

**DIGITAL TRANSFORMATION AND MANAGEMENT
EFFICIENCY IN UZBEK ENTERPRISES: EVIDENCE
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and Cultural Heritage, Samarkand, Uzbekistan****<https://doi.org/10.5281/zenodo.22725331>****ARTICLE INFO**Received: 07th September 2026Accepted: 09th September 2026Online: 11th September 2026**KEYWORDS***digital transformation,
management efficiency,
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enterprise performance***ABSTRACT**

Uzbekistan's strategy for digital transformation "Digital Uzbekistan – 2030" and the swift development of the national IT industry are part of this. The potential for improved enterprise management efficiency through the use of digital tools is still poorly researched in the case of the Republic of Uzbekistan. The current study combines secondary surveys and statistical data on the digital adoption of enterprises in the Republic of Uzbekistan, provided by the Center for Economic Research and Reforms (CERR), the World Bank's Enterprise Surveys, and latest national and international scholarship in order to evaluate the correlation between the adoption of digital and managerial and operational efficiency of Uzbek enterprises. The data suggests that while standalone digital tools have a weak impact on efficiency, organizations that integrate multiple digital tools and make them part of the main management processes have a significantly higher probability to reduce costs and increase demand. The results confirm the dynamic-capabilities view of digital transformation and highlight digital-skills gaps and disjointed process integration as the major obstacles to the efficiency of management in Uzbekistan.

1. Introduction

Digital technologies are considered to be one of the most important tools in the optimization of organizational management, speeding up decision-making, resource distribution, and process oversight in the organization [1]. In Uzbekistan, the government has been actively supporting this shift, with the "Digital Uzbekistan – 2030" strategy focusing on investments in e-government platforms, IT-park infrastructure, and digitalization of management systems of public and private sectors [2]. The revenue of IT-park companies in Uzbekistan increased by almost four times during this period, compared to the first quarter of 2022, and exports of digital services have also increased significantly, reflecting the country's commitment to a digital-oriented growth model [2].

Nevertheless, an important question has not been fully answered yet: whether digital inclusion of enterprises by itself increases the management efficiency of the businesses of Uzbek States or not, and whether complementary changes are necessary to obtain measurable

results or not? Digital transformation is often referred to in the international literature as a necessary but not sufficient requirement to enhance efficiency, as strategic realignment of management practices – not the technologies themselves – is the driving force of performance improvement (Kane et al., 2015, as cited in [1]). Especially for a transition economy like Uzbekistan, where companies have different levels of digital maturity, managerial skills and workforce expertise.

Hence, the aim of this article is to explore the connection of digital transformation with efficiency of management in Uzbek companies, having used the data of national survey and the general theoretical works on the topic of digital transformation and dynamic capabilities of companies [3]. The specific goal is to understand: (a) the situation of digital adoption among the Uzbek companies; (b) the relationship between the intensity of the use of digital tools and the efficiency of company management as reflected in self-reported indicators; (c) the main barriers that hinder the transition from digital adoption to efficient company management. The study is a new addition to the existing body of research on the same subject, but it has a particular focus on research undertaken in Uzbekistan and it provides policy-driven and evidence-informed recommendations to policy makers and managers of enterprises in this country.

2. Methods

The research approach used in this study is desk based, with a documentary research design, which is a study that involves synthesizing and analyzing existing secondary data, but does not involve collecting new primary survey data. This approach was selected due to the availability of a number of recent and methodologically sound, nationally representative datasets covering digitalization of enterprises in the republic, which allowed the synthesis of secondary data to be carried out and was suitable for an exploratory study of the relationship between digitalization and efficiency of enterprises.

Three types of secondary sources were employed. To draw the statistical evidence, the survey method was applied, and more than 5,000 entrepreneurs were surveyed in all regions of Uzbekistan and assessed on the state of the business environment and the adoption of digital technologies [4]. Second, enterprise indicators were taken from the World Bank's 2024 Uzbekistan Enterprise Survey conducted on a stratified random sample of formal enterprises [5]. Thirdly, the contextual and national-strategy data was sourced from CERR's business-climate report from 2024 [6], overview of Uzbekistan's digital economy by the Agency for Information and Communications Technology [7] and statistics on digital usage in the country from [8].

The methodology of the analytical procedure consisted of a comparative description of indicators of adoption and performance, as well as a thematic synthesis of international and national literature analyzed in the past few years on the theme of digital transformation and efficiency of managing it. The indicators were classified into three analytic areas: (a) extent of use of the digital tools, (b) intensity of shared-tool use, and (c) outcomes of combined tools (cost savings, demand expansion). The classification enabled the study to take into account the impact of integrated use of digital tools in management processes and the impact of using isolated digital tools.

One drawback of this design is using cross-sectional, self-reported survey information from third party institutions instead of a primary panel dataset, thereby limiting causal inference. Consequently, the synthesis is descriptive and associative, rather than causal, between digitalization and efficiency.

3. Results

The results of the CERR-CCI survey [4] indicate a segmented digital usage by enterprises in Uzbekistan. Around one third (33.0%) of the enterprises had used multiple digital solution at once, around one third (30.4%) had implemented AI in two or more business functions, and almost one fourth (23.2%) had adopted energy-saving digital solutions [4]. The numbers show that enterprises in Uzbekistan are not yet the majority in terms of combined and advanced digital adoption, but it is on the rise.

