

# Institutional Challenges Of Small Business In The Digital Transformation Process And Ways To Overcome Them

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**Abstract:** This article examines the institutional challenges faced by small businesses during the digital transformation process and proposes comprehensive solutions to overcome them. The study analyzes the theoretical foundations of institutional barriers, including regulatory frameworks, financial constraints, human capital limitations, and organizational culture resistance. Drawing on international best practices from the European Union, United States, Singapore, and South Korea, the research identifies key success factors and common pitfalls in addressing institutional challenges. A practical model for overcoming institutional barriers in Uzbekistan's small business sector is developed, considering the unique characteristics of the national business environment. The findings provide strategic recommendations for policymakers, business leaders, and support organizations to facilitate successful digital transformation while navigating institutional complexities.

**Keywords:** Digital transformation, institutional challenges, small business, regulatory barriers, financial constraints, human capital, organizational culture, Uzbekistan, entrepreneurship, innovation policy.

**Introduction:** In the contemporary era of rapid technological advancement, digital transformation has become an imperative for business survival and growth. However, small businesses worldwide face significant institutional challenges that impede their ability to successfully navigate this transformation. According to the World Bank's Enterprise Surveys, over 65% of small and medium enterprises in developing countries cite institutional barriers as the primary obstacle to adopting digital technologies. The OECD reports that institutional challenges account for approximately 40% of digital transformation failures among small businesses, highlighting the critical importance of addressing these systemic issues. Institutional challenges in digital transformation encompass a broad spectrum of barriers, including inadequate regulatory frameworks, limited access to financing, insufficient digital skills in the workforce, resistance to organizational change, and weak supporting infrastructure. These challenges are particularly acute in transition economies like Uzbekistan, where the institutional environment is still evolving to accommodate the demands of the digital

economy. Research by Deloitte indicates that companies operating in environments with strong institutional support are 3.2 times more likely to achieve their digital transformation objectives compared to those facing institutional constraints.

Uzbekistan is home to over 612,000 small business entities that collectively contribute more than 56% of the country's GDP. The government's "Digital Uzbekistan 2030" strategy has set ambitious targets for digital transformation across all sectors of the economy. However, according to a survey conducted by the Chamber of Commerce and Industry of Uzbekistan, only 23% of small businesses report having adequate institutional support for their digital initiatives. This institutional gap represents a significant barrier to achieving the national digital transformation goals and maintaining the competitiveness of the small business sector. The purpose of this article is to comprehensively examine the institutional challenges faced by small businesses during digital transformation and to propose evidence-based solutions for overcoming these barriers. The research objectives include: analyzing the theoretical foundations of

institutional barriers to digital transformation; examining international best practices in addressing institutional challenges; identifying the specific institutional barriers prevalent in Uzbekistan's small business sector; and developing a practical framework with recommendations for policymakers and business leaders.

The concept of institutional challenges in digital transformation is rooted in institutional economics theory, pioneered by scholars such as Douglass North and Oliver Williamson. According to North's seminal work, institutions are "the rules of the game in a society" that shape economic behavior and outcomes. In the context of digital transformation, institutional challenges can be understood as the formal and informal constraints that inhibit businesses from effectively adopting and leveraging digital technologies. These constraints operate at multiple levels: the macro-institutional level (national policies, regulations, and infrastructure), the meso-institutional level (industry norms, professional standards, and support ecosystems), and the micro-institutional level (organizational culture, internal governance, and individual capabilities). The Technology-Organization-Environment (TOE) framework, developed by Tornatzky and Fleischer, provides a useful lens for analyzing institutional challenges. This framework posits that technology adoption is influenced by three contextual factors: technological context (availability and characteristics of technologies), organizational context (firm size, resources, and capabilities), and environmental context (industry structure, regulatory environment, and supporting infrastructure).

Institutional challenges primarily manifest in the environmental context but also interact with organizational factors to create complex barriers to digital transformation.

