

## FORMATION OF A NEW EDUCATIONAL ECOSYSTEM IN KAZAKHSTAN: INTEGRATION OF AI TECHNOLOGIES AND DEVELOPMENT OF DIGITAL COMPETENCIES OF A TEACHER

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### Abstract

This article outlines the state and main directions of digital transformation necessary to achieve the level of digital maturity of a general education organization. At the same time, in the context of the introduction of digital governance principles, the importance, essence and content of the digital transformation process and the features, problems arising in the process of digital transformation, as well as one of the risk reduction tools, are considered.

**Keywords:** artificial intelligence, system, education, digitization, digital transformation, technology.

### Introduction

Head of State Kassym-Jomart Tokayev emphasized the main task of Kazakhstan in the transition of the education system to an innovative and flexible model, and also declared 2026 the Year of Digitalization and Artificial Intelligence. The main step of this strategy is aimed at forming a generation that will be able to make the best use of the opportunities of the global digital space and will be competitive in the digital economy. Therefore, by 2030, it will be possible to introduce artificial intelligence and digital technologies to increase the productivity of the education system by 10-15%.

In addition, the President's Message to the people of Kazakhstan states that "over one trillion dollars will be invested in the world in the next few years. The development of artificial intelligence and digital technologies can make a significant contribution to the gross domestic product of countries. If we take full advantage of artificial intelligence and digital opportunities, we will give a new impetus to the knowledge economy. It is necessary

to cooperate with leading international companies. It is necessary to train qualified specialists. At least three well-known universities should be engaged in the training and research necessary for the field of artificial intelligence". This is the only way to remain a civilized country in the era of modern new technologies. I am sure that the minds of our people are ready for such innovations. Kazakhstan also gives priority attention to the introduction of artificial intelligence into the economy and public life.

Therefore, the main goal of digital transformation in education is to create a learning format in which students can more fully and effectively assimilate knowledge using modern digital technologies and tools. Therefore, digital education is the creation of a comprehensive system of educational practices that use digital technologies to improve access to educational resources, improve their quality, and transform teaching and learning methods. At the same time, taking into account new technological opportunities, it is necessary to consider not only the transfer of all devices to a digital environment, but also a radical revision of the educational process.

Thus, the essence of the concept of "digital transformation" in the course of analyzing the definitions found in the research literature of scientists, we will determine the main aspect of the digital transformation process and analyze the main directions of its implementation.

## Results and Discussion

In particular, about "digital pedagogy" (K. D. Buzaubakova, A. S. Amirova, A. A. Makovetskaya), and about the activity of a teacher in a digital educational environment (K. D. Buzaubakova, A. E. Bedelbaeva) and ways to optimize business processes (R. Daft), at the same time, scientists (G. Golovenchik, E. Yakovleva, I. Tolochko, E. Sysoeva) made a great contribution to the development of scientific thought in the field of project management. And strategic management (A. Tikhonova, A. Mokronosov, P. Drucker ) and strategic planning (D. Medvedev ) and change management (K. Mizrova, T. Ivanova). Consequently, competitiveness (About Melnikov, N.Gorelov, V. Sinov, J. Ermakova, Y. Nikulina), and digital literacy can be seen in school textbooks (Kadyrkulov R. A. and J. B.). And V. Savvinov, P. Ivanov, V. Strekalovsky devoted their works to the methods and principles of assessing the digital maturity of educational organizations, and D. Frantasov, A. Balanovskaya, O. Gorbunova demonstrated digital maturity in the works underlying the strategic development and digital transformation of educational organizations. Consequently, the research of the above-mentioned scientists is considered important for the development of effective digitalization strategies in the education system and emphasizes the achievement of digital maturity. Their work is aimed at developing and implementing digital strategies, ensuring resilience to change, solving problems related to improving the quality of the educational process using modern technologies, as well as identifying key aspects necessary for successful digital transformation in education.

However, the digital transformation is characterized by a number of the following features in the field of education. In particular, they are:

1. modern high-speed equipment in educational institutions, in particular the Internet, cloud services. That is, updating the infrastructure.
2. Implementation of digital services and content in electronic journals, training platforms, adaptive systems.
3. Teaching teachers how to design digital lessons and use artificial intelligence-based tools. That is, the development of the competencies of teachers and managers.
4. the introduction of new educational models, in particular individual learning, mixed formats, digital profiles of students.

