



Digitalization of Industry: Status, Problems and Prospects of The Sector

Radjabova Sarvinoz Alisherovna

Teacher of Tashkent University of Business and Science LLC, Uzbekistan

OPEN ACCESS

SUBMITTED 25 November 2024

ACCEPTED 29 December 2024

PUBLISHED 30 January 2025

VOLUME Vol.05 Issue01 2025

COPYRIGHT

© 2025 Original content from this work may be used under the terms of the creative commons attributes 4.0 License.

Abstract: This article is devoted to the study of the current state, current problems and prospects of the process of digitization of industry. Digital technologies serve as an important factor in increasing production efficiency, efficient use of resources and the introduction of innovative solutions in the industrial sector. The article analyzes the technological, infrastructure and personnel issues encountered in the process of digitization of the Uzbek industry. At the same time, the conditions and measures necessary for the successful implementation of digitization, as well as recommendations developed on the basis of international experience, are presented.

Keywords: Digitization of industry, technological innovations, digital transformation, infrastructure, production efficiency, personnel qualifications, digital economy.

Introduction: Industrial digitization is one of the main directions of transformation of modern production. The introduction of digital technologies plays an important role in increasing the efficiency of industrial enterprises, improving product quality and ensuring their competitiveness. The transition to a digital economy occupies a special place in the economic development strategy of Uzbekistan. However, in this process there are a number of urgent problems, such as overcoming technological crises, improving personnel skills, and developing infrastructure.

This article aims to study the current state and prospects of industrial digitization, identify existing problems and develop practical recommendations for solving them. The article analyzes international experience and successful examples of digital transformation, and proposes urgent measures for the development of Uzbek industry.

Main part

In the current era, the digital economy and a number of

related effective technologies, including e-commerce and e-business, are rapidly entering our lives. That is why, in order to further accelerate the development of the state and society, the leadership of our republic has adopted a number of important decisions. In his Address to the Oliy Majlis of January 25, 2020, the President of the Republic of Uzbekistan proposed to name 2020 the “Year of Science, Enlightenment and Development of the Digital Economy” for the development of the digital economy in our country. In addition, in order to implement the Decree of the President of the Republic of Uzbekistan No. PF-5349 dated February 19, 2018 “On measures for the further development of the sphere of information technologies and communications” [1], as well as to create conditions for the rapid development of modern information technologies for the implementation of the digital economy in the state management system in our republic, as well as to ensure information security, on August 31, 2018, the Cabinet of Ministers adopted a Resolution “On additional measures for the introduction and further development of the digital economy in the Republic of Uzbekistan”, which defines the goals and objectives of the digital economy, and the Resolution of the President of the Republic of Uzbekistan No. PQ-3832 dated July 3, 2018 “On measures for the development of the digital economy in the Republic of Uzbekistan” can also be included in these measures.

The rapid development of digital technologies is leading to fundamental changes not only in the economy, but also in society itself. Thus, due to the reduction of information costs, digital technologies significantly reduce the cost of economic and social transactions for the state, companies and individuals, stimulate innovation, with transaction costs almost zero, and also dramatically increase efficiency: existing activities and services become cheaper, faster or more convenient. Finally, digital technologies facilitate integration: people can use services that were previously unavailable [2].

The concept of enterprise digitization is associated with the introduction of new technologies that have become available to businesses in recent years: big data analysis and machine learning, artificial intelligence, robotics, the Internet of Things (IoT), 3D printing, cloud computing. The prerequisites for the development of digitization and the introduction of digitalization were the decline in the cost of technologies and computing power, as well as the increase in the possibilities of high-speed data transmission.

Digital technologies allow companies to analyze sales, inventory, production capacity and operational

processes at a new level of granularity. This, in turn, leads to qualitatively new conclusions regarding the company's products, interactions with suppliers and customers, and the organization of processes.

The digital transformation of an enterprise can be considered from two perspectives. The first is business model digitization - changing the model of interaction with the customer, moving from traditional sales to a “smart” product model, complemented by digital services for the customer. The second - operational digitization - is the introduction of digital tools to improve the efficiency of the enterprise within the framework of the existing business model. According to a 2018 global survey, 95% of industry directors see digital transformation as an opportunity to increase efficiency and develop their business [3].

