

INNOVATION SCIENCE AND TECHNOLOGY



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ISSUE 3

 Acceptance of papers **March, 2026**



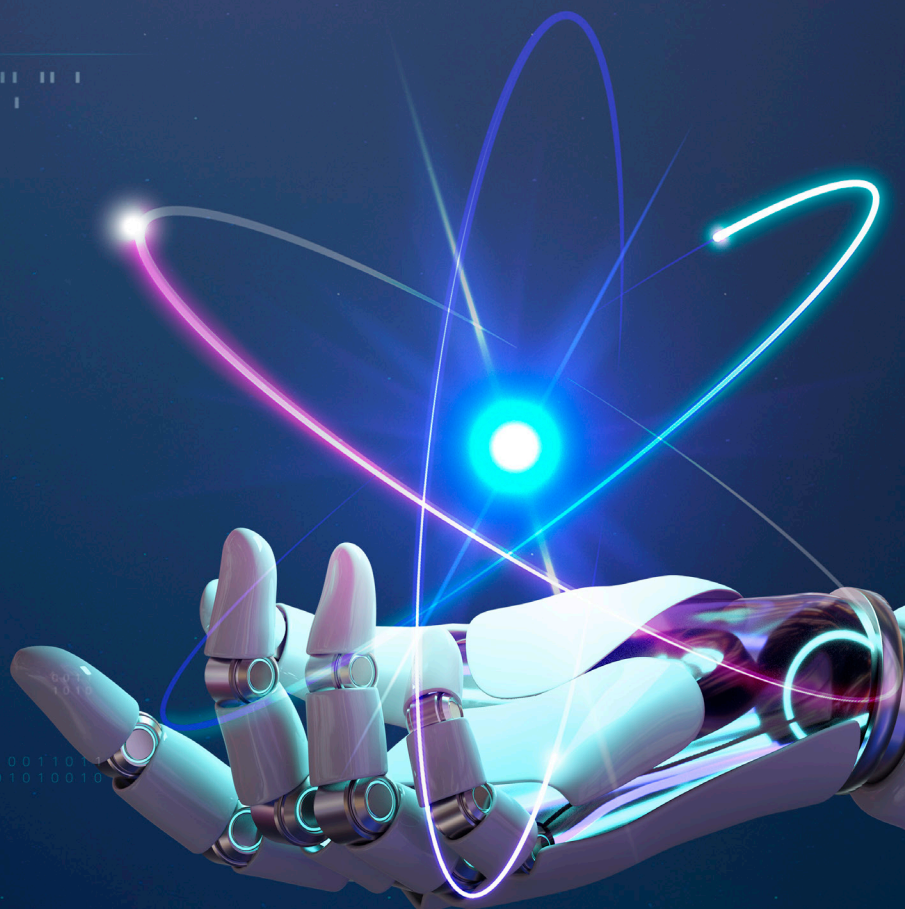
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THE SCIENTIFIC-POPULAR ELECTRONIC
JOURNAL **"INNOVATION SCIENCE AND
TECHNOLOGY"** HAS BEEN REGISTERED
UNDER THE NUMBER **C-5669633** BY THE
AGENCY FOR INFORMATION AND MASS
COMMUNICATIONS (AOKA) OF THE
REPUBLIC OF UZBEKISTAN, EFFECTIVE
FROM OCTOBER 9, 2024.

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The scientific electronic journal "Innovation Science and Technology" has been included in the list of scientific publications recommended for the publication of main scientific results of dissertations for the award of PhD and DSc degrees in economics and technical sciences, in accordance with the Resolution No. 370 of the Presidium of the Higher Attestation Commission of the Republic of Uzbekistan, dated May 8, 2025.

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FOREIGN EXPERIENCES IN ASSESSING DIGITAL TRANSFORMATION PROCESSES IN REGIONAL ECONOMIC SYSTEMS

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Abstract: This study examines foreign experiences in assessing digital transformation processes in regional economic systems. The research analyzes evaluation approaches implemented in the European Union, South Korea, Singapore, China, and the United States. Comparative analysis was used to identify key assessment indicators and best practices. The findings show that digital infrastructure, human capital, innovation capacity, and digital governance are critical factors for successful transformation. The results may contribute to improving regional digital development policies and assessment methodologies.

Keywords: digital transformation, regional economy, digitalization, digital governance, innovation, digital infrastructure, assessment.

Annotatsiya: Maqolada hududiy iqtisodiy tizimlarda raqamli transformatsiya jarayonlarini baholash bo'yicha xorijiy tajribalar o'rganilgan. Yevropa Ittifoqi, Janubiy Koreya, Singapur, Xitoy va AQShda qo'llanilayotgan baholash yondashuvlari tahlil qilingan. Qiyosiy tahlil asosida asosiy ko'rsatkichlar va ilg'or amaliyotlar aniqlangan. Natijalar raqamli infratuzilma, inson kapitali, innovatsion salohiyat hamda raqamli boshqaruv transformatsiyaning muhim omillari ekanligini ko'rsatdi. Tadqiqot natijalari hududiy raqamli rivojlanish siyosati va baholash metodologiyalarini takomillashtirishga xizmat qiladi.

