of robotic workshops, artificial intelligence and Internet technologies.

Taking into account the above, digitalization is a priority direction for Kazakhstan. The advantages and benefits of digitalization will be received, first of all, by the population of our republic, since the processes of digitalization will contribute to improving the quality of life of the Kazakhstanis themselves. Changes under the influence of the digital economy require a strategy to respond to changes in the external environment, because this will affect the overall efficiency of the company's activities, radical changes are required in business processes within the company, their adaptation to changes in the digitalization of the economy, changes in the level of application of information technologies both outside and inside the company. This article is devoted to the study of these and other aspects. The topic is little studied in science and there are practically no such studies in the literature.

**Literature review.** Today, the digital economy in developing countries is growing by 15-25% per year. No sector of the economy is growing at such a pace [1]. Digitalization has become the main and necessary condition for maintaining competitiveness in the global world. And for Kazakhstan, it is also important because it is a chance to diversify the economy and an opportunity to move away from the raw material orientation. We can say that if Kazakhstan develops a digital economy and becomes one of the leaders in this area, our country will break out into the ranks of progressive countries. According to some data, there is a direct correlation between digitalization and economic growth at the level of 70% [2]. And in this case, in Kazakhstan at the current rate, by 2025, about 40% of the additional GDP growth will be provided by digital services. For this purpose, the country has developed a special program «Digital Kazakhstan». Digitalization makes it possible to improve the digital infrastructure, creates convenient and affordable public services due to the total connection of the entire population to the Internet. All these services will not only be convenient and quickly available, but will also become cheap, and these are new sources of income due to access to electronic services [3].

There are many difficulties in assessing the scale of the digital economy, as well as its share

in GDP. First of all, because the impact of the digital economy itself on the economy as a whole, in particular its share in GDP, is uncertain. This is understandable, since there is no clear definition of the digital economy. And depending on what is meant by the digital economy, some authors believe that the contribution of the digital economy is from 4 to 20% of world GDP [4], [5]. In our opinion, the most obvious indicator of the development of the digital economy is the development of the ICT sector, since this is the very sector that belongs to the digital sector. The share of the ICT sector in the economy as a whole can be used to judge the share of the digital economy in the country's economy. It should be said here that some authors believe that it is necessary to include computer services in the digital economy sector. In our opinion, this is not entirely true and we agree with other scientists who believe that it is more accurate to talk about software services [6], [7]. In addition, we also believe that the sector of robotics, big data development, and automated control systems should be included in the digital economy. Over the past ten years, global exports of ICT services and services that can be provided using digital technologies have increased much faster than the entire export of services as a whole, which indicates the growth of digitalization of the world economy. In 2019, the volume of exports of services provided using digital technologies reached US \$ 2.8 trillion, which accounted for 52% of world exports of services [8].

Digital platforms are already playing a significant role in the global economy. In 2019, the total value of platform-based companies with a market capitalization of more than \$ 200 million exceeded \$ 10 trillion and continues to grow rapidly [9]. Today, some global digital platforms have already taken almost the main positions in certain segments. If the WhatsApp communication network is widely distributed in the world, then in China more than a billion users use the national WeChat network, which belongs to Tencent. The payment system of this company, together with the AliPay system, which belongs to Alibaba, has captured almost the entire Chinese payment market. Alibaba itself occupies more than 60% of the Chinese e-commerce market [10].

Thus, we can conclude that today global digital platforms have almost absorbed competitors and expanded their services, which also contribute to increasing their competitiveness.

**Main part.** Results and discussion. Digitalization and digital transformations are also actively developing in Kazakhstan. Kazakhtelecom JSC plays a crucial role in the development of the digital economy of the Republic of Kazakhstan.

The company, having the necessary resources, takes an active part in the implementation of the State program «Digital Kazakhstan» and implements most of the digitalization projects in the country.

The digital economy and digital industries are actively developing all over the world. Thus, Singapore is forming a «smart economy», and South Korea is focused on the development of human capital, entrepreneurship, as well as Denmark, which invests in digital skills training, increasing technical specialties at universities, digitalization of educational processes [11]. Kazakhtelecom sets no less ambitious goals and among them, there are many unique projects from the «Digital Kazakhstan» program. In the modern economy, the ability of the state to identify new growth factors is becoming relevant, and digitalization will help to cope with this task. Kazakhtelecom is a company with state participation, so one of its functions is to influence the economy and digitalization of the services provided by the state. To a large extent, this is facilitated by the organizational management of the company. At the end of 2019, a new and currently valid Strategy of Kazakhtelecom JSC was developed, which provides for the digitalization of the core business, the development of new digital businesses and the digital transformation of the network. The changes in the external environment related to the pandemic and its consequences have shown that the company has correctly identified the directions of strategic development.

