

Article

Strategic Management of Digital Transformation in Industrial Enterprises: Evidence from Farg'Onaazot JSC

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Abstract: This study examines the strategic management of digital transformation in industrial enterprises using Farg'onaazot JSC as a case study. The research analyzes the integration of digital initiatives with production processes, resource management, and strategic objectives. Corporate and financial data are used to assess the enterprise's operational and economic conditions. The study emphasizes that digital transformation should extend beyond individual technological solutions and be managed as an integrated strategic process. A management mechanism combining digital diagnosis, strategic prioritization, project implementation, KPI-based monitoring, and continuous adjustment is proposed to improve operational efficiency, managerial decision-making, and the long-term competitiveness of industrial enterprises.

Keywords: digital transformation, strategic management, industrial enterprise, digital strategy, operational efficiency, Farg'onaazot JSC

1. Introduction

Digital transformation has become an important factor in improving the competitiveness and operational efficiency of industrial enterprises. The integration of digital technologies into production, resource management, supply chains, and managerial decision-making enables firms to improve information flows, optimize business processes, and respond more effectively to technological and market changes [1]. Therefore, digital transformation should be considered not only as technological modernization but also as an important component of strategic management [2].

The relevance of this issue is particularly high for Uzbekistan. According to the National Statistics Committee of the Republic of Uzbekistan (2026), industrial production reached approximately UZS 1.1 quadrillion in 2025, increasing by 6.8% compared with the previous year. Manufacturing accounted for approximately UZS 947.2 trillion, representing 86% of total industrial output [3]. At the same time, digitalization remains one of the key priorities of the Uzbekistan-2030 Strategy, emphasizing the increasing role of digital technologies in economic development and industrial modernization [4].

These processes are particularly important for large chemical enterprises such as **Farg'onaazot JSC**, where diversified production, substantial fixed assets, complex technological processes, inventories, and specialized raw materials require effective coordination and continuous monitoring [5]. The company's corporate structure has also

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included a management function responsible for **investments and innovations**, demonstrating the organizational relevance of technological development [6].

Accordingly, the purpose of this study is to examine the strategic management of digital transformation in industrial enterprises and to develop practical proposals for improving its management mechanism based on the case of Farg'onaazot JSC. The study focuses on integrating digital initiatives with production processes, resource management, performance monitoring, and long-term strategic objectives [7].

Digital transformation has evolved from a technology-oriented concept into a broader strategic and organizational phenomenon. G. Vial defines that "digital transformation as a process through which digital technologies generate significant changes in organizational structures and value-creation mechanisms" [8]. P. C. Verhoef, Y. Bart similarly emphasize that "digital transformation goes beyond digitization and requires changes in organizational resources, capabilities, structures, and performance measurement". A. Hanelt and D. Marz further demonstrate that "digital transformation requires organizations to develop flexible structures and capabilities for continuous adaptation" [9]. Thus, the literature increasingly considers digital transformation as an enterprise-wide strategic process rather than the simple adoption of new technologies.

This perspective is particularly relevant to industrial enterprises, where digital technologies must be integrated with production equipment, supply chains, employees, and resource-management systems. Russian researchers also emphasize the strategic dimension of this process [10]. Gileva and Babkin argue that "digital transformation in industrial enterprises should combine strategy, digital maturity assessment, and performance indicators", while Zhityaeva emphasizes the need to integrate digital strategy into the broader development strategy of the industrial sector [11].

Studies conducted in Uzbekistan increasingly examine digitalization from the perspective of industrial efficiency. G. Yuldashev argues that "digital technologies can improve the economic efficiency of industrial enterprises but identifies several barriers limiting their effective implementation" [12]. F. Abdulazizov further emphasizes that "industrial digital transformation in Uzbekistan requires not only technological solutions but also appropriate digital infrastructure, institutional support, implementation incentives, and personnel motivation" [13].

Despite these contributions, an important research gap remains. International studies provide broad theoretical frameworks for digital transformation, while Russian research increasingly focuses on digital maturity and strategic management, and Uzbek studies mainly emphasize digitalization, industrial efficiency, and enabling conditions [14]. However, relatively limited attention has been paid to how these dimensions can be integrated into a unified strategic management mechanism at the level of a large chemical enterprise. Therefore, this study extends the existing literature by examining Farg'onaazot JSC and linking digital initiatives with production processes, resource management, performance monitoring, and long-term strategic objectives [15].

