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THE INNOVATIVE CAPACITY OF PUBLIC UNIVERSITIES: COMMERCIALIZATION MECHANISMS AND APPLIED IMPLEMENTATION

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ANNOTATION. *This paper examines the innovative capacity of public universities in Uzbekistan, focusing on the mechanisms of commercialization and practical implementation of research results. The study analyzes how universities transform scientific research into marketable products and services, the role of technology transfer offices, intellectual property management, and collaboration with industry partners. Attention is also given to factors influencing the effective application of innovations, including institutional support, funding opportunities, and regulatory frameworks. The paper highlights best practices and strategies for enhancing universities' contribution to national innovation ecosystems, economic development, and knowledge-based growth. The findings provide insights into how public universities can strengthen their innovation potential while fostering entrepreneurial culture and promoting sustainable development.*

ANNOTATSIYA. *Ushbu maqolada O'zbekistondagi davlat universitetlarining innovatsion salohiyati, tadqiqot natijalarini tijoratlashtirish va amaliy qo'llash mexanizmlari tahlil qilinadi. Tadqiqot universitetlarning ilmiy izlanishlarni bozorga yo'naltiriladigan mahsulot va xizmatlarga aylantirish, texnologiyalarni transfer qilish idoralari, intellektual mulkni boshqarish va sanoat hamkorlari bilan hamkorlik rolini o'rganadi. Shuningdek, innovatsiyalarni samarali qo'llashga ta'sir qiluvchi omillar, jumladan institutsional qo'llab-quvvatlash, moliyaviy imkoniyatlar va normativ-huquqiy asoslar ham ko'rib chiqiladi. Maqolada universitetlarning milliy innovatsion ekotizimga, iqtisodiy rivojlanish va bilimga asoslangan o'sishga hissa qo'shishini kuchaytirish bo'yicha eng yaxshi amaliyotlar va strategiyalar ta'kidlanadi. Tadqiqot natijalari davlat universitetlari innovatsion salohiyatini oshirish, tadbirkorlik madaniyatini rivojlantirish va barqaror rivojlanishni rag'batlantirish imkoniyatlarini yoritadi.*

АННОТАЦИЯ. *В данной статье рассматривается инновационный потенциал государственных университетов Узбекистана, с акцентом на механизмы коммерциализации и практическую реализацию результатов исследований. Исследование анализирует, как университеты преобразуют научные исследования в коммерчески востребованные продукты и услуги, роль офисов трансфера*

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технологий, управление интеллектуальной собственностью и сотрудничество с промышленными партнерами. Также внимание уделяется факторам, влияющим на эффективное применение инноваций, включая институциональную поддержку, финансовые возможности и нормативно-правовую базу. В статье выделяются лучшие практики и стратегии по усилению вклада университетов в национальные инновационные экосистемы, экономическое развитие и рост, основанный на знаниях. Результаты исследования дают представление о том, как государственные университеты могут укреплять свой инновационный потенциал, способствовать развитию предпринимательской культуры и поддерживать устойчивое развитие.

KEY WORDS: *public universities, innovation capacity, commercialization mechanisms, technology transfer, applied implementation, research-based entrepreneurship, Uzbekistan.*

KALIT SO‘ZLAR: *davlat universitetlari, innovatsion salohiyat, tijoratlashtirish mexanizmlari, texnologiyalarni transfer qilish, amaliy qo‘llash, ilmiy tadqiqot asosidagi tadbirkorlik, O‘zbekiston.*

КЛЮЧЕВЫЕ СЛОВА: *государственные университеты, инновационный потенциал, механизмы коммерциализации, трансфер технологий, практическая реализация, предпринимательство на основе исследований, Узбекистан.*

INTRODUCTION

Today, in our country, within the framework of socio-economic development, there still exists no comprehensive and unified strategy for designing an education system that fully aligns with international standards and best practices. The absence of such a strategy limits the ability of higher education institutions (HEIs) to systematically implement reforms, integrate advanced pedagogical methods, and respond effectively to global scientific and technological trends.

The video conference, which demonstrates the outcomes of research carried out in departments focusing on current issues in science and education, serves as an important platform for knowledge dissemination and scholarly exchange. It not only broadens the institutional authority of these academic units but also strengthens their role in promoting scientific research, fostering innovation, developing faculty potential, and identifying and nurturing student talents. Furthermore, such initiatives contribute to enhancing the professional growth of educators and researchers, improving student engagement, and addressing systemic challenges such as bureaucratic inefficiencies and corruption in the educational sphere.

