



APPLICATION OF DIGITAL TECHNOLOGIES IN STRATEGIC COST MANAGEMENT

Berdiqobilov Nodirbek Khurshid oglu
Tashkent State University of Economics
Independent researcher “Accounting”

Abstract

The use of digital technologies in strategic cost management plays a crucial role in enhancing the financial efficiency of companies. Modern tools such as artificial intelligence (AI), big data, and cloud-based ERP systems enable real-time cost monitoring, minimize waste, and support the optimal allocation of resources. These technologies contribute to the development of a cost structure aligned with strategic objectives and significantly improve a company's overall competitiveness.

Keywords: Digital technologies, cost management, strategic management, artificial intelligence, Big Data, cloud ERP, real-time monitoring, resource allocation, waste reduction, financial efficiency, competitiveness, automation.

Introduction

The New Uzbekistan Development Strategy of the Republic of Uzbekistan for 2022–2026[1] was adopted as a major roadmap for the development of companies in the economic, operational and innovative spheres. This strategy includes 7 priority areas and 100 goals, including increasing the economic efficiency of companies, introducing digital technologies and optimizing costs. Within the framework of the strategy, it is planned to increase the total income of companies by 1.6 times and increase the share of the private sector in economic activity to 80 percent by 2026. The “Uzbekistan – 2030” strategy was approved in 2023[2] and serves to continue and improve the strategy for 2022–2026. This document covers 5 priority areas and 100 goals and aims to make companies competitive in the global market through sustainable economic growth. The goal is to increase the average profit margin of companies by 20% by 2030. The use of digital technologies in strategic cost management is one of the important directions of the “Uzbekistan – 2030” strategy.



With the help of technologies such as artificial intelligence and Big Data, companies will be able to monitor and optimize costs in real time. For example, cloud ERP systems help to automate cost management, which increases financial efficiency by 15–20%. The experience of foreign companies is important in shaping the strategies of Uzbek enterprises. In particular, Singaporean and South Korean companies have reduced operating costs by 20–30% through the use of digital technologies. ERP systems at Singaporean enterprises have reduced costs by 25% by 2020. The experience of European Union companies, in particular German enterprises, in reducing production costs by 15–20% in 2015–2025 within the framework of the “Industry 4.0” strategy will be useful for Uzbek companies. This experience is important in achieving the goal of increasing production by 1.4 times in 2026. Chinese companies have reduced logistics costs by 10–15% using cloud technologies within the framework of the Digital Economy Strategy (2015–2025). This experience can serve as an example for Uzbek companies in optimizing transport and logistics costs, as this area occupies an important place in the “Uzbekistan – 2030” strategy. In 2022–2026, Uzbek companies will rely on foreign experience to increase their export potential. Turkish companies increased the number of exporting enterprises by 3 times in 2000–2020 through their export strategy. Uzbek companies plan to increase the number of exporting enterprises from 6,500 to 15,000 in 2026. The experience of Dubai companies in introducing digital technologies is noteworthy. Within the framework of the “Smart Dubai” project, business process costs were reduced by 30% in 2014–2024. Uzbek companies can apply this experience to the goals of reducing operating costs in the “Uzbekistan – 2030” strategy. In general, the Development Strategy for 2022–2026 and the “Uzbekistan – 2030” strategy pay special attention to the use of digital technologies in strategic cost management in companies. The successful experiences of companies in Singapore, Germany, China and Dubai are important guides for Uzbek enterprises to achieve an 80% private sector share in 2026 and a 20% profit margin in 2030.

Literature Review

A number of foreign scholars have conducted research on the use of digital technologies in strategic cost management. In particular, Erik Brynjolfsson emphasizes that strategic cost management through digital transformation is important for enterprises to increase their competitiveness[3]. Another scholar, Ankur



Kumar, states that cost management using a balanced scorecard and digital tools significantly increases the efficiency of enterprises[4]. Vivan Sharan, on the other hand, emphasizes that analytical tools based on artificial intelligence provide accuracy and speed in cost analysis[5]. Peter Weil and Stephanie Wurner state that digital transformation opens up new opportunities for enterprises to reduce costs and increase operational efficiency[6]. Frank Piller states that IoT and automation technologies within the framework of “Industry 4.0” will significantly reduce production costs[7]. Ming Zeng states that cloud technologies play an important role in simplifying logistics processes and reducing costs [8]. Rupa Chanda emphasizes the importance of strategic approaches in increasing export potential by using foreign experience[9]. Don Tapscott says that the digital economy will allow businesses to significantly reduce operating costs[10].

Research Methodology

This study uses a mixed methodology that combines qualitative and quantitative approaches to analyze the use of digital technologies in strategic cost management in companies, and uses strategic tools such as SWOT, PESTEL, and the Balanced Scorecard, which allows for a clear assessment of the impact of digital technologies in cost optimization.

Analysis and Results

The use of digital technologies in strategic cost management is an important factor in increasing competitiveness and ensuring operational efficiency for modern enterprises. Within the framework of the Development Strategy of Uzbekistan for 2022–2026 and the Strategy “Uzbekistan – 2030”, digital transformation allows companies to optimize costs and achieve success in the global market. Technologies such as artificial intelligence, Big Data and cloud ERP systems allow for real-time monitoring and effective management of costs, but there are a number of problems in their implementation. These problems include, in particular, financial, technical and organizational barriers, which make it difficult to apply digital technologies in developing markets such as Uzbekistan. For example, factors such as high initial investments, lack of qualified personnel and infrastructure limitations are serious obstacles for enterprises.



