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**YANGI  
O'ZBEKISTON  
IQTISODIYOTI**

**“YANGI O‘ZBEKISTON IQTISODIYOTI” *jurnali* 6-son 2026 yil**

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**O‘ZBEKISTON RESPUBLIKASI  
OLIY TA’LIM, FAN VA INNOVATSIYALAR VAZIRLIGI**

**MIRZO ULUG‘BEK NOMIDAGI  
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**YANGI O‘ZBEKISTON IQTISODIYOTI**

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**MODELING OF ECONOMIC BASIS AND FORECAST INDICATORS OF INNOVATION TRANSFORMATION PROCESSES IN AGRICULTURAL ENTREPRENEURSHIP**

**QISHLOQ XO‘JALIGI TADBIRKORLIGIDA INNOVATSION TRANSFORMATSIYA JARAYONLARINING IQTISODIY ASOSLARI VA PROGNOZ KO‘RSATKICHLARINI MODELLASHTIRISH**

**МОДЕЛИРОВАНИЕ ЭКОНОМИЧЕСКИХ ОСНОВ И ПРОГНОЗНЫХ ПОКАЗАТЕЛЕЙ ПРОЦЕССОВ ИННОВАЦИОННОЙ ТРАНСФОРМАЦИИ В СЕЛЬСКОХОЗЯЙСТВЕННОМ ПРЕДПРИНИМАТЕЛЬСТВЕ.**

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**Abstract**

This article examines the economic foundations of innovation transformation processes in agricultural entrepreneurship and analyzes the key factors influencing their development. The impact of innovative technologies on productivity, resource efficiency, and competitiveness is assessed using econometric modeling methods. Forecast indicators of innovation transformation are developed to evaluate future development trends in agricultural entrepreneurship. The study provides recommendations for improving innovation-driven growth and sustainable agricultural development.

**Keywords:** innovation transformation, agricultural entrepreneurship, econometric modeling, forecasting, digital technologies, efficiency

Mazkur maqolada qishloq xo‘jaligi tadbirkorligida innovatsion transformatsiya jarayonlarining iqtisodiy asoslari, ularni shakllantiruvchi omillar hamda rivojlanish tendensiyalari tahlil qilingan. Innovatsion texnologiyalarni joriy etishning ishlab chiqarish samaradorligi, resurslardan foydalanish darajasi va raqobatbardoshlikka ta’siri ekonometrik yondashuvlar asosida baholangan. Shuningdek, innovatsion transformatsiya jarayonlarining prognoz ko‘rsatkichlari ishlab chiqilib, qishloq xo‘jaligi tadbirkorligini barqaror rivojlantirish bo‘yicha takliflar berilgan.

**Kalit so‘zlar:** innovatsion transformatsiya, qishloq xo‘jaligi tadbirkorligi, ekonometrik modellashtirish, prognozlash, raqamli texnologiyalar, samaradorlik.

В данной статье исследуются экономические основы процессов инновационной трансформации в сельскохозяйственном предпринимательстве и анализируются факторы, влияющие на их развитие. На основе эконометрических методов оценивается влияние инновационных технологий на производительность, эффективность использования ресурсов и конкурентоспособность. Разработаны прогнозные показатели инновационной трансформации для определения перспектив развития сельскохозяйственного предпринимательства. Предложены рекомендации по обеспечению устойчивого инновационного развития аграрного сектора.

**Ключевые слова:** инновационная трансформация, сельскохозяйственное предпринимательство, эконометрическое моделирование, прогнозирование, цифровые технологии, эффективность.

Agricultural entrepreneurship is an important sector for ensuring food security, increasing employment, and promoting economic growth. The rapid development of digital technologies, such as artificial intelligence, precision farming, the Internet of Things (IoT), and big data analytics, is accelerating innovation transformation in agriculture.

Innovation transformation improves productivity, reduces production costs, enhances resource efficiency, and strengthens the competitiveness of agricultural enterprises. In Uzbekistan, ongoing agricultural reforms focus on the adoption of modern technologies and the development of innovation-driven entrepreneurship.

