

# INNOVATION SCIENCE AND TECHNOLOGY

**ISSUE 9, PART I / SEPTEMBER 2026**

 **Acceptance of papers**



**Acceptance of  
papers**

Published monthly



**Topics**

economics,  
technology, social  
sciences



**EDITOR-IN-CHIEF:**

Mirzaliyev Sanjar Makhmatjon ugli

**DEPUTY EDITOR-IN-CHIEF:**

Makhmudov Nosir Makhmudovich  
DSc., Prof., Academician

**DEPUTY EDITOR-IN-CHIEF:**

Ochilov Bobur Bakhtiyor ugli – Senior  
lecturer at TSUI

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.

**CONTACTS**

Phone: **+998 50 737 87 88**

Website: <https://ist-journal.uz>

Email: [innovationist2025@gmail.com](mailto:innovationist2025@gmail.com)

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.

**Editorial board:**



**Sharipov Kongiratbay Avezimbetovich,**  
Doctor of Technical Sciences (DSc), Professor



**Abdurakhmanova Gulnora Kalandarovna,** Doctor of  
Economic Sciences (DSc), Professor



**Cham Tat Huei,**  
Doctor of Philosophy (PhD), Professor (Malaysia)



**Muhammad Imran Sadiq**  
Doctor of Philosophy in Economics (PhD), Professor,  
Malaysia



**Ahmed Aziz Ismail**  
Doctor of Technical Sciences (DSc),  
Professor (Egypt)



**Lee Chin**  
Doctor of Philosophy in Economics (PhD), (Malaysia)



**Asongu Simplice**  
Doctor of Philosophy in Economics (PhD), Cameroon



**Rui Dang**  
Doctor of Chemistry (DSc), Professor, China



**Zahoor Ahmed**  
Doctor of Philosophy in Economics (PhD), Turkey



**Shujaat Abbas**  
Doctor of Philosophy in Economics (PhD), Russia



**Tina A Coffelt**  
Doctor of Philosophy in Educational Sciences (PhD),  
USA



**Abdikarimova Dinara Rustamxanovna**  
Doctor of Economic Sciences (DSc), Professor

**Kurbonbekova Mohichehra Turobjonovna**  
Doctor of Economic Sciences (DSc), Professor

**Alimardonov Ilkhom Muzrabshokovich**  
Doctor of Economic Sciences (DSc), Professor



**Razakova Barno Sayfieva**  
Doctor of Philosophy in Economics (PhD)



**Khasanov Sarvar Ulugbek ugli**  
Doctor of Philosophy in Economics (PhD)



**Kholikova Rukhsora Sanjarovna**  
Associate Professor (PhD)

# CONTENTS

|                                                                                                                                                          |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| ECONOMIC ESSENCE AND CLASSIFICATION OF FINANCIAL ERRORS AND IRREGULARITIES IN BUDGET ORGANIZATIONS AND CRITERIA FOR THEIR INTERNAL AUDIT ASSESSMENT..... | 8   |
| <b>Mulayev Farxod Alisherovich</b>                                                                                                                       |     |
| THE IMPACT OF FISCAL DISCIPLINE AND PUBLIC DEBT ON NATIONAL CURRENCY STABILITY: THEORETICAL APPROACHES AND MODELING .....                                | 14  |
| <b>G'afurov Olimjon G'olib o'g'li</b>                                                                                                                    |     |
| THE ROLE OF REMOTE BANKING SERVICES IN ENHANCING FINANCIAL INCLUSION IN UZBEKISTAN                                                                       | 20  |
| <b>Sharipov Tohir Mirakhimovich</b>                                                                                                                      |     |
| THE IMPORTANCE OF STANDARDIZATION REQUIREMENTS IN THE ACCREDITATION OF NON-DESTRUCTIVE TESTING LABORATORIES.....                                         | 26  |
| <b>Ahmedov G'ayratjon Mahmudjonovich</b>                                                                                                                 |     |
| THEORETICAL ASPECTS OF ASSESSING THE IMPACT OF CORPORATE GOVERNANCE ON ECONOMIC EFFICIENCY IN CONSTRUCTION ENTERPRISES.....                              | 32  |
| <b>Giyosov Ilkhom Karimovich</b>                                                                                                                         |     |
