

**FUTURE GUARANTEED FACTORS FOR THE SUSTAINABLE
DEVELOPMENT OF INDUSTRIAL ENTERPRISES: STRATEGIC
APPROACHES BASED ON INNOVATION AND DIGITAL
TRANSFORMATION**

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Abstract. In the context of today's rapid globalization and the transition to a "green" economy, ensuring the long-term competitiveness of industrial enterprises has become a highly urgent issue not only in economic terms but also in social and environmental aspects. The main objective of this article is to identify future guaranteed factors ensuring the sustainable development of industrial enterprises using the example of the Qashqadaryo region, to analyze the technological structure, and to develop digital transformation mechanisms. The research process utilized systems analysis, a five-node cybernetic profile, a Fixed Effects Model based on panel data, and correlation-regression analysis methods. The obtained results revealed a critically low share of high technologies in industry (1.5%) and the presence of a "technological metabolism disruption" pathology, and strategic solutions for utilizing B2B digital platforms, innovative industrial clusters, and Green bonds to overcome this challenge were scientifically substantiated.

Keywords: sustainable development, competitive advantage, industrial clusters, digital transformation, technological metabolism, econometric model, green economy, innovations.

Background. Under the conditions of rapid globalization and the transition to a "green" economy, ensuring the long-term competitiveness of

industrial enterprises has become an urgent issue not only in economic terms but also from social and environmental perspectives. Traditional models of profit maximization are being replaced by Environmental, Social, and Corporate Governance (ESG) principles and the Triple Bottom Line concept.

Objective. The primary goal of this article is to identify the future guaranteed factors that ensure the sustainable development of industrial enterprises using the Qashqadaryo region as a case study, analyze its technological structure, and develop effective digital transformation mechanisms.

Methods. The research utilized systems analysis, a five-node cybernetic profile, a Fixed Effects Model based on panel data (covering 15 districts and cities of the Qashqadaryo region for 2020-2025), and correlation-regression analysis methods.

Results. The empirical findings revealed a critically low share of high technologies in the manufacturing industry, standing at only 1.5%. The cybernetic profile diagnostics confirmed the presence of a "technological metabolism disruption" pathology, where macro-investments in infrastructure fail to translate into micro-level profitability due to the lack of real innovative culture and qualified IT personnel. Econometric modeling demonstrated that increasing the share of high technologies by just 1% guarantees an average increase of 145.2 thousand UZS in per capita industrial output.

Conclusion and recommendations. To overcome these systemic issues and achieve a target of 15-20% high-tech share while reducing transaction costs by 20-25%, several strategic solutions were scientifically substantiated. These include creating Business-to-Business (B2B) digital cooperative platforms based on smart contracts to eliminate information asymmetry. Additionally, forming innovative industrial clusters integrating "Education –

Science – Production" and introducing regional venture funds along with "Green bonds" are necessary to finance eco-friendly, waste-free technologies.

Keywords. sustainable development, competitive advantage, industrial clusters, digital transformation, technological metabolism, econometric model, green economy, innovations.

REFERENCES

1. Barney, J. B. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17(1), 99-120.
2. Chesbrough, H. (2003). *Open Innovation: The New Imperative for Creating and Profiting from Technology*. Harvard Business School Press.
3. Elkington, J. (1997). *Cannibals with Forks: The Triple Bottom Line of 21st Century Business*. Capstone.
4. Lasi, H., Fettke, P., Kemper, H. G., Feld, T., & Hoffmann, M. (2014). Industry 4.0. *Business & Information Systems Engineering*, 6(4), 239-242.
5. Porter, M. E. (1980). *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. Free Press.
6. Porter, M. E. (2008). *On Competition*. Harvard Business Review Press.
7. Schwab, K. (2016). *The Fourth Industrial Revolution*. World Economic Forum.
8. Schumpeter, J. A. (1942). *Capitalism, Socialism and Democracy*. Routledge.
9. Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533.
10. Wernerfelt, B. (1984). A Resource-Based View of the Firm. *Strategic Management Journal*, 5(2), 171-180.
11. Abdullayev, A. et al. (2019). *Industrial Economy. Textbook*. Iqtisod-Moliya.

12. Vahobov, A. V. (2020). *Green Economy. Textbook*. Universitet.
13. Resolution of the President of the Republic of Uzbekistan No. PQ-4477 dated October 4, 2019. (2019). *"On approval of the strategy for the transition of the Republic of Uzbekistan to a "green" economy for the period 2019-2030"*.
14. Decree of the President of the Republic of Uzbekistan No. PF-60 dated January 28, 2022. (2022). *"On the development strategy of New Uzbekistan for 2022-2026"*.