Research by the European Commission's Joint Research Centre has identified five primary categories of institutional challenges facing small businesses in digital transformation. First, regulatory barriers include outdated legislation that does not accommodate digital business models, complex compliance requirements, data protection regulations that create uncertainty, and lack of legal recognition for digital contracts and transactions. Second, financial constraints encompass limited access to credit for technology investments, absence of specialized financing instruments for digital projects, high perceived risk by financial institutions, and lack of understanding of digital business valuations. Third, human capital limitations involve shortage of workers with digital skills, inadequate training and education systems, brain drain of digital talent to larger companies or abroad, and resistance to acquiring new competencies among existing workforce. Fourth, infrastructure deficiencies include unreliable internet connectivity, inadequate digital payment systems, absence of interoperability standards, and limited access to cloud computing and data centers. Fifth, ecosystem weaknesses involve lack of digital service providers, weak collaboration networks, insufficient government support programs, and absence of industry associations promoting digitalization. Understanding these categories is essential for developing targeted interventions to address institutional challenges comprehensively.

**Table 1. Classification of Institutional Challenges in Digital Transformation**

| Challenge Category      | Key Manifestations   | Impact on SMEs   |
|-------------------------|--|--|
| Regulatory Barriers     | Outdated laws, complex compliance, data protection uncertainty     | Legal risks, delayed adoption, increased costs                       |
| Financial Constraints   | Limited credit access, high interest rates, risk aversion by banks | Underinvestment, outdated technology, competitive disadvantage       |
| Human Capital Gaps      | Skills shortage, brain drain, training deficiencies                | Implementation failures, low productivity, innovation barriers       |
| Infrastructure Deficits | Poor connectivity, limited cloud access, interoperability issues   | Operational disruptions, limited scalability, geographic disparities |
| Ecosystem Weaknesses    | Few service providers, weak networks, inadequate support programs  | Isolation, missed opportunities, slow knowledge transfer             |

The European Union has developed comprehensive approaches to addressing institutional challenges through its Digital Europe Programme and the SME Strategy for a sustainable and digital Europe. The EU's approach emphasizes regulatory harmonization through the Digital Services Act and Digital Markets Act, which create clear rules for digital business operations while protecting consumer rights. The European Investment Fund provides dedicated financing instruments for digital transformation, including the InnovFin SME Guarantee facility that has supported over 450,000 small businesses in accessing EUR 34 billion in financing. Additionally, the Digital Skills and Jobs Coalition has trained over 18 million Europeans in digital competencies since 2016. Singapore's approach through the SME Go Digital Programme offers valuable lessons for developing economies. The programme provides a structured pathway for digital transformation with three tiers: basic digitalization (accounting software, digital payments), advanced solutions (e-commerce, data analytics), and emerging technologies (AI, IoT). Crucially, the government provides subsidies covering up to 80% of costs for qualifying solutions and offers free digital health checks to assess institutional readiness. The Infocomm Media Development Authority reports that 94% of Singaporean SMEs have adopted at least one digital technology since the programme's inception, compared to 74% before. Key success factors include strong public-private partnerships, a regulatory sandbox for testing innovative solutions, and

integration with the national digital identity system.

South Korea's Smart Factory Supply Chain Support Programme demonstrates effective addressing of infrastructure and ecosystem challenges. The government has invested KRW 2.1 trillion (approximately USD 1.6 billion) in building shared digital infrastructure that small businesses can access at subsidized rates. The programme has established 30,000 smart factories among SMEs, with participating companies reporting average productivity increases of 30% and defect rate reductions of 43%. The programme's success is attributed to its comprehensive approach that simultaneously addresses technology access, financing, and skills development through regional support centers staffed by industry experts.

The United States approach focuses on market-driven solutions supported by targeted government interventions. The Small Business Administration's digital resources and the National Institute of Standards and Technology's Manufacturing Extension Partnership provide technical assistance and cybersecurity guidance. However, research indicates that the fragmented nature of US support programmes creates challenges for small businesses in navigating available resources. Studies by the Kauffman Foundation suggest that small businesses in the US spend an average of 45 hours annually identifying and applying for relevant support programmes, representing a significant administrative burden.