The introduction of digital tools into operational activities allows companies to improve the quality of their decisions and get the first results within the first year. In particular, solutions based on IoT and big data analytics play a key role in improving the efficiency of production processes. They allow you to quickly collect data on physical indicators and convert them into digital data for further processing, exchange information electronically throughout the value chain, and process data using machine learning and artificial intelligence to obtain qualitatively new conclusions. In addition, with their help, you can remotely control the production process and physical parameters of equipment based on decisions made taking into account the results of in-depth analysis.

By combining different technologies, enterprises receive a set of tools that allow them to increase the production of finished products, reduce the level of rejection, reduce material consumption and increase the availability of equipment.

The development of new technologies is changing entire industries and individual enterprises. Competitive digital transformation stages are putting pressure on management. At the same time, digitalization requires investments, so companies embarking on this path need to define tactical and long-term transformation goals, a roadmap and a business case.

According to research, to date, six out of ten industrial enterprises in the world have a digital transformation program. At the same time, a quarter of enterprises have a program in place for less than 12 months, and the majority (61%) plan to implement the existing program within one to three years. However, these indicators largely reflect the level of development of the largest enterprises in the world - industry leaders [4].

However, leaders are currently at the stage of forming the necessary digital competencies and implementing

pilot projects. 89% of the largest industrial companies surveyed said they have launched pilot projects or implemented solutions based on machine learning and artificial intelligence within a limited process perimeter. On average, only 12% of businesses in Western Europe already use big data analytics.

For those who are not market leaders, new technologies are still in the planning stages. Small and medium-sized businesses lag behind large companies not only in the implementation of digital technologies, but also in traditional robotization and production automation. The gap in the speed of implementation is due to the difference in the availability of financial resources, experience in implementing advanced technologies and savings for large companies.

Internal opportunities for digitalization and additional benefits allow companies to start moving towards transformation. However, even with the necessary resources, companies face internal resistance, reluctance to change business processes and difficulties in integrating "traditional" solutions. It is important to remember that digital transformation of enterprises is not about replacing all employees with robots, but about empowering managers and workers through new technologies. More than 60% of industry leaders believe that digitalization will create additional jobs, rather than reduce their number.

CONCLUSION

The process of digitalization of industry is of strategic importance for increasing the competitiveness of the Uzbek economy and ensuring its sustainable development. The results of the study show that the success of digitalization of industry largely depends on the following factors:

- It is important to create favorable technological conditions for the introduction of modern digital technologies. This requires, in particular, ensuring a wide coverage of Internet networks and data centers;

- It is necessary to accelerate the process of training specialists who can work in the digital economy, understand modern technologies and apply them;

- The state should develop special programs to support innovative projects and encourage

entrepreneurs and industrial enterprises to introduce technologies;

- Studying the successful experience of developed countries in the field of digital transformation and adapting it to local conditions will help in implementing effective solutions.

At the same time, by systematically eliminating the problems highlighted in the article, it is possible to accelerate the process of digitization of Uzbek industry and strengthen its position in the global economy. Digitization allows industrial enterprises to transition to an innovative management model, rational use of resources and improve product quality. Proper management of this process will serve the rapid development of the national economy.

REFERENCES

O'zbekiston Respublikasi Prezidentining 2018 yil 19 fevraldagi PF-5349 sonli "Axborot texnologiyalari va kommunikatsiyalari sohasini yanada rivojlantirish chora-tadbirlari to'g'risida"gi Farmoni

Word Bank. World Development Report 2016: Digital Dividends / Word Bank Group, 2016.

Самарина А.Ю. Пешкова Г.Ю. Стратегические подходы к повышению эффективности продукции с использованием инструментов цифровой экономики. <https://www.elibrary.ru/item.asp?id=32873454>.

Elektronnaya ekonomika // Vikipediya [2016–2016] [Elektronnyy resurs]. – Rejim dostupa: <http://ru.wikipedia.org/?oldid=81412399> (data obrashcheniya: 18.07.2016).

OECD Digital Economy Outlook 2012/ OECD Publishing, 2012.