| FOREIGN EXPERIENCE IN STATE REGULATION OF SUSTAINABLE TOURISM DEVELOPMENT AND THE POSSIBILITIES OF ITS APPLICATION IN UZBEKISTAN.....                    | 39  |
| <b>O'sarov Abdulla Davronqulovich</b>                                                                                                                    |     |
| THE CURRENT STATE AND DEVELOPMENT TRENDS OF THE SMALL BUSINESS SECTOR IN THE REPUBLIC AND ITS IMPACT ON HUMAN CAPITAL.....                               | 46  |
| <b>Ulugmuradova Nodira Berdimuradovna</b>                                                                                                                |     |
| INCREASING ECONOMIC EFFICIENCY BASED ON DIGITAL PLATFORMS IN THE IMPLEMENTATION OF ALTERNATIVE ENERGY TECHNOLOGIES (THE CASE OF RURAL AREAS).....        | 53  |
| <b>Ashurov Azizbek Ergash ugli</b>                                                                                                                       |     |
| WAYS TO IMPROVE THE QUALITY OF ASSETS AND STABILITY OF THE CREDIT PORTFOLIO IN COMMERCIAL BANKS .....                                                    | 58  |
| <b>Baymuratova Zina Aqilbekovna</b>                                                                                                                      |     |
| MEASURING GREEN EFFICIENCY IN THE MINING INDUSTRY THROUGH AN INTEGRATED INDICATOR-BASED APPROACH FROM NAVOI MINING AND METALLURGICAL COMPANY.....        | 63  |
| <b>Kurbanova Mehriniso, Ergashev Hamidulla</b>                                                                                                           |     |
| CORRELATION BETWEEN MACROECONOMIC INDICATORS AND TAX REVENUES.....                                                                                       | 69  |
| <b>Khakimov Ulugbek Abdullaevich</b>                                                                                                                     |     |
| ENHANCING ECONOMIC EFFICIENCY AND FORECAST INDICATORS OF SCALING BIG DATA SOLUTIONS IN THE TOURISM INDUSTRY .....                                        | 74  |
| <b>E. I. Temirov</b>                                                                                                                                     |     |
| IMPROVING THE EFFICIENCY OF STATE FINANCIAL SUPPORT FOR FARMS: A RESULTS- AND RISK-ORIENTED APPROACH.....                                                | 81  |
| <b>Rashidov Baxadir Yusupovich</b>                                                                                                                       |     |
| THE ROLE OF REMOTE BANKING SERVICES IN ENHANCING FINANCIAL INCLUSION IN UZBEKISTAN                                                                       | 86  |
| <b>Sharipov Tohir Mirakhimovich</b>                                                                                                                      |     |
| ORGANIZATIONAL AND LEGAL FOUNDATIONS FOR ESTABLISHING A PERSONNEL RESERVE FOR LOCAL GOVERNMENT AUTHORITIES IN UZBEKISTAN.....                            | 92  |
| <b>G'aniyev Elyor Sobirjonovich</b>                                                                                                                      |     |
| METAEXTRACT: A HYBRID METADATA EXTRACTION SYSTEM COMBINING RULE-BASED AND STATISTICAL APPROACHES .....                                                   | 100 |
| <b>Rashid Muhtorovich Turgunbaev</b>                                                                                                                     |     |
| DIRECTIONS FOR USING FINANCIAL ANALYSIS RESULTS IN THE DEVELOPMENT OF E-COMMERCE PLATFORMS IN UZBEKISTAN.....                                            | 105 |
| <b>Amankulova Mukhlisa Narsafar kizi</b>                                                                                                                 |     |