The fact is that with the pandemic, despite the growth of the telecommunications market in the retail segment as a whole, sales in the corporate sector began to fall sharply. This change in the external environment required a change in strategy, and the company began to think about improving the macro parameters of the market. The «SERPIN» program was developed, and in accordance with it, Kazakhtelecom, after quantitative expansion of assets, relied on qualitative internal growth. And internal growth is impossible without the development of digital and business competencies of its employees. The company understood that it was necessary to rely on changing competencies and

that this would lead to an increase in the company's revenue, which, in turn, would increase the remuneration of employees. In turn, employees will increase their competencies, hone their skills.

Kazakhtelecom implements projects using Big data successfully in various fields. Kazakhtelecom also uses Big Data tools for fiscal data analytics, which is important for high-quality public administration and budget planning. The study and analysis of the economic activity of a business using the analysis of check transactions of cash registers allows, based on the analysis of such transactions, to form an economic portrait of the city, the money turnover in a particular area, the number of sales, etc. The new infrastructure is the Enabler of the digital economy. One of Kazakhtelecom's projects is a new eSIM service - a digital alternative to a plastic SIM card. eSIM is a microchip built into a smartphone that allows the client to use all the services of a mobile operator without using a SIM card. eSIM technology has been successfully operating in the United States since 2018 and in European countries since 2019. Currently, dozens of operators in the world support such a system [12-13].

Kazakhtelecom has also launched the «Mobile Office» service based on Kcell networks, which allows a business or its branch to work anywhere in the country and at the same time have access to Information Resources without changing access parameters. The main thing is to be in the access zone of the mobile network. This project is designed for comfortable remote work, because it will increase productivity and efficiency. At the same time, the mobile office allows businesses to remain protected by digital protocols anywhere within a single secure local network. An example of using a mobile office in the village named after Ryskulov in the South Kazakhstan region of Kazakhtelecom is a quail farm. It constantly monitors the health status of birds, their maintenance, breeding, waste processing. We can also monitor the financial situation. The farmer, being in the city, perfectly sees the situation on the farm. High-speed Internet will allow developing such services as video surveillance in the villages. This will allow us to solve the theft of livestock, install cameras in schools, shops and clinics.

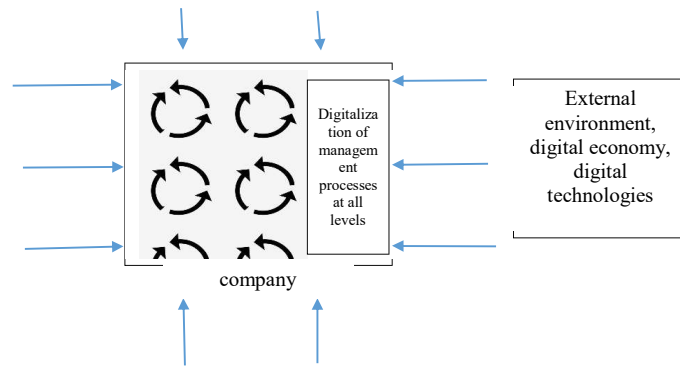
Kazakhtelecom has also completed the construction of a total of 428 base stations using LoRa technology. Now M2M (machinetomachine) and IoT devices can be connected to urban utilities in

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17 cities across the country. The new Lora network allows implementing SmartCity and smart home elements throughout the republic. It should be noted that the LoRa network of Kazakhtelecom currently covers more than 5 thousand square kilometers and covers 1.8 million households [14].

So, we can conclude that the digital economy is the main factor of economic growth, the development of modern business, the introduction of innovations and increasing the competitiveness of companies. It radically changes modern life

and makes development sustainable. The transformative impact of the digital economy on the enterprise can be viewed from many sides. For example, its unambiguous impact on management processes. When we talk about the impact of the digital economy on management processes, we begin to understand it as the impact of digital technologies, digitalization processes that occur in the world on the company's management process, on what changes occur and should occur during the company's management (figure 1).