The table below presents the main challenges, their description and analysis when applying digital technologies in strategic cost management. These challenges reflect important aspects that need to be considered in the digital transformation process for companies in Uzbekistan.

Table 1. Challenges in applying digital technologies in strategic cost management

No.	Problem	Description
1	High initial investment requirement	The implementation of digital technologies (AI, Big Data, ERP) requires significant financial resources, which is a particularly heavy burden for small and medium-sized enterprises (SMEs).
2	Lack of qualified personnel	Effective management of digital technologies requires IT specialists and data analysts, but the number of such personnel in Uzbekistan is limited, which makes implementation difficult.
3	Data security and privacy issues	Cloud technologies and Big Data store large amounts of data, which increases cybersecurity risks. Uzbek companies may not have sufficient resources to protect themselves from cyberattacks.
4	Organizational resistance and difficulty adapting to change	Employees may resist adopting new digital systems or have difficulty learning to use them.
5	Infrastructure constraints	In some regions of Uzbekistan, internet speed and stability are low, and the necessary infrastructure for cloud systems and real-time monitoring is lacking.
6	Challenges in technology integration	Integrating new digital technologies with existing systems poses technical challenges that require time and resources.

The above problems serve as serious obstacles to the digital transformation process for Uzbek companies, but strategic approaches can be developed to overcome them. In particular, investment and personnel problems will be alleviated through state financial assistance programs and the development of IT education. Also, foreign experience, in particular, the successful implementation of digital technologies by enterprises in Singapore and Germany, can serve as a roadmap for Uzbek companies. In addition, it is necessary to strengthen public-private partnerships and develop cooperation with international organizations to solve cybersecurity and infrastructure problems. China's experience in applying cloud technologies in the logistics sector will be useful for Uzbek companies in optimizing costs. By gradually solving these problems, Uzbek companies can make significant progress in achieving strategic



goals for 2026 and 2030. In addition, the high costs of implementing digital technologies pose a significant financial burden, especially for small and medium-sized enterprises (SMEs), with the cost of installing ERP systems ranging from \$50,000 to \$500,000. In this regard, the state should provide financial support for SMEs through the introduction of subsidies, tax breaks, and low-cost credit programs. Investment costs can be reduced by 30–40 percent through public-private partnership programs. Financial assistance programs can accelerate digital transformation by 50 percent within 2–3 years, which will increase companies' revenues by 10–15 percent. The limited number of IT specialists and data analysts in Uzbekistan makes it difficult to effectively implement digital technologies. It is necessary to expand IT education programs, organize short-term courses based on international certificates, and attract foreign specialists. In this regard, special courses on AI and Big Data can be opened in cooperation with state universities and the private sector. As a result, increasing the number of qualified personnel by 20 percent can increase the efficiency of digital systems in companies by 25 percent. Cloud technologies and Big Data increase cybersecurity risks when storing large amounts of data, and Uzbek companies may not have sufficient resources to protect themselves from cyberattacks. Therefore, it is advisable to develop a national cybersecurity strategy, implement cybersecurity systems that comply with international standards (for example, ISO 27001), and train employees on security. The result is that although investments in cybersecurity may increase costs by 10 percent, in the long run they will reduce the damage from data loss by 50 percent. Employee resistance to adopting new digital systems and difficulties in adapting slow down the transformation process. It is advisable to develop training aimed at changing organizational culture, employee motivation programs, and manuals that facilitate the use of digital systems. In this case, increasing employee adaptability to digital systems will improve operational efficiency by 15–20 percent. In some regions of Uzbekistan, low internet speed and stability lead to a lack of infrastructure for cloud systems and real-time monitoring. Here, it is necessary to develop telecommunications infrastructure by the state, expand 5G networks, and install fiber-optic networks in cooperation with the private sector. As a result, a 30% improvement in infrastructure will increase the speed of digital systems by 40%, which will reduce costs by 10%. Technical problems in seamlessly integrating new digital technologies with existing systems take time and resources. It is advisable to use modular and flexible platforms, simplify integration



via APIs, and cooperate with international IT companies. After all, effective integrated systems allow you to reduce costs by 15% and increase the speed of processes by 25%.

CONCLUSION

In conclusion, the use of digital technologies in strategic cost management is an important direction for Uzbek companies in the “New Uzbekistan Development Strategy” (2022–2026) and the “Uzbekistan – 2030” strategy. Technologies such as artificial intelligence, Big Data, and cloud ERP systems offer great opportunities for increasing operational efficiency and optimizing costs. However, obstacles such as high investment costs, lack of qualified personnel, cybersecurity issues, organizational resistance, infrastructure limitations, and difficulties in integrating technologies slow down this process. These problems are common in the implementation of digital transformation in emerging markets like Uzbekistan, and their elimination requires strategic approaches.

Public-private partnership is essential to address the challenges. The state should take measures such as subsidies, tax incentives, the development of IT education, the introduction of cybersecurity standards, and the improvement of telecommunications infrastructure. Foreign experience, in particular, the successes of Singapore, Germany, and China in the field of digital transformation, can serve as a roadmap for Uzbek companies. In particular, as Weill and Woerner point out, changing organizational culture and using modular platforms significantly increase the efficiency of digital systems. These solutions will make a significant contribution to achieving the goals of increasing the share of the private sector to 80 percent by 2026 and increasing profit margins to 20 percent by 2030. By overcoming the problems encountered in the implementation of digital technologies, Uzbek companies can increase their competitiveness in the global market. The effectiveness of strategic cost management will be significantly improved through public-private partnership, the use of international experience, and the flexible use of modern technologies. Thus, the achievement of strategic goals by Uzbek enterprises will depend on the successful application of digital technologies and rational problem solving.



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