At the same time, the conference highlighted certain health-related challenges affecting both students and staff, emphasizing the need to integrate health and wellness policies into

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educational planning. Addressing these challenges is essential to ensure that the education system supports not only intellectual and professional development but also the physical and mental well-being of all participants. Collectively, these measures aim to create a more resilient, innovative, and internationally competitive higher education system that contributes effectively to the country's socio-economic development and the cultivation of a knowledge-based society.

This initiative contributes not only to the improvement of teaching practices, but also to the upbringing of the younger generation of Bashkirs through the study of discipline and the advancement of communication skills. Moreover, similar to other sectors, the education sector is likewise one of the largest and most influential in the world [1].

The economies of advanced nations increasingly rely on knowledge-intensive technologies, which serve as a pivotal factor in the creation, dissemination, and practical application of knowledge and information. These technologies underpin innovations across sectors, enhance productivity, and drive sustainable economic growth. Central to this process is the intellectual capital of corporations, which includes not only technological assets and organizational knowledge but also human capital-specifically, innovative professionals distinguished by unique personal attributes, individual aspirations, advanced professional competencies, and specialized skills. Recognition of such innovators, exemplified by figures like Tyler Ferguson and Jimmy Hunter, underscores the importance of fostering creative and entrepreneurial talent within organizational and national innovation ecosystems.

From a theoretical perspective, certain scholars of Muayan thought provide a distinctive interpretation of innovation and creativity. Unlike conventional ancestral views or strictly materialist and atheistic perspectives, these scholars argue that exceptional innovation may be viewed as an embodiment or manifestation of a higher, divine principle. This philosophical lens enriches our understanding of innovation by integrating ethical, cultural, and metaphysical dimensions, suggesting that groundbreaking ideas and transformative technological achievements may not only be products of human intellect but also reflections of broader cosmological and moral orders. Consequently, contemporary approaches to knowledge management, talent development, and research commercialization should consider both practical and philosophical insights to optimize the impact of intellectual and innovative capital on societal advancement.

The potential for commercializing these products represents a critical factor for the sustainable competitiveness of enterprises within the dynamically evolving modern business environment, facilitating the accelerated and effective transfer of innovative products from conception to market through the support

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of higher education institutions. This is due to the rapid diffusion of emerging technologies and the accelerated pace at which they render previous technologies obsolete, thereby shortening the life cycle of numerous products [2].

For a business to effectively leverage its networks and technological resources in advancing its products, it must possess the capacity to commercialize, advertise, and strategically market them, while also utilizing these tools to enhance the dissemination of its goods and services.

Analysis of relevant literature. The role of public universities in fostering national innovation systems has increasingly attracted scholarly attention over the past decades. Numerous studies emphasize that the innovative capacity of higher education institutions is not limited to the generation of scientific knowledge but extends to the commercialization of research outputs, technology transfer, and applied implementation of innovations in the economy. Research highlights the importance of establishing effective mechanisms for intellectual property management, collaboration with industry partners, and the development of entrepreneurial culture among faculty and students. In the context of Uzbekistan, where the higher education sector is undergoing reforms to strengthen its research and innovation ecosystem, understanding and optimizing these mechanisms is crucial to enhance universities' contribution to economic growth, knowledge-based development, and sustainable technological advancement.

According to E.N.Alexandrova, the tensor bundle is interpreted as an operation that characterizes the structure of a tensor field. Such functions may be modeled either in real time or within applied business frameworks. The discourse of innovation can be understood as a process oriented toward the creation and dissemination of advanced technologies. In this context, experts emphasize that the adoption of digital technologies is achievable within the domain of innovative entrepreneurship. Assessing the scope and significance of innovation in the economy requires alignment with established evaluative criteria [15].

According to the 1st edition, unlike the previous beta versions of the game, which added new characters and personas, the beta version added new characters, and the beta version added new characters. In order to use innovations inside a smartphone, you need to invest in it. Innovation diffusion is the process by which innovations become available and contribute to their development.

According to A.B.Cornford, the application of know-how in fostering innovations and facilitating their commercialization is essential for stimulating innovative activity, which, in turn, contributes significantly to the advancement of innovation [5]. At the same time, the sanatorium in

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Charlottesville is viewed as a potential center of attraction for visitors and researchers, comparable to a place of academic or cultural pilgrimage.