**Figure 1. Diagram of the impact of the digital economy on company management\***

*\* Compiled by the authors*

At the same time, the influence of the digital economy can be both from the outside, acting as an external environment, and from the inside, when it comes to the digitalization of certain management processes, individual management stages, or even completely the entire management of the company. As a result of the influence of the external environment, there is a change in the management process within the company itself.

To meet the needs of the digital economy, the business model of Kazakhtelecom JSC has also been transformed. In order to quickly build such an exemplary business model for the digital economy, the company created a special division of InDigiCo in 2020. Five project teams were formed in this division, which work on the Agile principle. The teams are formed according to the cross-functional principle, which includes not only qualified IT specialists of the company, but also specialists of commercial, marketing and other departments. These project teams worked quickly to create fully digital sales and service channels.

A separate Agile team has taken up the BigData platform and in-depth analytics. These platforms will

provide complete information for making management decisions. These project teams will expand and increase in order to solve other tasks for the complete internal digital transformation of the company.

The creation of a separate digital division of InDigiCo and the formation of Agile project teams contributed not only to the solution of specific digital tasks, but also to the formation of a new digital culture in the ecosystem of the Kazakhtelecom JSC group of companies.

In order to improve the quality of service, the company introduced the FRR (FirstRequest resolution) indicator in 2020, that is, solving the client's problem from the first request. The analysis showed that this indicator increased by 16% in 2020, and in the future the company strives to ensure that all customer requests are solved from the first request.

A lot of work in the system of management processes was done to verify the subscriber base of Kazakhtelecom JSC. The company is aimed at a complete digital transformation of work with the clientele into online mode, and to transfer all work with subscribers in the online format. We have already developed our own Fintech platform KT

Pay, which is used internally as one of the tools for collecting subscription fees.

**Conclusion.** The analysis of the digital economy of Kazakhstan has shown that the Republic is currently at the stage of rapid changes and is quite advanced in many positions in the world. This applies to e-government, the development of digital infrastructure and many other areas of digitalization.

Kazakhtelecom JSC was one of the first companies in Kazakhstan that carried out a digital transformation within the company.

The analysis of these changes showed that its main elements were a new strategy and a new digital model of the company based on customer orientation and the transition to online methods of work. But the company also had to rebuild the corporate culture and motivation in the Company. All of them are fundamentally different from those that were in the previous model, based on offline presence and working with clients.

After the quantitative expansion of assets, the Company relied on qualitative internal growth. The company's business model itself has been changed. As part of the digital transformation, Kazakhtelecom has changed its business approach to working with customers and developing new products. First of all, they began to use the Agile method, in which tasks are not sent down in the form of an assignment, but are set to employees by the final goals that the teams are guided by.

«Today, «Kazakhtelecom» is transforming into an ecosystem for new digital businesses. To this end, he identified 10 main areas in which he began to develop new types of business in the company. These include artificial intelligence solutions, financial solutions, video analytics solutions, e-commerce solutions, security solutions, blockchain and many others.

A large-scale project was the change of the organizational structure. The basis of this model is a new model of working with the client. Moreover, this model can now be used not only by telecom companies. Kazakhtelecom has created a fundamentally new digital model of working with clients here, which can be taken as a model by other companies and businesses.

Digital transformation brings a lot of advantages from the point of view of personnel management. First, the digitalization of the company's business processes ensures their efficiency. Secondly, the company began to make the transition from a regional to a divisional management model. Thirdly, all these processes in management put forward new requirements for the competencies and professional training of personnel. Fourth, the internal processes of personnel management are also changing. Fifth, as for personnel training, it becomes the most important factor in the development and transformation of the company.

The Company we are investigating has started working extensively on the use of personnel adaptation processes based on and through gamification. The company's corporate culture is undergoing radical changes.

For this purpose, the company has developed five key values – customer orientation, responsibility, entrepreneurial spirit, digital culture and outstanding solutions, which fit into the acronym CREDO (Client, Responsibility, Entrepreneurship, DigitalCulture, Standingdecisions).

Thus, Kazakhtelecom JSC performs the most important role of implementing the digitalization program of Kazakhstan in the market. By its nature, it is a company that develops digital programs, applications, cloud and other tools of the digital economy.