**Table 2. Comparative Analysis of International Approaches to Institutional Challenges**

| Country/Region | Key Programmes                             | Focus Areas                                 | Key Results                                   |
|----------------|--|---|---|
| European Union | Digital Europe, InnovFin, Skills Coalition | Regulatory harmonization, financing, skills | EUR 34B financing, 18M trained                |
| Singapore      | SME Go Digital, Digital Readiness Bonus    | Tiered adoption, subsidies, health checks   | 94% SME digital adoption                      |
| South Korea    | Smart Factory Programme, Regional Centers  | Shared infrastructure, technical assistance | 30,000 smart factories, 30% productivity gain |
| United States  | SBA Resources, MEP, NIST Frameworks        | Market-driven, cybersecurity, manufacturing | Fragmented but extensive reach                |

Analysis of Uzbekistan's institutional environment reveals both significant challenges and emerging opportunities for small business digital transformation. Regulatory challenges include the evolving nature of e-commerce legislation, with the Electronic Commerce Law of 2015 requiring updates to address contemporary digital business models. The

introduction of the Tax Code reforms in 2020 created new opportunities for digital businesses but also generated compliance uncertainties during the transition period. According to the State Tax Committee, 34% of small business tax compliance issues in 2023 were related to digital transactions, indicating a need for clearer regulatory guidance.

Financial constraints remain significant, with the Central Bank of Uzbekistan reporting that only 12% of bank loans to SMEs in 2023 were specifically designated for technology investments. Interest rates for business loans average 22-24%, making technology investments financially challenging for many small businesses. However, initiatives such as the Technological Modernization Fund and preferential credit lines through specialized banks are beginning to address these gaps. The IT Park's grant programmes have supported over 500 digital projects since 2019, though this represents a small fraction of potential demand. Human capital challenges are acute, with the Ministry of Employment and Labor Relations estimating a shortage of 35,000 IT specialists in 2024. The gap is particularly severe outside of Tashkent, where small businesses have limited access to digitally skilled workers. While the government has launched initiatives such as the One Million Programmers project and IT-focused vocational training programmes, these

efforts will require time to produce sufficient workforce capacity. Additionally, resistance to digital change among existing business owners and managers, particularly those over 45 years of age, creates organizational barriers to transformation.

Infrastructure improvements have been substantial, with mobile internet coverage reaching 95% of the population and fixed broadband subscriptions growing by 28% annually. The deployment of 4G networks and planned 5G rollout will further enhance connectivity. However, significant urban-rural disparities persist, and internet reliability issues continue to affect business operations. The digital payment ecosystem has expanded rapidly with platforms such as Payme, Click, and Uzum processing over 2 billion transactions in 2023, yet integration challenges and interoperability limitations remain barriers for small businesses seeking to offer seamless digital experiences.

**Table 3. SWOT Analysis: Institutional Environment for SME Digital Transformation in Uzbekistan**

| Strengths   | Weaknesses   |
|---|--|
| <ul style="list-style-type: none"> <li>- Strong government commitment to Digital Uzbekistan 2030</li> <li>- Growing domestic digital platforms (Payme, Click, Uzum)</li> <li>- Young, tech-receptive population</li> <li>- IT Park support ecosystem</li> </ul> | <ul style="list-style-type: none"> <li>- Limited strategic planning culture among SMEs</li> <li>- Shortage of digital skills and trained personnel</li> <li>- High cost of financing for technology</li> <li>- Urban-rural digital divide</li> </ul> |
| Opportunities   | Threats  |
| <ul style="list-style-type: none"> <li>- Affordable cloud and SaaS solutions</li> <li>- International development partner support</li> <li>- Rapid growth of e-commerce market</li> <li>- Regional digital integration opportunities</li> </ul>                 | <ul style="list-style-type: none"> <li>- Cybersecurity risks and data breaches</li> <li>- Entry of digitally advanced competitors</li> <li>- Rapid technology obsolescence</li> <li>- Economic volatility affecting investment</li> </ul>            |