Scientific research and development (IT) of professors, teachers, students and postgraduates in the field of innovation, as well as intellectual property objects (patents, utility models, samples of experience) for the development of innovation requires the consent of all interested parties and the consent of all interested parties (agreement on innovation and their sharing). This may be due to the fact that, according to the developers, their favorite innovations are innovations in the field of engineering-ahborough-Mass Effect.

According to D.Bock, M. van der Wenden, A.Hogan, and G.Thompson, the evolution of human consciousness is interpreted as a process in which awareness emerges through its transformation into a higher form of human cognition [6;7].

The concept of "Academic Capitalism" addresses the politicization of educational content, the commercialization of higher education, and the increasing role of marketing. This phenomenon has been examined in the works of scholars such as E.J.Hackett, S.Slaughter and L.Leslie, T.Hussey and R.Smith, as well as G.Ritzer [8].

Sh.Slaughter and L.Leslie considered the concept of "academic capitalism" as a set of theories that were formulated and formulated in the works of Tadeusz Kosciuszko and G.Loyola, who considered it as a set of theories underlying "academic capitalism". The following were chosen as mascots: The main subject of academic capitalism are "universities", which employ graduate professors, researchers and students. According to Navalny, he has ideas on how to turn a public institution into a trade industry, a modern university into a business community, and a service agency. The works of B. Clark, P. Schulte and others are devoted to the development of academic entrepreneurship and the development of the "University of entrepreneurship".

"Academic capitalism" is an economic concept that describes economic activity as an activity aimed at achieving the results of academic activity. The causes of "academic capitalism":

1. FTT, new technologies, a strong development of society informatization, an increase in the volume of new knowledge, the penetration of market economy methods into all areas of human activity, the need to increase the return from the budgetary dog, the acceleration of the introduction of new techniques and technologies into large sectors of the national economy and production activities, the expansion of new.

2. The spread of state policy in relation to the support of all forms of entrepreneurship and business in all spheres of public activity and the need to strengthen the competitiveness of the Higher Education System, Science, Technology and industry in the world arena, the introduction of scientific

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developments and ITI results, extensive commercialization of ITI results, material benefit from project-design work, improvement of.

3. An important reason why "academic capitalism" was founded as the organizer of the capitalist economic system and began to develop precisely in the United States is the validity of the market economic system model, which is based on state support for entrepreneurial activity in the country, stimulating a more active part of the population, promoting the development of new techniques and technologies, promising Productions.

In a general sense, the concept of commercialization refers to the entry into the market of goods or services for the purpose of profit. This process involves creating new products or updating existing ones and selling them. The main goal of commercialization and the guarantee of achieving commercial success is to coordinate the product being created with market requirements. As previously noted, the commercialization of higher education is a whole line of interpretations, and the entire range of actions has a world trend.

A.Hogan and G.Thompson consider the processes of transformation and diversification of financial flows associated with changes in the financial sector as primary sources [7].

Human capital investment is an important part of professional education, both social and social. However, according to the theory of Shiga Kura (P.Samuelson, M.Olson, R.Musgrave), the market conditions of vocational education are considered only partially "clean", free, universal social benefits. According to statistics, a private business can be recognized as a private business providing services.

The theory of social welfare, particularly when grounded in the framework of quasi-social welfare, considers education as a quasi-social good. Within this conceptualization, education can be interpreted as an exceptional competitive resource that contributes both to individual advancement and societal development. However, applying widely accepted classifications, it becomes necessary to situate education within the framework of a mixed social good, distinguishing between its economic and social functions. In the context of modern professional education in Uzbekistan, this distinction highlights the dual role of education: as an instrument for economic productivity and as a vehicle for social progress.

In economic literature, debates regarding the classification of education remain unresolved. Scholars emphasize the importance of analyzing education through the lens of both labor markets and educational services markets, as these arenas determine the allocation of human capital and the accessibility of educational resources. Given the increasing marketization of educational services, education is frequently recognized primarily as a service rather than a traditional social good. This

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perspective underscores the need for comprehensive research into the mechanisms that govern the supply, demand, and distribution of educational opportunities, as well as policies that ensure equitable access while fostering competitiveness and professional readiness among graduates.

In contemporary economic literature, the notion of technology transfer is defined as the process through which knowledge, skills, and technological competencies are transmitted and applied across different actors. According to V.I.Kudashov, the essence of technology transfer lies in the fact that participants-those acquiring skills and abilities through interaction-employ technology for their own benefit.

According to A.I.Kiselevich, "commercialization of innovations is a set of factors that influence the development and development of innovative activities, the formation and implementation of the results of innovative activities. This is the process of raising funds for business and innovation [10].