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**ҚАЗАҚСТАНДАҒЫ ЦИФРЛЫҚ ТРАНСФОРМАЦИЯ ЖӘНЕ ЕЛДЕГІ  
ЦИФРЛЫҚ ЭКОНОМИКАНЫ ДАМУДАҒЫ ҚАЗАҚТЕЛЕКОМ АҚ РӨЛІ**

**Аңдатпа**

Мақалада "Қазақтелеком" АҚ Ұлттық компаниясының қызметі мысалында бүгінгі таңда Қазақстанда экономиканы цифрландыру, компанияларды цифрлық трансформациялау бойынша қандай өзгерістер болып жатқанына және басқару процестерінде қандай өзгерістер туындағанына талдау ұсынылған. Қазақстан экономикасында болып жатқан өзгерістерге өзінің басқару процестерін бейімдеуге келетін компаниялар үшін ұсынымдар әзірленді, компания жаңа уақытқа өз уақытында бейімделіп, бәсекеге қабілеттілігін жоғалтпайтындай немесе банкротқа ұшырамайтындай етіп, цифрлық стратегияны қалай жасау керектігі туралы ұсыныстар берілген. Зерттеу әдістемесі монографиялық әдіс (әдебиеттер мен дереккөздерді зерттеу әдісі), жүйелік талдау, салыстырмалы әдіс, "Қазақтелеком" АҚ корпоративтік нормативтік материалдарын пайдалануға негізделген нормативтік әдістер, сияқты жалпы ғылыми және ерекше әдістерді пайдаланудан тұрады.

Қазақстанның цифрлық экономикасына жүргізілген талдау Республиканың бүгінде қарқынды өзгерістер кезеңінде екенін және әлемде көптеген позицияларда айтарлықтай озық екенін көрсетті. Бұл электрондық үкіметке, цифрлық инфрақұрылымды дамытуға және цифрландырудың басқа да бағыттарына қатысты. Қазақтелеком АҚ цифрлық трансформациясын талдау, оның негізгі элементтері компанияның клиентке бағдарлануға және онлайн жұмыс әдістеріне көшуге негізделген жаңа стратегиясы мен жаңа цифрлық моделі болғанын көрсетті. Сонымен қатар, компания корпоративтік мәдениетті қайта құруға мәжбүр болды. Олардың барлығы дербес қатысуға және клиенттермен жұмыс істеуге негізделген бұрынғы модельден түбегейлі ерекшеленеді.

**Ф. Ердаулетова, К. Курбанова, С. Болатқызы, Т. Мухамбетов**

**ЦИФРОВАЯ ТРАНСФОРМАЦИЯ В КАЗАХСТАНЕ И  
РОЛЬ АО КАЗАХТЕЛЕКОМ В РАЗВИТИИ ЦИФРОВОЙ ЭКОНОМИКИ В СТРАНЕ**

**Аннотация**

В статье на примере деятельности национальной компании АО «Казакхтелеком» представлен анализ того какие изменения сегодня происходят в Казахстане по цифровизации экономики, цифровой трансформации компаний и какие изменения в управленческих процессах это вызвало. Выработаны рекомендации для компаний, которым предстоит адаптировать свои управленческие процессы к изменениям, которые происходят в экономике Казахстана, как выработать цифровую стратегию таким образом, чтобы компания вовремя адаптировалась к новому времени и не потеряла свою конкурентоспособность или не обанкротилась. Методология исследования заключается в использовании таких общенаучных и специфических методов, как монографический метод (метод изучения литературы и источников), системный анализ, сравнительный метод, нормативные методы, основанные на использовании корпоративных нормативных материалов АО «Казакхтелеком».

Проведенный анализ цифровой экономики Казахстана показал, что Республика сегодня находится на этапе бурных перемен и во многих позициях находится на достаточно передовых в мире. Это касается электронного правительства, развития цифровой инфраструктуры и др. направлений цифровизации. Анализ цифровой трансформации АО Казакхтелеком показал, что основными ее элементами стали новая стратегия и новая цифровая модель компании, основанная на клиентоориентированности и переходе в онлайн методы работы. Но также компания вынуждена была перестраивать корпоративную культуру мотивацию в Компании. Все они принципиально отличаются от тех, которые были в прежней модели, основанной на офлайн присутствии и работе с клиентами.