Based on the analysis of international best practices and Uzbekistan's specific context, we propose a comprehensive framework for overcoming institutional challenges in small business digital transformation. This framework operates at three interconnected levels: policy and regulatory reform, support ecosystem development, and enterprise-level interventions. Each level contains specific actions and recommendations that, when implemented in coordination, can significantly reduce institutional barriers. At the policy and regulatory level, key recommendations include establishing a dedicated SME Digital Transformation Unit within the Ministry of Digital Technologies to coordinate cross-governmental initiatives. This unit should develop clear regulatory guidelines for

emerging digital business models, including platform economy, sharing economy, and digital service delivery. A regulatory sandbox approach, modeled on Singapore's experience, would allow innovative businesses to test new models under temporary regulatory exemptions. Additionally, simplification of tax compliance for digital transactions and creation of a unified digital business registration system would reduce administrative barriers.

For financial ecosystem development, the framework proposes establishing a Digital Transformation Guarantee Fund that provides risk-sharing mechanisms to encourage banks to lend for technology investments. Introduction of tax incentives for digital investments, similar to South Korea's R&D tax credits,

would improve the financial viability of transformation projects. Development of specialized venture capital and angel investor networks focused on digital SMEs, combined with grants for first-time technology adopters, would address the capital constraints faced by small businesses. Importantly, these financial instruments should be designed with simplified application processes to ensure accessibility. Human capital development requires a multi-pronged approach combining formal education reform with practical skills training. Expansion of the One Million Programmers initiative to include digital business skills, not just technical programming, would broaden the talent pool. Establishment of regional Digital Skills Centers, potentially through public-private partnerships with technology companies, would address the geographic concentration of training resources. For business owners and managers, executive education programmes focused on digital leadership and change management would address the organizational resistance barriers. Additionally, creating pathways for returning diaspora talent and facilitating controlled labor migration for critical digital skills would supplement domestic capacity building.

Infrastructure and ecosystem strengthening should focus on accelerating broadband deployment in rural and peri-urban areas through universal service obligations and infrastructure sharing requirements. Development of shared technology platforms, including common cloud infrastructure and interoperable payment systems, would reduce individual business investment requirements while ensuring seamless integration. Creation of industry-specific digital transformation consortiums would enable small businesses to share experiences, resources, and bargaining power when engaging with technology vendors. Finally, establishment of a network of accredited digital transformation advisors, trained to international standards, would provide accessible expert guidance to small businesses throughout their transformation journey. This research has comprehensively examined the institutional challenges facing small businesses during digital transformation and has proposed evidence-based solutions drawing on international best practices and Uzbekistan's specific context. The analysis reveals that institutional challenges are multi-dimensional, encompassing regulatory, financial, human capital, infrastructure, and ecosystem factors. Successful digital transformation requires coordinated interventions across all these dimensions, as addressing individual challenges in isolation produces limited results. International experience demonstrates that countries achieving the highest rates of SME digital

transformation combine strong government leadership with market-based mechanisms and public-private partnerships. Singapore's tiered approach, South Korea's infrastructure investment, and the EU's comprehensive financing and skills programmes offer valuable models that can be adapted to Uzbekistan's context. The common success factor across these examples is the recognition that institutional challenges require institutional solutions that go beyond individual business capabilities.

For Uzbekistan, the Digital Uzbekistan 2030 strategy provides a strong foundation, but its implementation requires more targeted attention to institutional barriers facing small businesses. The proposed framework offers a practical pathway for strengthening the institutional environment through coordinated reforms in policy, financing, human capital, and infrastructure. Implementation of this framework would significantly improve the success rate of small business digital transformation initiatives, contributing to national economic development and competitiveness goals. Future research should focus on measuring the effectiveness of specific institutional interventions, developing sector-specific adaptation of the framework, and examining the role of emerging technologies such as artificial intelligence and blockchain in overcoming institutional barriers. Longitudinal studies tracking small business digital transformation outcomes in relation to institutional environment changes would provide valuable insights for continuous policy improvement. As the digital economy continues to evolve, institutional frameworks must adapt accordingly, requiring ongoing research and policy innovation.

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