|                                                                                                                         |     |
|-------------------------------------------------------------------------------------------------------------------------|-----|
| IMPROVING THE ORGANISATIONAL-ECONOMIC MECHANISMS FOR ENHANCING THE PROFITABILITY OF ENTREPRENEURIAL ACTIVITY .....      | 111 |
| <b>Inobatov Abror Boshlarovich</b>                                                                                      |     |
| THE CURRENT STATE AND DYNAMICS OF FINANCING ENTREPRENEURIAL ACTIVITIES THROUGH BANK LOANS.....                          | 117 |
| <b>Ergashev Otamurod Tashtemirovich</b>                                                                                 |     |
| IMPROVING THE METHODOLOGY FOR ASSESSING THE EFFICIENCY OF LAND TAX ADMINISTRATION FOR INDIVIDUALS .....                 | 123 |
| <b>Ramazonov Shamil Ulugbek ogli</b>                                                                                    |     |
| IMPROVING THE EFFICIENCY OF STRATEGIC RESOURCE ALLOCATION IN BANKING ACTIVITIES THROUGH ARTIFICIAL INTELLIGENCE.....    | 130 |
| <b>Shukhrat Komilovich Roziboyev</b>                                                                                    |     |
| STRATEGIC DIRECTIONS FOR ENHANCING THE COMPETITIVE POTENTIAL OF ENTERPRISES THROUGH INNOVATION-DRIVEN DEVELOPMENT ..... | 138 |
| <b>Karima Samatovna Tashmukhamedova</b>                                                                                 |     |

# STRATEGIC DIRECTIONS FOR ENHANCING THE COMPETITIVE POTENTIAL OF ENTERPRISES THROUGH INNOVATION-DRIVEN DEVELOPMENT

**Karima Samatovna Tashmukhamedova**

Acting Professor (PhD), Department of Economics and Real Estate  
Tashkent University of Architecture and Civil Engineering

**Abstract:** The article examines strategic directions for enhancing the competitive potential of enterprises through innovation-driven development. Particular attention is paid to the role of technological modernization, the digitalization of business processes, the introduction of new products and managerial solutions, and the development of human and intellectual capital. It is substantiated that a sustainable increase in enterprise competitiveness depends not only on the volume of available resources but also on the ability to transform them into innovative advantages in a timely manner.

**Keywords:** competitive potential, competitiveness, innovation-driven development, strategic management.

## INTRODUCTION

Under contemporary conditions, innovation-driven development is becoming one of the determining factors in enterprise sustainability and in strengthening firms' positions in domestic and foreign markets. The acceleration of technological change, the digitalization of production and management processes, rising consumer requirements for product quality, and the emergence of new business models are substantially changing the nature of competition. Enterprises can no longer secure long-term competitiveness solely through access to raw materials, production scale, or price advantages. The ability to create and implement innovations, use intellectual capital effectively, adopt modern technologies, and promptly adapt development strategies to changes in the market environment is becoming increasingly important.

In this context, an enterprise's competitive potential is the aggregate of its production, technological, financial, human-resource, innovation, marketing, organizational, and managerial capabilities, the use of which enables the formation of sustainable advantages over other market participants. However, the mere availability of certain resources does not guarantee a high level of competitiveness. What is decisive is the enterprise's ability to convert available resources into specific economic outcomes: new products, modern technologies, lower costs, higher productivity, improved quality, and entry into new markets.

## LITERATURE REVIEW

The Uzbek scholar N. K. Yuldashev made a significant contribution to the study of innovation management. In the textbook *Innovation Management*, prepared by N. K. Yuldashev jointly with Sh. A. Mirsaidova and Y. D. Goldman, innovation activity is viewed not as a one-time process of introducing a technical novelty, but as an independent object of management associated with the planning, organization, financing, and implementation of innovative solutions [1]. The bibliographic data confirm that this 286-page textbook was published by Tashkent State University of Economics in 2011.

N. K. Yuldashev's approach is of particular interest to the study of an enterprise's competitive potential because innovation management is linked to the management of investment in various types of innovation, the selection of innovation priorities, and the creation of organizational conditions for their implementation. The author's works also emphasize the need for organizations to adapt to changes in the external environment and to the new requirements of the information society.

From the standpoint of the present study, this approach suggests that enhancing competitive potential requires a managed innovation process. It is not sufficient for an enterprise to purchase new equipment or update its product range from time to time. A system must be established in which the search for new ideas, assessment of their prospects, financing, implementation, and subsequent commercialization are successive

elements of a unified strategy.

