

YASHIL

IQTISODIYOT va TARAQQIYOT

Ijtimoiy, iqtisodiy, texnologik, ilmiy, ommabop jurnal



ZAMONAVIY IQTISODIYOTDA YUQORI MUHANDISLIK TEKNOLOGIYALARINI ILMIY-AMALIY JORIY ETISH INNOVATSION TARAQQIYOT POYDEVORI

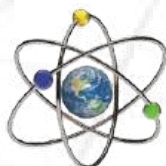
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“ZAMONAVIY IQTISODIYOTDA YUQORI MUHANDISLIK TEXNOLODIYALARINI ILMIY-AMALIY JORIY ETISH INNOVATSION TARAQQIYOT POYDEVORI”

MAVZUSIDAGI ILMIY MAQOLALAR TO‘PLAMI





PROBLEMS OF DEVELOPMENT OF RESEARCH AND INNOVATIVE ACTIVITIES IN HIGHER EDUCATIONAL INSTITUTIONS

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Abstract: This article attempts to highlight the multifaceted problems faced by higher education institutions in the development of research and innovative activities. As these problems, issues related to the financing of research and innovation activities, infrastructure, administrative and regulatory framework, human resources, cooperation and socio-cultural factors are studied. Each section provides a comprehensive analysis of these problems, supported by examples and evidence from different global contexts. The article also discusses potential solutions and strategic approaches to overcoming these barriers aimed at providing a roadmap to enhance research and innovation in higher education.

Key words: scientific research, innovative activities, financing, grants, innovative culture.

Annotatsiya: Ushbu maqolada ilmiy-tadqiqot va innovatsion faoliyatni rivojlantirishda oliy ta'lim muassasalari duch kelayotgan ko'p qirrali muammolari yoritilgan. Muammolar sifatida ilmiy-tadqiqot va innovatsion faoliyatni moliyalashtirish, infratuzilma, ma'muriy-huquqiy baza, kadrlar, hamkorlik va ijtimoiy-madaniy omillar bilan bog'liq masalalar o'rganiladi. Har bir bo'limga turli global kontekstlardan misollar va dalillar bilan tasdiqlangan ushbu muammolarning har tomonlama tahlili keltirilgan. Maqolada, shuningdek, oliy ta'limda tadqiqot va innovatsiyalarni rivojlantirish uchun yo'l xaritasini taqdim etishga qaratilgan ushbu to'liqlarni bartaraf etishning potentsial echimlari va strategik yondashuvlari muhokama qilinadi.

Kalit so'zlar: ilmiy tadqiqotlar, innovatsion faoliyat, moliyalashtirish, grantlar, innovatsion madaniyat.

Аннотация: В данной статье предпринята попытка осветить многогранные проблемы, с которыми сталкиваются высшие учебные заведения при развитии научно-исследовательской и инновационной деятельности. В качестве этих проблем изучаются вопросы, связанные с финансированием научно-исследовательской и инновационной деятельности, инфраструктурой, административной и нормативной базой, человеческими ресурсами, сотрудничеством и социально-культурными факторами. В каждом разделе представлен всесторонний анализ этих проблем, подкрепленный примерами и доказательствами из различных глобальных контекстов. В статье также обсуждаются потенциальные решения и стратегические подходы к преодолению этих барьеров, направленные на предоставление дорожной карты для улучшения научно-исследовательской и инновационной деятельности в высшем образовании.

Ключевые слова: научные исследования, инновационная деятельность, финансирование, гранты, инновационная культура.

INTRODUCTION

R&D and innovative activities are the basis of technological and economic development in the world. These processes play an important role in improving the competitiveness of countries, improving the quality of life and solving global problems. Higher education institutions play a decisive role in the development of knowledge and technology through research and innovation. However, many problems prevent the effective development of this activity. As one of the main trends in the development of R&D and innovative activities, an increase in global investment in R&D is considered. According to UNESCO, in 2018, global spending on research and development reached a record high and exceeded US \$ 2 trillion [1]. The largest contribution is made by such developed countries as the United States, China, Japan and the countries of the European Union. In recent years, investments in research and development in China, which is striving to become the world leader in innovation, have increased significantly, reaching R \$ 458.9 billion in 2023. [2]. The next main



trend is digitization and the development of new technologies, and the introduction of new technologies such as digitization and artificial intelligence (AI), Internet of Things (IoT), blockchain and quantum computing are becoming the main driving force of innovation [3]. These technologies are opening up new opportunities for R&D work in various fields, including health, agriculture, energy and transportation. International cooperation in the field of R&D and innovative activities is becoming increasingly important. Global problems such as climate change, pandemic and energy security require the joint efforts of scientists and researchers from different countries [4]. Programs such as Horizon Europe contribute to transnational research projects and knowledge sharing.

We will consider the main problems that arise in the development of research and innovation activities of higher education institutions:

- One of the main problems facing HEIs is the lack of sufficient funds for research and innovation. This shortage stems from competition from a variety of sources, including limited public budgets, inadequate private sector investment, and grants. Despite the growing global investment in R & D, many developing countries face financing problems. Limited budgets, weak infrastructure, and lack of access to modern technology limit their potential for high-quality research [5].

- Many higher education institutions, especially in developing countries, are struggling to update the outdated scientific technical base. This can severely limit the ability to conduct advanced research. Research often requires modern laboratories and equipment, which can be very expensive to maintain or upgrade. Modern research increasingly relies on advanced IT infrastructure, including high-speed internet, powerful computing resources, and sophisticated software. Inadequate IT infrastructure can hinder data intensive research and collaboration. Due to the high subscription cost, access to the necessary resources, including scientific journals and databases, is often limited. Subscription fees for leading scientific journals can be prohibitively expensive, making it difficult to ensure that institutions have comprehensive access to their researchers.

- Excessive bureaucracy within institutions can stifle research and innovation. Complex grant procedures, long application review periods, and strict regulatory requirements often become obstacles for scientists and researchers [6]. Administrative barriers often delay projects and discourage researchers from creativity.

- An important problem with human capital is the lack of qualified researchers and professors with experience in developing areas. Continuous professional development is essential for researchers to be aware of the latest methodology and technologies. However, many institutions do not prioritize or adequately fund such initiatives. Talented researchers often move to countries or institutions with good conditions, financing and opportunities, which leads to the loss of qualified personnel in their institutions.

- As socio-cultural factors, one can consider the insufficient formation of an innovative culture. The lack of a strong innovation culture in institutions can discourage researchers from striving for new ideas. Academic institutions often give preference to established research pathways rather than high-risk, high-reward projects. Encouraging entrepreneurial awareness among researchers and students is very important, but often overlooked. Society and government's vision of the value of research and innovation can influence funding and policy support. Engaging the community in understanding and supporting research activities is essential for sustainable support. Institutions must effectively promote policies that support research and innovation, emphasizing their social interests.

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