2. Materials and Methods

This study applies a case-study approach to examine the strategic management of digital transformation at Farg'onaazot JSC. The empirical analysis is based on the company's publicly available financial and corporate data for 2022–2024, supplemented by Q1 2025 data. The main indicators include revenue, costs, profitability, assets, inventories, and capital investments.

The research employs descriptive, comparative, dynamic, and financial ratio analysis to identify changes in the enterprise's financial and operational performance. The results are combined with a qualitative assessment of digital transformation priorities, including production monitoring, inventory management, equipment

maintenance, cost control, data integration, and KPI-based management. Based on these findings, an integrated strategic management mechanism is proposed to align digital initiatives with the operational and long-term objectives of Farg'onaazot JSC.

3. Results and Discussion

The analysis of Farg'onaazot JSC indicates that the enterprise has maintained growth in sales while facing increasing pressure on profitability. During 2022–2024, revenue increased, but production costs and operating expenses grew more rapidly. As a result, the company's net profit margin declined considerably. The 2024 financial statements confirm revenue of approximately UZS 2.13 trillion and net profit of UZS 76.2 billion.

Table 1. Key financial indicators of Farg'onaazot JSC

Indicator	2022	2023	2024	Change 2022–2024
Revenue, UZS billion	1,819.3	1,920.6	2,127.0	+16.9%
Cost of goods sold	965.6	1,233.8	1,440.9	+49.2%
Gross profit, UZS billion	853.7	686.8	686.1	–19.6%
Net profit, UZS billion	233.8	229.2	76.2	–67.4%
Net profit margin, %	12.9	11.9	3.6	–9.3p.p

The results reveal an important divergence between revenue growth and profitability. Between 2022 and 2024, revenue increased by approximately 16.9%, whereas COGS increased by about 49.2%. Consequently, the net profit margin declined from approximately 12.9% to 3.6%. In 2024 alone, period expenses amounted to approximately UZS 583.1 billion, compared with UZS 404.5 billion in the preceding reporting period. This pattern indicates that increasing sales alone is insufficient to ensure sustainable financial performance and highlights the strategic importance of cost monitoring, resource allocation, and operational control.

The balance-sheet structure provides additional evidence of the need for improved resource management. At the end of 2024, Farg'onaazot held approximately UZS 795.7 billion in inventories, including UZS 378.5 billion in production inventories and UZS 399.9 billion in finished goods. Net fixed assets amounted to approximately UZS 677.2 billion, while capital investments increased from UZS 8.9 billion at the beginning of the year to UZS 32.3 billion at year-end. These figures demonstrate the scale of assets and inventories that must be continuously coordinated and monitored in a large chemical enterprise.

The most recent available data show that financial pressure continued in Q1 2025. Revenue amounted to approximately UZS 368.7 billion, compared with UZS 373.7 billion in Q1 2024. Despite the reduction in COGS from UZS 255.9 billion to UZS 243.4 billion and the increase in gross profit from UZS 117.8 billion to UZS 125.2 billion, period expenses increased from UZS 201.4 billion to UZS 281.9 billion. Consequently, Farg'onaazot recorded an operating loss of approximately UZS 151.1 billion and a net loss of UZS 154.3 billion in Q1 2025.

The Q1 2025 balance sheet also shows changes in resource composition. Total assets declined from approximately UZS 2,079.5 billion to UZS 1,874.1 billion, while inventories

decreased from UZS 795.7 billion to UZS 675.8 billion. In particular, finished goods declined from approximately UZS 399.9 billion to UZS 262.9 billion, whereas production inventories increased from UZS 378.5 billion to UZS 392.2 billion. Such movements reinforce the importance of integrated monitoring of production, inventories, sales, and financial resources.

From a strategic management perspective, these findings suggest several priority areas for digital transformation at Farg'onaazot JSC. Digital technologies can support real-time production and cost monitoring, inventory management, equipment monitoring, integration of operational and financial information, and KPI-based managerial control. Accordingly, the proposed strategic management mechanism is presented in Figure 1.