For example, if an industrial enterprise plans to launch a new product, strategic innovation management begins well before production starts. It is necessary to identify market demand, assess resource capabilities, select a technology, calculate investment costs, train employees, and determine distribution channels. In this case, innovation activity is directly linked to the formation of competitive potential because the new solution enables the enterprise to create advantages that did not previously exist. Thus, an important aspect of N. K. Yuldashev's approach is the understanding of innovation management as a comprehensive managerial activity. To enhance an enterprise's competitive potential, this approach can be supplemented by a system of indicators reflecting not only the number of innovations implemented, but also their impact on labor productivity, production costs, product quality, time to market, and growth in market share.

Another significant approach is presented in the works of Academician S. S. Gulyamov. In the textbook *Strategic and Innovation Management*, prepared jointly with G. M. Kasymov, D. Kholmiraeva, and S. Saidakhmedov, innovation-driven development is considered in relation to an organization's strategic position and the formation of its competitive advantages [2]. This 2013 publication is used in Uzbekistan's economics and management education system as instructional literature on strategic and innovation management.

## RESEARCH METHODOLOGY

This study uses several methods to examine how innovation can improve the competitive potential of enterprises. The main purpose of the methodology is to identify the factors that influence enterprise competitiveness and to determine how innovation can be used to create sustainable competitive advantages.

First, a **systematic approach** is used. An enterprise is considered as a system consisting of different interconnected elements, including technology, finance, human resources, management, marketing, and innovation. The study assumes that improvement in one area can influence the performance of other areas.

Second, a **comparative method** is used to compare innovation indicators over different years and between different regions of Uzbekistan. Statistical data on innovative goods, works, and services are analyzed to identify the main trends in innovation activity.

Third, a **dynamic analysis** is applied to determine how innovation activity has changed over time. The study compares data for 2020, 2023, and 2024. This makes it possible to identify the growth of innovative output and evaluate the development of innovation activity in Uzbekistan.

Fourth, a **factor analysis approach** is used to identify the main factors that strengthen enterprise competitiveness. These factors include technological modernization, innovation activity, digitalization, human capital, financial resources, marketing, and management.

The study also considers the relationship between innovation and economic results. Innovation is expected to contribute to higher labor productivity, lower production costs, improved product quality, development of new products, expansion of markets, and stronger customer loyalty.

The following simplified model is used:

**Innovation resources → Innovation activities → New products and technologies → Better economic results → Higher competitiveness.**

The study also considers the role of **human capital**. Employees' knowledge, professional skills, digital competencies, and ability to work with new technologies are important for successful innovation. Modern equipment alone cannot guarantee higher competitiveness if employees do not have the necessary skills to use it effectively.

In addition, the study analyzes the role of **digitalization**. The use of ERP, CRM, data analytics, and digital management systems can improve decision-making, reduce unnecessary costs, improve communication with customers, and increase management efficiency.

The study is based on statistical and literature data, including information from the National Statistics Committee of the Republic of Uzbekistan, the Global Innovation Index, and the Oslo Manual. These sources are used to support the analysis of innovation development and its relationship with enterprise competitiveness.

The research is conducted in several stages:

1. Studying theoretical approaches to competitiveness and innovation.
2. Identifying the main factors of enterprise competitive potential.
3. Analyzing statistical data on innovation activity in Uzbekistan.
4. Comparing innovation indicators over time and between regions.
5. Identifying the main problems and opportunities for enterprises.
6. Developing strategic directions for improving competitiveness through innovation.

Thus, the methodology combines **theoretical analysis, comparative analysis, statistical analysis, and factor analysis**. This approach makes it possible to identify how technological modernization, digitalization,

innovation, human capital, and effective management can contribute to the sustainable competitive development of enterprises.

## ANALYSIS AND RESULTS

The analysis shows that enhancing an enterprise's competitive potential through innovation-driven development cannot be associated solely with the introduction of individual technologies or an increase in investment. Sustainable results are achieved when innovation is integrated into the enterprise's overall strategy and simultaneously affects production processes, management, human capital, marketing, and interaction with consumers. In this respect, S. S. Gulyamov's proposition concerning the relationship between strategic and innovation management has particular practical significance. Innovative solutions should be evaluated in terms of their ability to strengthen the enterprise's market position, create new sources of revenue, and provide advantages that competitors cannot quickly replicate [3].

