

CONCEPTUAL FOUNDATIONS AND FACTORS OF INNOVATION IN FORMING A  
DIGITAL TRANSFORMATION ECOSYSTEM IN UZBEKISTAN

*Ashurov Mahammadjon Sotvoldiyevich*

*International Institute of Food Technology and Engineering*

*Candidate of Economic Sciences, Professor*

**Abstract**

This study analyzes the stages of forming digital ecosystems in the activities of modern organizations and substantiates the necessity of their development. In addition, the structure of contemporary digital ecosystems and the factors influencing their formation are described. The author concludes that in order to maintain competitive performance, organizations must utilize digital platforms equipped with appropriate information and technological infrastructure.

**Keywords**

enterprise, organization, digitalization, ecosystem, transformation, technologies.

**Introduction**

Today, digital transformation has become an integral part of the economy, governance, and social life, and is recognized as one of the key drivers of modern societal development. The implementation of digital technologies makes it possible to ensure transparency in public administration, automate business processes, and improve the quality of services provided to citizens.

In this context, the adoption of the “Digital Uzbekistan – 2030” strategy in the Republic of Uzbekistan represents a significant political document aimed at accelerating the country’s economic and social modernization.

The formation of a digital transformation ecosystem is one of the priority directions of state policy in Uzbekistan. It encompasses areas such as electronic commerce, e-government, IT infrastructure, digital platforms, and fintech. The main objective is to enhance competitiveness through innovation, improve the quality of public services, and develop the digital economy.

Key elements of the digital transformation ecosystem include:

- Digital platforms: IT solutions that provide digital services for government and business;
- Electronic commerce: Creating an open ecosystem of the digital economy;
- E-government: Digitalization of public services;
- Digital infrastructure: Development of the Internet, data centers, and communication networks;
- Digital literacy: Enhancing the population’s ability to use digital technologies;
- Innovation and investment: Attracting investments into the IT sector.

Uzbekistan is actively advancing in this direction, which contributes to positioning the country among leading states in terms of digital transformation.

**Literature Review**

A promising direction for societal development based on the Internet of Knowledge and the Internet of Things is the formation of the Industry 5.0 paradigm, which focuses on the creation and application of autonomous artificial intelligence systems for knowledge digitalization and cooperation between humans and robots. The essence of the Industry 5.0 concept lies in a sequential transition from a “digital object” to a “smart object” and further to an “autonomous object,” along with the development of tools for their interaction [3].

The ecosystem of a digital organization is considered as an environment that creates conditions for innovative activity and the use of digital services, products, and technologies within the framework of the digital economy.

According to H. Dong, F. K. Hussain, and E. Chang, a digital ecosystem includes digital objects, infrastructure for transmitting, storing, using, and processing information, as well as users of the system and factors influencing their interaction [4].

C. Becker emphasizes the transformation of information systems under the influence of information flows, noting that information itself becomes a resource that can be produced and utilized alongside material products under such conditions [5].

Digital ecosystems consist of interacting organizations that are digitally connected to each other, linked as modules (blocks), and are not governed by vertical hierarchical authority, unlike traditional supply chains [6].

Overall, the analysis of the literature indicates that digital ecosystems in the modern economy are interpreted as a mechanism for transforming interactions based on a combination of network effects, architectural modularity, orchestration rules, and data as a strategic resource.

#### **Research Methodology**

The research methodology is based on an interdisciplinary approach that integrates tools from digital economics, institutional theory, and platform market analysis. Digital ecosystems are considered a special form of organizing economic interactions that combine network coordination mechanisms, digital platforms, and institutional rules for joint value creation.

#### **Results and Discussion**

Within the framework of large-scale reforms implemented in recent years in the Republic of Uzbekistan, Internet networks, electronic document management systems, and e-government platforms have been developed. Public services have been transformed from traditional formats to interactive formats through integrated information systems and interactive public service portals.

The development of the e-government system, electronic commerce, safe city initiatives, the Fourth Industrial Revolution, and the application of ICT in governance have contributed to the digitalization of all sectors of the economy and society. As a result, additional conveniences and improved conditions for the population have been created, and priority tasks have been implemented to elevate the development of telecommunications services, including the ICT sector, to a new level.

However, technological innovations alone are not sufficient for the successful implementation of digital transformation. To effectively manage this process, it is necessary to form a digital transformation ecosystem that integrates human capital, institutional coordination, legal frameworks, and infrastructure into a unified system.

Such an ecosystem is based on the integration of the public sector, business, and education, serving as a comprehensive mechanism that ensures the continuous functioning of the digital economy.

At the same time, under the conditions of Uzbekistan, the main barriers to digital transformation include weak institutional governance, insufficient data integration, and a shortage of qualified personnel. In particular, the lack of specialists in IT, data analytics, artificial intelligence, and cybersecurity significantly limits the effectiveness of digital projects.

Digital transformation requires not only technological changes but also coordinated governance, high-quality human resources, a modern legal framework, and sustainable infrastructure, all integrated into an effective digital transformation ecosystem.

A digital transformation ecosystem represents an integrated system of digital infrastructure, technologies, and human capital connecting the public sector, business, and education. Its success primarily depends on highly qualified human resources, which serve as the driving force of the digital economy.

In the Republic of Uzbekistan, the formation of a digital transformation ecosystem is one of the most important factors for increasing economic competitiveness, simplifying governance systems, and improving the quality of life of citizens. Although significant reforms have been implemented in recent years, achieving sustainable results requires a systematic approach and in-depth scientific analysis of existing challenges.

### Conclusion

The research findings indicate that in the process of forming a digital transformation ecosystem in Uzbekistan, the main constraining factors include weak institutional governance, insufficient data integration, uneven infrastructure development, and limited human capital capacity. At the same time, ensuring cybersecurity, supporting innovative startups, and modernizing the legal framework remain highly relevant issues.

To address these challenges, the following practical recommendations are proposed:

1. Establish a unified digital governance center and strengthen inter-agency cooperation;
2. Introduce unified technical standards to ensure data integration;
3. Align IT workforce training systems with international standards;
4. Modernize Internet infrastructure in rural areas;
5. Develop a national cybersecurity strategy and enhance digital culture among the population;
6. Strengthen mechanisms for supporting innovative startups;
7. Form a modern legal and regulatory framework for the digital economy.

The implementation of these measures will contribute to the sustainable and inclusive development of the digital economy in Uzbekistan, improve the efficiency of digital services, and enhance the country's global competitiveness.

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