### **Materials and Methods**

The digital transformation of education is different from simple digitization. Therefore, if digitalization involves the introduction of individual technological solutions into existing educational processes, then transformation represents a systemic change in the educational paradigm, including a revision of pedagogical approaches, administrative processes and organizational culture.

The state of digital transformation in the field of education is characterized by a number of the following features:

1. Students can download educational materials, complete assignments, and experiment with classmates online, meaning they have open access.
2. The training is focused on the level of knowledge and skills of a particular listener, takes into account the peculiarities of information assimilation, i.e. an individual approach.
3. Interactive format, constant feedback make learning more productive and help children not to lose interest in it, even when switching to complex topics. Hence the increased motivation.

- this applies to accounting, administrative activities, finance and personnel management, that is, optimization of internal processes.

- lessons are not necessary for conducting classes at school, since training can be completely converted to an online format, which means that costs can be reduced.

- all students of educational services will be available regardless of age, health status, social status, etc. This is the introduction of inclusivity.

Therefore, the main goal of implementing digital transformation in education is to achieve a high degree of "digital maturity" in education based on a unified, high-quality and secure educational space and ensure equal access to high-quality digital educational content, as well as digital educational services for all categories of students throughout Kazakhstan.

The main goal is to create and implement a digital educational environment in general education institutions, as well as to implement the digital transformation of the education system. It is aimed at the formation of a modern infrastructure of educational organizations, the implementation of functions in the field of education in electronic form

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(registers of personnel, contingent, electronic journal and diary, etc.) and modern data-based management, the implementation of services in the field of education in electronic form (tracking current academic performance, etc.). B.) training personnel to work in a digital-oriented educational environment.

Digital education also makes it possible to build individual educational trajectories for children and teachers, and forms an effective system for identifying, developing and supporting children's talents. And it helps to increase the efficiency of the functioning processes of organizations engaged in educational activities. Among other things, it is improving a set of services with the possibility of obtaining services and information in the field of education through a single point of access to digital educational services that provide for measures to improve information security.

The overall digital transformation will make it possible to standardize the interaction of existing information systems operating in the field of education and switch to the use of unified classifiers, lists, reference books and data exchange formats. Analysis and systematization of existing knowledge in order to develop relevant methodological approaches to assessing digital maturity, taking into account the specifics and risks of communication during this digital transformation.

Special attention should be paid to additional aspects of digital transformation assessment, including strategic and methodological components, as well as consideration of project management as a tool for effective implementation of digital transformation of educational organizations.

In education, digitalization can reduce the burden on students and teachers, as well as make learning more exciting and comfortable. The process of digitalization of education itself began when computers began to appear in schools, and paper textbooks began to replace electronic textbooks. Computer tests and electronic diaries of the first educational platforms also appeared.

A digital educational environment program has now been launched across the country to accelerate digitalization. This program requires easier work for teachers and accessibility. Therefore, it helps to increase engagement in learning, complementing the tasks set in the educational process. Because all the successes and failures of the child in the electronic diary, homework and class schedule are recorded in online format. And distance learning allows students to conduct classes without leaving home for any reason.

A plan is being developed to implement the digitalization of education in general education areas, large-scale work is underway and infrastructure is rapidly developing. In general, a digital portfolio has been created in the field of education, for example, BilimClass, Bilimal, Bilimland, i-mektep, i-test, Daryn.it works with onlain platforms. For normal work, the Internet is working, and explanatory work is being carried out for teachers. At the same time, all events held at the school are published on social networks and on the website. The classrooms are equipped with modern equipment, a computer, and interactive whiteboards.

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In the educational process, this digital education helps to track how well children have mastered the curriculum, which topics are particularly interesting to them and which are not. Online testing also helps identify hidden talents in the classroom.

Therefore, "Digital education" is an increase in the level of digital competencies of students and the quality of educational teachers, while at the same time creating a development strategy to modernize the tools of the educational process, focusing on the formation of competence to manage the process of digital transformation of the educational organization for its implementation.

The article identifies the risks facing educational institutions in the process of digital transformation and achieving a basic level of digital maturity, as well as technological dependencies, organizational difficulties and economic uncertainty that pose serious challenges in implementing digital change. To reduce these risks, it is necessary to apply a digital transformation approach, and the joint use of digital maturity assessment models seems to be an integral part of the successful digital transformation of educational institutions, contributing to their adaptation to modern education, as well as the effective use of digital technologies.