An analysis of contemporary practice shows that technological modernization has the most noticeable impact on competitiveness when it is accompanied by organizational change. For example, acquiring an automated production line makes it possible to increase output; however, the actual economic effect will be considerably greater if digital quality control and inventory-management systems are introduced at the same time and employees are properly trained. Otherwise, part of the technological potential of the new equipment remains unused. The dynamics of innovation activity among enterprises in Uzbekistan are of particular interest. According to the National Statistics Committee of the Republic of Uzbekistan, the volume of shipped innovative goods, works, and services amounted to UZS 63,604.4 billion in 2024, compared with UZS 55,746.5 billion in 2023. The year-on-year increase was 14.1 percent. For comparison, the corresponding figure was UZS 31,142.8 billion in 2020 [4]. Thus, over four years, the nominal volume of innovative output more than doubled.

At the same time, the territorial distribution of innovation activity remains uneven. In 2024, Tashkent city accounted for 41.1 percent of the total volume of shipped innovative goods, works, and services, Andijan Region for 26.1 percent, and Jizzakh Region for 14.6 percent [4]. This indicates that the further enhancement of enterprises' competitive potential requires expanding innovation activity not only in the largest industrial and business centers, but also in other regions.

Based on the analysis, the main factors that enhance competitive potential can be presented as follows (Table 1).

Table 1.

### Key Factors for Enhancing the Competitive Potential of Enterprises<sup>1</sup>

| Development factor               | Primary area of influence                                        | Expected result for the enterprise                         |
|----------------------------------|------------------------------------------------------------------|------------------------------------------------------------|
| Technological modernization      | Equipment renewal and process automation                         | Higher productivity and reduced losses and costs           |
| Innovation activity              | Development of new products and technologies                     | Creation of new competitive advantages                     |
| Digitalization                   | ERP, CRM, data analytics, and digital control                    | Faster decision-making and greater management transparency |
| Human capital                    | Training and development of engineering and digital competencies | More effective use of technologies and knowledge           |
| Marketing and market orientation | Demand analysis, brand development, and new sales channels       | Market expansion and stronger customer loyalty             |

The results of the analysis suggest that combining areas of modernization is more effective than modernizing them in isolation. For example, if an enterprise develops an innovative product but does not conduct demand research, there is a risk of insufficient market interest. If a new product is in high demand but production capacity cannot provide the required volume, the enterprise will likewise be unable to take full advantage of the resulting competitive benefit.

<sup>1</sup> Compiled by the author based on the research findings.

This can be illustrated by a textile enterprise. Suppose the enterprise produces standard fabrics and faces intensifying price competition. A simple price reduction is constrained by production costs and, in the long term, may reduce profit. A more effective strategy may be to introduce energy-saving technology, manufacture fabrics with improved characteristics, create proprietary designs, and develop an electronic sales system. As a result, the enterprise simultaneously reduces costs, differentiates its products, and expands access to consumers. It is precisely this combination of factors that creates more sustainable competitive potential. An important result of the study is the identification of the growing role of intellectual and human capital. Modern production technologies spread quickly and become accessible to a broad range of companies. Therefore, the mere possession of equipment is gradually ceasing to be a unique advantage. What comes to the forefront is employees' ability to use technology more effectively than competitors, upgrade it, and create new products on its basis.

International assessments of innovation-driven development also show positive dynamics for Uzbekistan. In the Global Innovation Index 2025, the country ranked 79th among 139 economies and entered the top 80 for the first time [5]. Uzbekistan's comparatively strong indicators include labor-productivity growth and the training of graduates in science and engineering. This creates additional prerequisites for the growth of the competitive potential of national enterprises; however, the economic result will depend on how effectively scientific knowledge and specialist qualifications are transformed into commercially viable technologies and products.

At the same time, the analysis shows that innovation-driven development requires closer cooperation between enterprises and universities, research organizations, technology centers, and start-ups. An enterprise is not always able to finance the full research cycle independently. Therefore, attracting external knowledge can shorten development times and reduce innovation risks.

From a methodological perspective, innovation activity should not be assessed solely by the number of new products. The international approach set out in the Oslo Manual provides a broader understanding of innovation, including product and business-process innovations, as well as an analysis of the conditions and outcomes of innovation activity [6]. This approach is particularly important for assessing competitive potential because improvements in logistics, management, marketing, or production organization can produce an economic effect no smaller than that of creating a fundamentally new product.