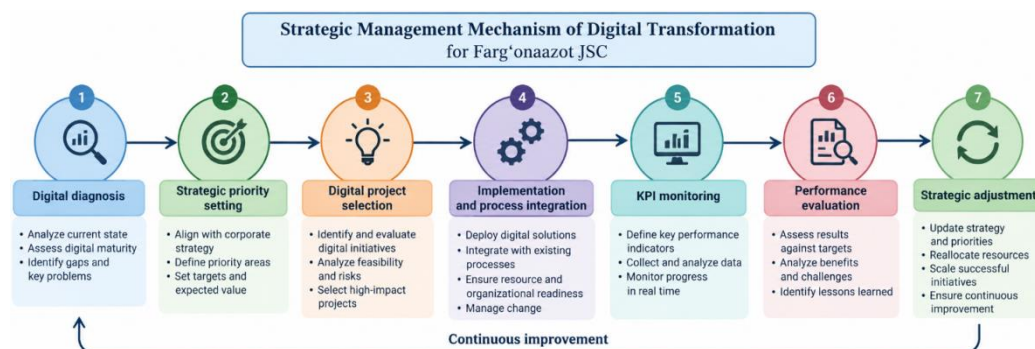


Figure 1. Strategic Management Mechanism of Digital Transformation for Farg'onaazot JSC

The proposed mechanism enables management to identify priority areas for digitalization, allocate resources to strategically important projects, monitor implementation through measurable indicators, and continuously adjust digital initiatives according to operational and financial results. In this way, digital transformation can support more efficient resource management and strengthen the long-term competitiveness of Farg'onaazot JSC.

3.1. Priority Areas for Digital Transformation at Farg'onaazot JSC

The characteristics of chemical production make digital transformation particularly relevant for Farg'onaazot JSC. Chemical enterprises operate interconnected technological processes in which equipment condition, raw-material consumption, production parameters, product quality, inventories, and financial results need to be monitored continuously. Recent research on the chemical industry shows that “technologies such as digital twins, industrial sensors, real-time analytics, and integrated information systems can support process optimization, predictive maintenance, quality control, and more informed managerial decisions”.

Based on the enterprise analysis, digital transformation at Farg'onaazot can be concentrated on several interconnected areas. First, production process digitalization should improve the availability of real-time information on production volumes, resource consumption, equipment utilization, and technological deviations. Second, digital inventory management can strengthen coordination between procurement, production, storage, and sales. This is particularly relevant because the company's financial statements demonstrate the significant role of inventories in its asset structure. Third, digital integration of operational and financial information can enable management to identify cost deviations more rapidly and evaluate their effect on profitability.

Another important direction is equipment and maintenance management. In capital-intensive chemical production, equipment failure can cause production interruptions, additional costs, and operational risks. Digital monitoring systems can collect information on equipment conditions and support the transition from predominantly reactive maintenance toward preventive and predictive approaches. Research on digital twins in the chemical process industry identifies real-time monitoring, predictive maintenance, asset-health monitoring, and process optimization among their principal applications.

The transformation should nevertheless be implemented gradually rather than through the simultaneous digitalization of all business processes. Manufacturing research indicates that digital transformation represents an evolutionary process in which digital readiness and data capabilities develop through different maturity levels. For Farg'onaazot, this implies beginning with a digital diagnosis, identifying processes with the greatest operational and economic significance, implementing pilot projects, evaluating their performance, and subsequently scaling successful solutions.

3.2. Managerial Implications of the Proposed Mechanism

The proposed mechanism in Figure 1 provides a framework for linking technological initiatives with corporate objectives. The first stage, digital diagnosis, should assess existing information systems, data availability, production processes, digital competencies, and the principal operational bottlenecks. The purpose of this stage is to determine where digital technologies can generate meaningful managerial and operational improvements rather than introducing technologies without clearly defined objectives.

The second and third stages strategic priority setting and digital project selection are important for ensuring efficient allocation of financial and organizational resources. Potential projects should therefore be evaluated according to their expected contribution to cost efficiency, production reliability, resource utilization, information quality, and strategic objectives. This approach is particularly appropriate for Farg'onaazot because the financial analysis demonstrates that increasing revenue has not automatically translated into proportional improvements in profitability.