Adoption intensity is more informative than adoption levels when studying the relationship between adoption intensity and management efficiency outcomes. 54.1% of the enterprises that had adopted three or more measures for improving the digital efficiency of their business operations noted growth in demand for their products and services, while such enterprises were 4.1 times more likely to report cost reduction than those with fewer digital efficiency measures [4]. This trend persisted despite the independent effects of digital payments and online sales being limited, unless the internal management and production processes were changed [4], which findings are in line with parallel World Bank enterprise-level analysis.

The macro-level patterns are observed in the context of relatively good business conditions overall, as evidenced by CERR's national business-climate indicator, which averaged 42 points in 2024 [6], and by the fact that by January 2025, 32.7 million people, or about 89% of the population, were already using the Internet [8]. The national IT industry also boasted a significant growth during the same period; the output of IT-park in 2023 was estimated at US\$690 million, an increase from the previous year, and the digital-service exports were expanding due to AI growth [7]. The summary in Table 1 shows the main indicators presented quantitatively from these sources.

Indicator	Value	Year	Source
Enterprises using several combined digital solutions	33.0%	2024	[4]
Enterprises applying AI in at least two business areas	30.4%	2024	[4]
Enterprises applying energy-saving digital solutions	23.2%	2024	[4]
Enterprises (3+ measures) reporting increased demand	54.1%	2024	[4]
Relative likelihood of cost reduction (3+ measures vs. fewer)	4.1×	2024	[4]
National average business-climate indicator	42 points	2024	[6]
Internet users nationwide	32.7	Jan.	[8]

	million	2025	
IT-sector output value	~US\$690 million	2023	[7]

This trend is confirmed by qualitative results of the latest Uzbekistan-oriented scholarship. Gulyamov [9] lists the following common hurdles that are slowing down the implementation of digital access in enterprises: limited digital skills, high implementation costs, regulatory uncertainty, and low trust in e-commerce. Likewise, Sharipova [1] notes that although the use of cloud computing, automation, and analytics platforms are growing in Uzbekistan to speed up managerial decision-making, employee resistance to change and unequal digital skills are still limiting the pace and depth of implementation. The quantitative and qualitative findings all lead to the same conclusion, that is, when digital tools are used as a whole package that is part of management practice, rather than as independent technological additions.

4. Discussion

What has been observed in the pattern of digital adoption in Uzbek companies is similar to what has been observed in other companies in which combining, process-integrated digital adoption results in significantly greater efficiency gains than using individual digital tools; this pattern is consistent with the dynamic capabilities perspective on competitive advantage, which argues that competitive advantage is not so much about having a technology as it is about an organization's ability to sense an opportunity, reconfigure resources, and integrate new tools into a well-coordinated routine [3]. More than two of these digital measures are, de facto, showing higher levels of this integrative capacity, which may account for the disproportionately good cost and demand outcomes of enterprises that use multiple digital measures versus those using digital payments or a single application.

In addition, this interpretation is consistent with other management models like the balanced scorecard [10], which argue that such actual results will be achieved when technology investment is understood within the context of strategy on financial, customer, internal-process and learning dimensions. The evidence from Uzbekistan shows that the businesses which have only partially implemented digital technologies (e.g., payments only) are omitting the other internal-process and learning aspects required for the balanced-scorecard logic to be successful.

Policy-wise, the persistent challenges of digital-skills shortages and staff resistance to digital transformation reported as barriers [1,9] suggest that the priorities of the national strategy on "Digital Uzbekistan – 2030" on investments in infrastructure and e-government platforms are to be complemented with a similar focus on managerial and staff digital-skills development, specifically for small and medium enterprises, which are subject to higher costs of digitalization on a proportionate basis [9]. Comparable evidence from international experience, such as the OECD's [11] study on digital transformation of SMEs, also shows that for smaller enterprises, finances and skills gaps are typically more likely to be the limiting factors, rather than the availability of technology.

The study was based on secondary, cross-sectional survey data, which means that causal direction could not be determined, as it may have been the case that better-managed and

more efficient enterprises are simply better able to afford and implement multiple digital tools, not that using multiple digital tools necessarily resulted in the observed efficiency gains. The connection could be tested in a more rigorous way in the Uzbek context with future research using firm-level panel data or matched enterprise samples that could be drawn from the microdata from the World Bank Enterprise Survey [5].

5. Conclusion

In this study, the authors analyzed the correlation between digital transformation and business management efficiency of enterprises in Uzbekistan, based on recent national survey and institutional evidence. The evidence suggests that in Uzbekistan, the adoption of digital tools is not yet uniform, about one-third of enterprises use combined digital solutions, and the efficiency impact of digitalization is closely connected with the extent and integration of digital tools in management activities over the adoption of any single technology. Companies using three or more digital measures experienced significantly higher increases in demand and cost-reduction results compared to companies using a single digital measure, like digital payments.

Based on these results, the digital-transformation policy for Uzbekistan needs to focus more on enhancing digital skills among citizens, strengthening the abilities of managers to implement digital transformation, and providing support for the integration of digital processes, especially in the SME sector, along with investment in digital infrastructure. To develop more conclusive causal evidence of the links between digital transformation and sustained managerial efficiency gains in the Uzbek enterprise sector, future studies based on primary firm-level panel data would be useful.

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