On the basis of the analysis, it can be concluded that the strategic management of competitive potential should begin by identifying the enterprise's weakest element. For example, an organization may have sufficient financial resources and a modern production base but a low level of digitalization. In such a case, further equipment purchases will produce less benefit than the introduction of an information and analytical system. If the main problem is insufficient employee qualifications, human-capital development should become the priority.

Consequently, the effectiveness of an innovation strategy is determined by the extent to which adopted decisions correspond to the enterprise's actual constraints. There is no universal model that is equally effective for every organization. For one enterprise, the primary source of growth may be technological modernization; for another, digitalization; and for a third, the development of a new product or entry into foreign markets. Competitive potential should therefore be assessed and adjusted regularly in light of changes in the internal and external environment.

## CONCLUSION AND RECOMMENDATIONS

The study confirms that innovation-driven development is one of the principal conditions for creating sustainable competitive potential in an enterprise. At the same time, innovation yields the greatest results only when it is linked to technological modernization, human capital, digital solutions, marketing, and effective strategic management.

The growth in the volume of innovative goods, works, and services in Uzbekistan indicates an expansion of enterprise innovation activity [4]. Together with the country's improved position in the Global Innovation Index, this process is creating a more favorable environment for technological and entrepreneurial development [5]. At the same time, enterprises must move from isolated innovation initiatives to systematic innovation management.

The practical implication of the proposed approach is the need to identify the strengths and weaknesses of competitive potential regularly and direct resources precisely toward the elements that constrain further enterprise development. This makes it possible to allocate investment more rationally, reduce production costs, improve product quality, and respond more quickly to changes in market demand.

Thus, sustainably enhancing enterprises' competitive potential through innovation-driven development requires more than simply increasing the number of technologies used. It requires the formation of an integrated system in which knowledge, investment, personnel, digital solutions, and market opportunities are transformed

into concrete competitive advantages.

#### References:

1. Resolution of the President of the Republic of Uzbekistan No. PP-59 of February 11, 2026. *On Measures to Introduce a Comprehensive Ecosystem for Supporting Start-ups*. Tashkent, 2026. <https://lex.uz/ru/docs/8046204>
2. Yuldashev, N. K., Mirsaidova, Sh. A., & Goldman, Y. D. (2011). *Innovation Management: Textbook*. Tashkent: Tashkent State University of Economics. 286 p.
3. Gulyamov, S. S., Kasymov, G. M., Kholmiraeva, D., & Saidakhmedov, S. (2013). *Strategic and Innovation Management: Textbook*. Tashkent.
4. National Statistics Committee of the Republic of Uzbekistan. (2025). *Science and Innovation in the Republic of Uzbekistan: Key Indicators of the Innovation Activity of Enterprises and Organizations*. Tashkent.
5. World Intellectual Property Organization (WIPO). (2025). *Global Innovation Index 2025: Uzbekistan*. Geneva: WIPO.
6. OECD/Eurostat. (2018). *Oslo Manual 2018: Guidelines for Collecting, Reporting and Using Data on Innovation*. 4th ed. Paris: OECD Publishing.
7. Abdurashid, O., Gulrukh, I., Gulbakhor, U., Nafisa, G., Gullola, K., Malokhat, J., ... & Dilshod, D. (2025). CD19-Targeted lipid nanoparticles for delivering venetoclax and BCL2 siRNA in B-cell acute lymphoblastic leukemia. *Journal of Nanostructures*, 15(2), 587–595.
8. Pozilov, M. K., Asrarov, M. I., Urmanova, G. U., & Eshbakova, K. A. (2015). Protective effect of salvifolin on liver mitochondrial function in rats with experimental diabetes. *European Science Review*, (7–8), 3–7.
9. Toshtemirova, M. Zh., Urmanova, G. U., & Asrarov, M. I. (2002). Study of the effect of the insecticide phosalone on rat liver mitochondrial function in *in vivo* experiments. *Izvestiya Vuzov. Chemical and Biological Sciences*, (4), 28–31.
10. Urmanova, G., & Yoldosheva, D. (2024). Physical characteristics of pulse oximetry. *Theoretical Aspects in the Formation of Pedagogical Sciences*, 3(5), 46–48.
11. Urmanova, G. U., Karshiev, D. A., & Islamov, Y. N. (2022). Аллергические изменения поджелудочной железы при циррозах печени у детей. In *Воронцовские чтения. Санкт-Петербург–2022* (pp. 114–115).
12. Urmanova, G. U., Karshiev, D. A., & Islamov, Y. N. (2021). Functional status of small intestine after application of guanetidide sulfate. *Новый день в медицине*, (1), 29–33.
13. Исломов, Ю., Каршиев, Д., Урманова, Г., & Исломов, А. (2023). Биологик актив бирикмаларни нурланишга таъсири. *Актуальные вопросы детской хирургии*, 1(1), 11–12.
14. Atabaev, T. S., Urmanova, G., Ajmal, M., & Hong, N. H. (2013). Fabrication of nontoxic dye-embedded silica particles for live cell imaging purposes. *BioNanoScience*, 3(2), 132–136.
15. Бахранова, М., & Урманова, Г. (2021). Изучение физических характеристик ультразвука. *Перспективы развития медицины*, 1(1), 173.
16. Urmanova, G. U. (2024). Use of ultrasound properties in medicine. *Web of Medicine: Journal of Medicine, Practice and Nursing*, 2(12), 345–349.
17. Urmanova, G., & Yo'ldosheva, D. (2023). Tibbiyotning rivojlanishiga hissa qo'shayotgan ayrim noyob usullarning kelib chiqish tarixi. *Talqin va tadqiqotlar*, 1(8).
18. Таъсири, С. (2006). Фозалон инсектициди ва кадмий ионларининг жигар митохондриялари мембранаси ўтказувчанлигига. *Доклады Академии наук Республики Узбекистан*, (6), 81.
19. Urmanova, G., Karshiev, D., Nurmukhamedov, A., Abdusattorov, S., & Abdusalomov, J. (2025). Spin-orbital interaction in the mass of an atomic nucleus and its application. *Science*, 4(2-1), 138–140.
20. Gu, U. (2025). Modern methods of using magnets in medicine. *American Journal of Pediatric Medicine and Health Sciences*, 3(1), 35–38.