Implementation should be accompanied by process integration and KPI-based monitoring. Relevant indicators may include equipment downtime, production-cycle efficiency, energy and raw-material consumption, inventory turnover, production costs, defect rates, and the speed of managerial reporting. The purpose of these indicators is not simply to measure the number of digital technologies introduced but to evaluate whether digital projects contribute to measurable improvements in industrial processes. Chemical-industry research similarly emphasizes that digital systems generate value when operational data are integrated with monitoring, analysis, simulation, and decision-making processes.

Finally, performance evaluation and strategic adjustment make the proposed mechanism cyclical. Projects that generate measurable operational benefits can be expanded, while initiatives with limited results can be modified or discontinued. Consequently, digital transformation becomes a continuous process of diagnosis, implementation, measurement, learning, and adjustment. This feedback principle is particularly important because technological capabilities, production requirements, and market conditions change over time.

Table 2. Priority Directions of Digital Transformation at Farg'onaazot JSC

Priority area	Digital solution	Management objective	Possible KPI
Production	Real-time process monitoring	Improve operational control	Downtime, output, process deviations
Equipment	Predictive maintenance	Improve equipment reliability	Failure rate, maintenance downtime
Inventory	Digital inventory system	Optimize stocks	Inventory turnover, stock level
Costs	Integrated cost monitoring	Strengthen cost control	Unit cost, cost deviation
Management	Digital dashboards	Improve decision-making	Reporting time, KPI achievement
Data integration	Integrated information platform	Connect operational and financial data	Data availability, reporting accuracy

The priority directions presented in Table 2 demonstrate that digital transformation at Farg'onaazot JSC should be implemented through the integration of technological and managerial processes. Production monitoring, predictive maintenance, inventory management, cost control, and digital dashboards should operate within a common information environment rather than as separate digital initiatives. Such integration can improve the availability and timeliness of information used by managers and support more coordinated decision-making across production and administrative functions.

At the same time, the effectiveness of digital transformation should be evaluated through its contribution to enterprise performance rather than simply through the number of technologies introduced. For this reason, each digital initiative should be linked to measurable KPIs reflecting operational reliability, resource efficiency, cost control, and management quality. A phased implementation approach is therefore appropriate: priority processes can first be digitalized through pilot projects, their results evaluated, and successful solutions subsequently expanded across the enterprise. This approach can reduce implementation risks and ensure closer alignment between digital investments and the strategic objectives of Farg'onaazot JSC.

4. Conclusion

This study examined the strategic management of digital transformation in industrial enterprises using Farg'onaazot JSC as a case study. The analysis demonstrates that growth in business activity does not necessarily lead to proportional improvements in financial performance. In the case of Farg'onaazot, revenue increased during 2022–2024, while rising production costs and operating expenses contributed to a substantial decline in profitability. These results underline the importance of strengthening cost control, resource management, production monitoring, and the integration of operational and financial information. The study proposes a strategic management mechanism consisting of digital diagnosis, strategic priority setting, digital project selection, implementation and process integration, KPI monitoring, performance evaluation, and strategic adjustment. The mechanism treats digital transformation as a continuous management cycle in which technological initiatives are selected according to strategic priorities and evaluated through measurable performance outcomes. For Farg'onaazot JSC, the analysis identifies production monitoring, predictive maintenance,

inventory management, cost monitoring, digital management dashboards, and data integration as priority areas for digital transformation. Their implementation can contribute to improved operational transparency, more efficient resource allocation, faster managerial decision-making, and stronger coordination between technological and financial processes. The practical contribution of the study is the development of a structured approach that links digital technologies with strategic management objectives and measurable KPIs. Although the proposed mechanism is developed for Farg'onaazot JSC, its basic principles may also be applicable to other large industrial enterprises with complex production processes and significant requirements for resource coordination. The study is limited by its focus on a single enterprise and by the availability of publicly disclosed corporate and financial information. Therefore, the observed financial changes should not be interpreted as the direct effects of digital transformation. Future research could incorporate enterprise-level data on digital investments, equipment utilization, production efficiency, energy consumption, and employee digital competencies to quantitatively evaluate the effects of specific digital initiatives.