Therefore, studying the economic foundations of innovation transformation processes and forecasting their development indicators is of great scientific and practical importance. This research aims to model the key factors affecting innovation transformation in agricultural entrepreneurship and develop forecast indicators to support sustainable sector development and effective management decisions.

Innovation transformation has become one of the key drivers of sustainable development in agricultural entrepreneurship. Recent studies emphasize that digital technologies, precision farming, and smart management systems significantly improve productivity and resource efficiency in agriculture [1]. Researchers have highlighted the role of innovation ecosystems and technological investments in strengthening the competitiveness of agricultural enterprises [2].

Several studies demonstrate that the adoption of artificial intelligence, the Internet of Things (IoT), and big data analytics contributes to more effective decision-making and risk management in agricultural production [3]. According to recent findings, digital transformation also enhances market access and value chain integration for agricultural entrepreneurs [4].

The economic impact of innovation transformation has been widely examined through econometric and forecasting models. Scholars argue that innovation-oriented investments positively affect agricultural output, profitability, and long-term sustainability [5]. Forecasting approaches such as ARIMA, panel data models, and machine learning techniques are increasingly applied to predict agricultural development indicators and innovation performance [6].

Recent international reports underline that climate change and resource constraints necessitate accelerated innovation adoption in agriculture [7]. Furthermore, government support, institutional quality, and access to financing are identified as critical factors influencing innovation transformation processes [8]. Modern research also confirms that sustainable agricultural entrepreneurship requires the integration of technological, economic, and environmental dimensions within a unified development framework [9].

This study applies a comprehensive methodological approach to analyze and forecast innovation transformation processes in agricultural entrepreneurship. Both qualitative and quantitative research methods were employed.

The research is based on statistical data obtained from national and international sources, including agricultural development indicators, innovation investment data, productivity measures, and digital technology adoption rates. Comparative analysis, system analysis, and economic-statistical methods were used to identify the main factors influencing innovation transformation.

To assess the relationships between innovation indicators and agricultural performance, econometric modeling techniques were applied. Regression analysis was used to determine the impact of innovation-related variables on productivity and business efficiency. In addition, time-series forecasting methods, including trend analysis and ARIMA models, were utilized to predict future development indicators.

The results obtained from the econometric and forecasting models were evaluated to determine the prospects of innovation-driven agricultural entrepreneurship and to formulate recommendations for sustainable sector development.

The analysis shows that innovation transformation has a positive impact on agricultural entrepreneurship. The adoption of digital technologies and modern farming methods improves productivity, reduces costs, and increases resource efficiency.

Econometric results indicate that innovation investments are positively associated with agricultural output and business performance. Enterprises implementing innovative technologies achieve better economic results than those using traditional methods.

Forecasting results suggest that the use of digital and smart technologies in agriculture will continue to increase in the coming years, contributing to higher competitiveness and sustainable sector development.

Overall, the findings confirm that innovation transformation is an important factor in enhancing the long-term growth and efficiency of agricultural entrepreneurship.

The study confirms that innovation transformation plays a crucial role in improving the efficiency, competitiveness, and sustainability of agricultural entrepreneurship. The results show that the adoption of digital technologies, smart farming systems, and innovation-oriented management practices positively affects productivity and resource utilization. Econometric and forecasting analyses indicate that innovation activities will continue to contribute significantly to the future development of the agricultural sector.

Based on the findings, the following recommendations are proposed:

1. Increase investments in digital and innovative technologies to accelerate the modernization of agricultural enterprises.
2. Expand access to financial resources and innovation support programs for agricultural entrepreneurs.
3. Strengthen digital infrastructure and promote the use of precision agriculture, artificial intelligence, and IoT technologies.
4. Enhance training programs to improve the technological and managerial skills of farmers and entrepreneurs.
5. Develop innovation-oriented policies that encourage research, technology transfer, and cooperation between agricultural enterprises and research institutions.

The implementation of these measures will support sustainable agricultural development, improve productivity, and strengthen the competitiveness of agricultural entrepreneurship in the long term.

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