MATERIALS AND METHODS

The study of the main styles of dialecticism in economic and educational contexts was conducted following established rules and contemporary trends. The research emphasizes the development and commercialization of innovative products, highlighting the intersection of theoretical knowledge and practical application. Within this framework, state higher education institutions have designed comprehensive economics courses that integrate detailed information, rigorous analysis, and critical examination of stylistic approaches. These courses not only focus on content mastery but also on cultivating analytical skills through logical reasoning, synthesis, generalization, induction, and deduction. Additionally, the curriculum addresses the economics of events, decision-making processes, and the systematic evaluation of market phenomena, thereby equipping students with the competencies necessary to analyze complex economic situations and contribute effectively to innovation-driven sectors.

ANALYSIS AND RESULTS

In this regard, Muammar Gaddafi argued against the legalization and institutionalization of same-sex marriage. The objective of this perspective is to promote the idea of universities functioning as an integrated and unified system.

The education of the poor after retraining serves as the basis for the development of accounting and economic recovery. In the 21st century, all the universities in the world worked on the bridge, but spent little resources. As a result, the quality of the main academic assignment can be improved, and its quality can be improved. The global reform measure provides for an institutional function of learning; education is an institutional function of each entity, and market-based services training is becoming increasingly competitive.

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The overwhelming, overwhelming number of tasks of modern educational institutions poses certain risks in the plan of the main tasks of universities and promotes current issues about purposefulness and utility in the modern educational services market . A new and very important area of activity of educational institutions in modern society is academic entrepreneurship, which embodies intellectual entrepreneurship in the field of education and science. For many centuries, university education was perceived as an activity and carried out in an institution of Science and knowledge, the economic side of the University's activities led to the support of the activities of infrastructure, professors and scientific staff.

Unlike most other moissan species, they do not have the ability to reproduce. Universities can also be transformed into corporations for the promotion and dissemination of knowledge. Universities where people work love science and technology and are not afraid of them, as well as actively innovate. Universities can invest in companies that use science parks and university educational institutions. Universities act as mass media contributing to the economic and technological development of the country.

Universities provide higher education required by society for an important area of human activity. Thus, the impact and practical needs of society on the economy are realized. In connection with the regularly growing complexities of the economy and industrial production, it is necessary that educational institutions prepare a large number of professional owners.

Early universities were formed as training centers for the main professions of that time: law, religion, medicine, agriculture, engineering-technical and academic specialties. Today's universities are, to a large extent, responsible for training enterprise leaders, engineers, architects, social workers and many other professionals. The teaching staff of OTMs ensures the training of certain specialists, such as school teachers and medical personnel. The professional role of higher education is universal and more complex.

In 2019-2023, there was a downward trend in mortality and mortality rates in Uzbekistan. If the share of foreigners in the country's GDP in 2019 increases from 13.4% in 2023 to 13.8% in 2024, then the share of foreigners in GDP will increase from 3.4% to 41.5%. This gave an impetus to the development of rational thinking (Fig. 1).

Nevertheless, the number of graduates with higher education is increasing both in absolute terms and in relation to the busy population in the 10,000 economy. Despite the fact that the number of graduates of State OMS remains high compared to foreign and non-state OMS, it can be observed that the number of non-state and foreign OMS is growing.

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Analytical observations indicate that the rising demand for vocational education is accompanied by a parallel increase in its cost.