REFERENCES

- [1] Y. O. Abdallah, E. Shehab, and A. Al-Ashaab, "Understanding digital transformation in the manufacturing industry: A systematic literature review and future trends," *Product: Management & Development*, vol. 19, no. 1, Art. no. e20200021, 2021, doi: 10.4322/pmd.2021.001.
- [2] F. Abdulazizov, "The role of digital transformation in the development of industry in Uzbekistan," *Interpretation and Researches*, vol. 5, no. 51, 2025, doi: 10.71337/inlibrary.uz.international-scientific.80425.
- [3] [3] C. Favoretto, G. H. de S. Mendes, M. Godinho Filho, M. G. de Oliveira, and G. M. D. Ganga, "Digital transformation of business model in manufacturing companies: Challenges and research agenda," *Journal of Business & Industrial Marketing*, vol. 37, no. 4, pp. 748–767, 2022, doi: 10.1108/JBIM-10-2020-0477.
- [4] T. A. Gileva, A. V. Babkin, and G. A. Gilev, "Development of an enterprise digital transformation strategy considering the opportunities of business ecosystems," *Economics and Management*, vol. 26, no. 6, pp. 629–642, 2020.
- [5] A. Hanelt, R. Bohnsack, D. Marz, and C. Antunes Marante, "A systematic review of the literature on digital transformation: Insights and implications for strategy and organizational change," *Journal of Management Studies*, vol. 58, no. 5, pp. 1159–1197, 2021, doi: 10.1111/joms.12639.
- [6] M. D. Jones, S. Hutcheson, and J. D. Camba, "Past, present, and future barriers to digital transformation in manufacturing: A review," *Journal of Manufacturing Systems*, vol. 60, pp. 936–948, 2021, doi: 10.1016/j.jmsy.2021.03.006.
- [7] L. C. de S. Moreira, C. M. Rebello, E. A. Costa, A. S. Sánchez, L. S. Ribeiro, and I. B. R. Nogueira, "Digital transformation in the chemical industry: The potential of augmented reality and digital twin," *Applied Sciences*, vol. 14, no. 24, Art. no. 11607, 2024, doi: 10.3390/app142411607.
- [8] S. Nadkarni and R. Prügl, "Digital transformation: A review, synthesis and opportunities for future research," *Management Review Quarterly*, vol. 71, pp. 233–341, 2021, doi: 10.1007/s11301-020-00185-7.
- [9] National Statistics Committee of the Republic of Uzbekistan, *Socio-Economic Situation of the Republic of Uzbekistan: January–December 2025*. Tashkent, Uzbekistan: National Statistics Committee of the Republic of Uzbekistan, 2026.
- [10] P. K. Pal, A. Hens, N. Behera, and S. K. Lahiri, "Digital twin technology in chemical process industries: A comprehensive review of applications, challenges, and future directions," *The Canadian Journal of Chemical Engineering*, vol. 103, no. 8, pp. 3611–3638, 2025, doi: 10.1002/cjce.25611.
- [11] M. Savastano, C. Amendola, F. Bellini, and F. D'Ascenzo, "Contextual impacts on industrial processes brought by the digital transformation of manufacturing: A systematic review," *Sustainability*, vol. 11, no. 3, Art. no. 891, 2019, doi: 10.3390/su11030891.
- [12] P. C. Verhoef, T. Broekhuizen, Y. Bart, A. Bhattacharya, J. Q. Dong, N. Fabian, and M. Haenlein, "Digital transformation: A multidisciplinary reflection and research agenda," *Journal of Business Research*, vol. 122, pp. 889–901, 2021, doi: 10.1016/j.jbusres.2019.09.022.
- [13] G. Vial, "Understanding digital transformation: A review and a research agenda," *The Journal of Strategic Information Systems*, vol. 28, no. 2, pp. 118–144, 2019, doi: 10.1016/j.jsis.2019.01.003.

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- [14] G. Yuldashev, "The role of digital technologies on improving the economic efficiency of industrial enterprises," *Economics and Innovative Technologies*, vol. 11, no. 3, pp. 328–336, 2023, doi: 10.55439/EIT/vol11_iss3/i34.
- [15] S. V. Buer, H. F. Strandhagen, and F. T. S. Chan, "The link between Industry 4.0 and lean manufacturing: Mapping current research and establishing a research agenda," *International Journal of Production Research*, vol. 56, no. 8, pp. 2924–2940, 2018, doi: 10.1080/00207543.2018.1442945.