Kalit so'zlar: raqamli transformatsiya, hududiy iqtisodiyot, raqamlashtirish, raqamli boshqaruv, innovatsiya, raqamli infratuzilma, baholash.

Аннотация: В статье исследуется зарубежный опыт оценки процессов цифровой трансформации в региональных экономических системах. Проанализированы подходы к оценке, применяемые в Европейском союзе, Южной Корее, Сингапуре, Китае и США. На основе сравнительного анализа выявлены ключевые показатели и лучшие практики оценки. Результаты показывают, что цифровая инфраструктура, человеческий капитал, инновационный потенциал и цифровое управление являются важнейшими факторами успешной трансформации. Полученные выводы могут способствовать совершенствованию региональной цифровой политики и методологии оценки.

Ключевые слова: цифровая трансформация, региональная экономика, цифровизация, цифровое управление, инновации, цифровая инфраструктура, оценка.

INTRODUCTION

The rapid development of digital technologies has significantly transformed economic systems at both national and regional levels. Advances in artificial intelligence, cloud computing, big data analytics, blockchain technologies, and the Internet of Things (IoT) have accelerated the digitalization of economic processes and reshaped traditional approaches to regional development. In the context of the Fourth Industrial Revolution, digital transformation has become a strategic priority for governments seeking to improve competitiveness, productivity, and sustainable economic growth. Regional economic systems play a crucial role in the implementation of digital transformation policies because they serve as centers of innovation, entrepreneurship, and investment attraction. The effectiveness of digital transformation initiatives largely depends on the ability of regional authorities to assess the progress and outcomes of digitalization processes. Therefore, the development of reliable assessment methodologies has become an important research and policy issue worldwide. Numerous countries and international organizations have introduced frameworks and indicators to evaluate digital transformation performance.

The European Union utilizes the Digital Economy and Society Index (DESI), while countries such as South Korea, Singapore, China, and the United States have developed their own approaches to measuring digital development and regional digital readiness. These assessment systems typically incorporate indicators related to digital infrastructure, human capital, innovation capacity, digital governance, and economic performance.

Understanding foreign experiences can help policymakers improve existing evaluation mechanisms and design more effective digital development strategies. The purpose of this study is to analyze foreign experiences in assessing digital transformation processes in regional economic systems and to identify the key indicators and methodological approaches that contribute to successful digital development. The research aims to provide practical insights that may support the improvement of regional digital transformation policies and assessment frameworks in developing economies.

REVIEW OF LITERATURE ON THE SUBJECT

Theoretical and methodological aspects of digital transformation have been extensively studied by foreign scholars. Among them, Manuel Castells emphasized that information and communication technologies have become the main driving force of economic and regional development. According to his concept of the network society, digital technologies fundamentally transform economic relations and governance systems [1]. Erik Brynjolfsson and Andrew McAfee examined the impact of digital technologies, artificial intelligence, and automation on productivity and economic growth. Their studies demonstrate that regions with a higher level of digitalization achieve greater economic efficiency and competitiveness [2]. Klaus Schwab introduced the concept of the Fourth Industrial Revolution and argued that digital technologies are reshaping production systems, labor markets, and regional economic structures [3]. Similarly, Nicholas Negroponte highlighted the transition from traditional economic activities to digital environments and emphasized the growing importance of information technologies in economic development [4].

Research on regional digital transformation assessment has also been conducted by international organizations and scholars. The European Commission developed the Digital Economy and Society Index (DESI), which evaluates digital development through indicators of connectivity, human capital, digital public services, and business digitalization [5]. The OECD and World Bank researchers have further emphasized that digital infrastructure, innovation capacity, and digital governance are the main determinants of successful regional transformation [6].

Among Uzbek scholars, Kalandar Abdurahmonov, Shavkat Ayupov, Bekzod Yuldashev and Sherzod Shermatov have studied the role of digital technologies in economic modernization, e-government development, and regional competitiveness. Their works highlight the importance of digital infrastructure and human capital in accelerating regional economic growth [7].

RESEARCH METHODOLOGY

This study investigates foreign experiences in assessing digital transformation processes in regional economic systems using comparative, analytical, and descriptive research methods. The research is based on reports and statistical data obtained from international organizations, including the European Commission, OECD, the World Bank, the United Nations, and the International Telecommunication Union (ITU).

A comparative analysis was conducted to examine digital transformation assessment practices in the European Union, South Korea, Singapore, China, and the United States. The study focuses on the key indicators used by these countries and organizations to evaluate regional digital development. The research methodology is presented in Table 1 (Table 1).