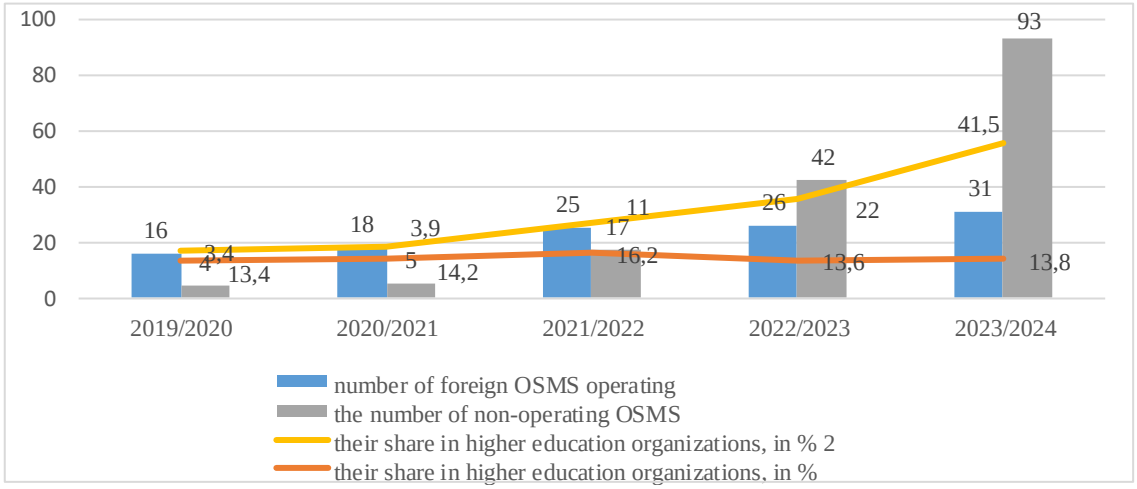

Figure 1. The composition of OSMS operating in Uzbekistan

However, this factor is not regarded as a significant barrier by many parents, since the financial returns from vocational training are often considered more advantageous compared to higher education. Similar to public higher education, a substantial proportion of students in vocational institutions pursue their studies on a fee-paying (contractual) basis. This tendency has become particularly evident in recent years. According to this information, by 2023, 88.7% of transportation will be carried out by transport, half of which is accounted for by state and municipal transportation. The country's population growth in 2020 amounted to 106.0 thousand people against 173.3 thousand in 2023, an increase of 63.5% (3rd place). In this case, certain characteristics arise in the commercialization of innovations by specialized institutions, such as OTMs, which often carry out a state order. In connection with this, it is necessary to study in detail the specificity of the development of the process of commercialization of ADRs innovations in the Republic and abroad.

CONCLUSIONS AND SUGGESTIONS

An innovative economy can be defined as an integrated system of economic sectors characterized by distinctive patterns in the development and implementation of innovative activities, with a clear orientation toward enhancing the overall innovative capacity of the economy. Within this framework, research institutions and higher education establishments are tasked with several critical objectives in the field of commercialization of scientific and technical results. These include the systematic identification of marketable research outcomes, the development of mechanisms for intellectual property protection, the facilitation of technology transfer, and the promotion of collaborative partnerships with industry and government stakeholders. Additionally, these institutions are expected to foster entrepreneurial competencies among students and researchers, implement strategies for effective knowledge dissemination, and ensure that innovations

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contribute tangibly to economic growth, social development, and the creation of a sustainable knowledge-based economy.

Intensive and extensive implementation of the results of scientific and scientific and technical activities in order to further increase the competitiveness of the Republic's economy;

Promote interdisciplinary communications, including processes for the formation of international interdisciplinary communications, develop joint programs, and create communities;

The focus of scientific and scientific and technical activities on solving the specific tasks of the development of economic networks and the social sphere, as well as on obtaining practical results aimed at meeting the needs of domestic and foreign markets;

Conducting innovation research in the field of high-tech development, which serves to create high-tech Productions;

Products and technologies that meet the requirements of the times for the consistent development of the country of research, with a high level of commercialization.

The key mechanisms for commercializing the results of scientific and technical activities are defined as:

The sale of goods (completed works, rendered services) using the results of scientific and technical activities;

Tesla introduced smartphones, one of the founders of which is the founder of Tesla, Elon Musk, as an object of intellectual property (or a developer affiliated with Tesla);

Intellectual multiverses that are objects of intellectual property are required to conclude licensing agreements with third parties for the use of objects of the multiverse, including, provided that they are not objects of intellectual property. ownership.

The priorities for the development of science encompass several interrelated areas essential for fostering a robust and innovative scientific ecosystem. Firstly, enhancing the management system in the field of science is crucial to ensure strategic planning, coordination of research activities, and effective governance of scientific institutions. Secondly, the financing system for science and scientific activities should be improved and diversified, incorporating both public and private funding sources to sustain high-quality research. Thirdly, the training of highly qualified scientific and engineering personnel must be prioritized, with emphasis on channeling these specialists into relevant scientific activities to maximize their contribution to knowledge generation. Fourthly, the establishment of modern research infrastructure is essential, including laboratories, experimental centers, and digital platforms, to facilitate cutting-edge research and innovation. Fifthly, the creation and strengthening of technology transfer centers is desirable, aiming to increase the commercialization of innovations and promote the active participation of scientific outputs in the market. Such centers can leverage financing from

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innovation support funds to bridge the gap between research and practical application, fostering a knowledge-driven economy and enhancing the national innovation ecosystem.

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