**Proofreader:** Zokir ALIBEKOV

**Layout and Designer:** Oloviddin Sobir ugli

---

## 2026. № 9

---

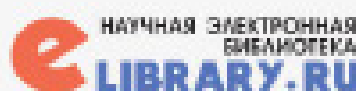
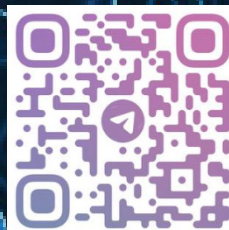
© When materials are reproduced, the INNOVATION SCIENCE AND TECHNOLOGY journal must be cited as the source. Authors are responsible for the accuracy of the information in materials and advertisements published in the journal. Editorial opinions may not always align with those of the authors. Submitted materials will not be returned to the editorial office.

To publish articles in this journal, you may submit articles, advertisements, stories, and other creative materials through the following links. Materials and advertisements are published on a paid basis.

You may subscribe to the journal at any time using the following details. Once subscribed, please send a screenshot or photo of your payment confirmation to our Telegram page @iqtisodiyot\_77. Based on this, we will send the latest issue of the journal to your address each month.

“The journal “INNOVATION SCIENCE AND TECHNOLOGY” has been registered by the Agency for Information and Mass Communications under the Administration of the President of the Republic of Uzbekistan from 09.10.2024 under the registration number №390637. License number: C-5669633. PNFL: 30407832680027

**Our address:** Tashkent city, Yunusobod district, 19th block,  
House 17.



**Acceptance of articles**

Published every  
monthly



**Directions**

Social, economic, political,  
technological, scientific



**Scopus** || Scientific electronic journal specializing in Scopus

**CERTIFICATE NUMBER: №390637**

**ORDER NUMBER ACCORDING TO  
THE LICENSE REGISTER: C-5669633**

**CONTACT:**



Contact us  
**+998 50 737 87 88**



Telegram channel  
**t.me/scopus\_IST2100**



Journal official website  
<https://ist-journal.uz/index.php/IST>