To assess the results of the implementation of the digital transformation strategy in the field of general education in particular and to determine the effectiveness of the digital transformation of educational organizations, it is necessary to identify the necessary processes based on achieving digital maturity.

In general, process automation (using artificial intelligence, robotic systems, and other technologies to automate everyday tasks and optimize workflows).

2. improving the quality of services (the use of digital technologies makes it possible to increase the accuracy and speed of processing requests, as well as improve the quality of services provided).

3. Improving work efficiency (digital transformation helps organizations use resources more efficiently, reduce costs, and increase productivity).

4. Flexibility and adaptability (digital technologies allow organizations to adapt faster to changes in the market and new customer requirements).

5. Simplify user interaction (in particular, the use of digital communication channels for mobile applications simplifies the process of interacting with users and increases the level of satisfaction with working with the organization).

1. Creating new opportunities for growth and development (digital transformation opens up new opportunities for the development of organizations such as entering new markets, creating new products and services, and using new technologies).

In other words, digital transformation means reviewing activities in connection with the unique possibilities of digital technologies. Thus, we can see and understand that any innovation is necessary for teachers of the educational process as a reality of our time. Therefore, the digital transformation of education is a new opportunity for the

development of traditional education, and an assessment of all the pros, cons, and consequences is possible only after some time.

### Conclusion

In the context of the application of digital transformation in the field of education, the amount of knowledge, skills, and abilities that students must master is growing day by day, and the content of education is changing. Improving the quality of education using digitalization technologies in the field of education, further improving it using effective ways to modernize the educational process. In general, our main duty is to educate and improve a new generation of teachers in all fields of education who are able to keep up with the times. Consequently, education using digitization yields positive results. In other words, the educational sphere is a very complex process that requires constant development, a new level.

### References

- 1 The President's Message to the people of Kazakhstan. <https://informburo.kz/kaz/zhasandy-intellekt-degen-ne-zhne-ony-adamzata-aup-anday.HTML> official websites of the President of the Republic of Kazakhstan.
- 2 Buzaubakova K. D., Amirova A. S., Makovetskaya A. A. Digital pedagogy: textbook. - Taraz: "IP" Beisenbekova A. Zh.", 2022. -314 P.
- 3 Buzaubakova K. D., Bedelbaeva A. E. Teacher's activity in the digital educational environment: textbook.- Taraz: "IP" Beisenbekova A. Zh.", 2024. -129 P.
- 4 Daft R. L. Management. / 8th ed.: trans.translated from English. ed. by S. K. Mordovin, R.. - St. Petersburg: Peter, 2009.23]],
- 5 Golovenchik G. Quantitative economics / / theoretical approaches to the definition of science and innovation. – 2019. – № 1. – c. 54–59.
- 6 Tikhonova A.D., Mokronosov A. G. Harmony in the strategic management of an organization // Creative economy. – 2018. – № 9. – c. 1273-1290. – doi: 10.18334/ce.12.9.39387.
- 7 Drucker, P. Encyclopedia of Management, Moscow: Williams Publishing House, 2004.
8. Medvedev, D. L. Strategic planning in the managerial activities of V. S. Churchill / / Russian entrepreneurship. - 2012. – No. 20. – pp. 42-46.
- 9 Mizrova K. A., Ivanova T. Yu. Educational network as a quasi-integration form of interaction between universities and organizations - a modern means of reforming education //creative economy. – 2012. – № 11. – c. 48-52.
- 10 Melnikov O. N., Gorelov N. A., Sinov V. V. Educational standards of higher professional education of the third generation – a condition for the formation of a knowledge-based economy // creative economy. – 2011. – No. 3. – pp. 102-111.

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- 11 Ermakova Zh. A., Nikulina Yu. N. The quality of education from the point of view of consumers of educational services of the university // creative economy. – 2017. – № 7. – c. 725-734. – doi: 10.18334/ce.11.7.38162.
- 12 Kadyrkulov R. A. and Zh. B. Digital literacy. Textbook for 3rd grades of the national School of Education. - Almatykitap, 2021.132 P.
- 13 Savvinov V., Ivanov P., Strekalovsky V. Methods and principles of assessing the digital maturity of educational institutions // "NEFU Bulletin series". – 2021. – № 2 (22).
- 14 Frantansov D. N., Balanovskaya A.V., Gorbunova O. Digital maturity as a basis for strategic development and digital transformation of educational organizations // Bulletin of Samara State University of Economics. – 2022. – № 2 (208). – c. 57–64.