Table 1.
Methodological framework of the study

Research stage	Method used	Purpose
Collection of international data	Documentary analysis	To identify digital transformation assessment frameworks and indicators
Analysis of foreign experiences	Comparative analysis	To compare digital assessment approaches used in different countries
Classification of indicators	Systematization method	To group assessment indicators into common categories
Evaluation of best practices	Benchmarking analysis	To identify successful digital transformation assessment models
Development of recommendations	Synthesis and logical analysis	To formulate proposals for improving regional assessment methodologies

The analysis focuses on four major dimensions commonly applied in international digital transformation

assessment systems: digital infrastructure, human capital, innovation capacity, and digital governance. Comparative benchmarking was employed to identify similarities and differences among countries and to determine the most effective approaches to measuring regional digital transformation. The findings obtained from the comparative assessment were used to formulate recommendations aimed at improving digital transformation evaluation systems in regional economic development policies.

ANALYSIS AND RESULTS

The comparative analysis of foreign experiences demonstrates that successful digital transformation is strongly associated with the development of digital infrastructure, digital governance, innovation ecosystems, and human capital. Different countries apply various assessment frameworks; however, most of them focus on similar dimensions of digital development. The European Union uses the Digital Economy and Society Index (DESI), which evaluates connectivity, digital skills, business digitalization, and public digital services. South Korea and Singapore emphasize smart governance and digital infrastructure, while China focuses on platform economy development and artificial intelligence. The United States assesses digital transformation through innovation capacity and regional technology ecosystems.

Before presenting the comparative results, it is important to evaluate the positions of selected countries in international digital competitiveness rankings (Table 2).

Table 2

Comparative indicators of digital transformation assessment systems in selected countries (2025)

Country/Region	Digital Infrastructure	Human Capital	Innovation Capacity	Digital Governance	Overall Assessment
Singapore	98	95	97	99	97.3
South Korea	96	94	95	96	95.3
United States	94	93	99	92	94.5
European Union	91	89	90	93	90.8
China	89	85	94	88	89.0

The results indicate that Singapore and South Korea occupy leading positions due to their advanced digital governance systems and high-quality ICT infrastructure. The United States demonstrates the highest innovation performance, supported by strong research and development activities and digital entrepreneurship ecosystems (Table 3).

Table 3. Comparative level of digital transformation assessment indicators (%)

Country	Overall Assessment
Singapore	97
South Korea	95
United States	95
European Union	91
China	89

The graphical comparison reveals that countries with comprehensive digital strategies and coordinated governance mechanisms achieve higher levels of digital transformation. In particular, Singapore's Smart Nation initiative and South Korea's Digital New Deal program have significantly accelerated regional digital development. To identify the most commonly used assessment criteria, the indicators applied by different countries were grouped and analyzed (Table 4).

Table 4

Main indicators used in digital transformation assessment frameworks

Indicator group	EU	South Korea	Singapore	China	USA
Digital infrastructure	✓	✓	✓	✓	✓
Digital skills	✓	✓	✓	✓	✓

Innovation and R&D	✓	✓	✓	✓	✓
E-government services	✓	✓	✓	✓	✓
Artificial intelligence	△	✓	✓	✓	✓
Smart city indicators	△	✓	✓	✓	△
Cybersecurity	✓	✓	✓	✓	✓

The analysis shows that digital infrastructure, human capital, innovation capacity, and digital governance represent the core dimensions of almost all international assessment frameworks. At the same time, emerging indicators such as artificial intelligence readiness, smart city development, and cybersecurity are gaining increasing importance in digital transformation evaluation systems.

CONCLUSIONS AND SUGGESTIONS

The study examined foreign experiences in assessing digital transformation processes in regional economic systems and identified the main methodological approaches used in the European Union, South Korea, Singapore, China, and the United States. The analysis revealed that despite differences in national strategies, most assessment frameworks are based on common dimensions, including digital infrastructure, human capital, innovation capacity, and digital governance. The comparative analysis showed that countries with advanced digital infrastructure and effective governance mechanisms achieve higher levels of digital transformation and regional competitiveness.

In particular, Singapore and South Korea demonstrate successful practices through integrated digital policies, smart governance systems, and continuous investment in digital skills and innovation. The experiences of the European Union, China, and the United States further confirm the importance of combining technological development with institutional reforms and innovation ecosystems. The findings suggest that regional digital transformation should be assessed using a comprehensive system of indicators that reflects technological, economic, and governance factors. For developing economies, it is recommended to strengthen digital infrastructure, improve digital literacy, expand e-government services, and support innovation-driven regional development. Adapting international best practices can contribute to the creation of more effective digital transformation assessment frameworks and enhance the sustainability and competitiveness of regional economic systems.

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Proofreader: Zokir ALIBEKOV

Layout and Designer: Oloviddin Sobir ugli

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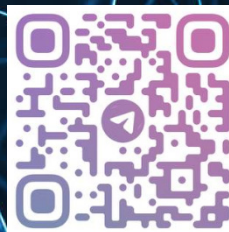
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