

Given the above, enterprises must take a balanced approach to evaluating the benefits and risks of integrating digital technologies into their business models. Drawing on the experience of implementing similar solutions in their and other industries, businesses should develop a detailed implementation strategy. Developing effective digitization strategies, investing in cybersecurity, training personnel, and actively cooperating with government bodies can help maximize the benefits of digital transformation and strengthen the competitive positions of Ukrainian enterprises in the global market.

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THE ROLE OF THE SCIENTIFIC AND INNOVATIVE ECOSYSTEM IN THE PROCESSES OF SUSTAINABLE TRANSFORMATION OF THE UNIVERSITY

Olha Popelo
D.Sc. in Economics,
Professor, Department of Management and Administration,
Chernihiv Polytechnic National University
Chernihiv, Ukraine
ORCID ID 0000-0002-4581-5129
E-mail: popelo.olha@gmail.com

Current processes of socio-economic development are characterized by significant dynamism of intra-systemic transformations in the work of economic structures of various levels and organizational forms [1]. This is manifested in the natural development and change of the main driving forces of economic growth, including factors that contribute to the formation and further successful development of scientific and innovative ecosystems, the basis of which are universities. To maintain competitiveness in new operating conditions, universities need to introduce innovative technologies that will contribute to modernization of higher education. Considering changing business models and their rapid development, it can be said that most enterprises direct their activities to innovative developments. At the same time, an important role is played by formation of modern innovation ecosystem, which contributes to rapid implementation of scientific developments, including their commercialization. In the international aspect, the practice of involving the university community in innovative developments is developed, which in the synergistic ecosystem is explained by the following aspects:

- the main field of activity of universities is the implementation of knowledge and skills in practical activities;
- there is an urgent need to combine practical and theoretical knowledge and skills of future specialists;
- concentration of creative innovators in universities;
- available various schools, disciplines, and approaches that provide comprehensive assessment of innovative processes.

Universities should become a platform for the meeting between innovators and business, for participation by developing research and analytical materials to create innovative products. Universities have their own innovation ecosystem, which is formed based on the environment in which the participants of the innovation process interact to create and implement innovative products.

This environment provides for relevant agreements, economic, social and cultural aspects of cooperation. However, in modern realities, there is a certain imbalance between the needs of business and the quality of the innovative ecosystem at universities, which is due to limitations in staffing, technical and technological development, and organizational resources. Overcoming these negative aspects proves urgency of research into the role of the scientific and innovative ecosystem in the processes of sustainable transformation of the university.

Undoubtedly, the scientific and innovative ecosystem plays a key role in the processes of sustainable transformation of universities, creating conditions for development of innovations, scientific research and effective knowledge management. The main aspects of its influence can be considered in the following directions: improving the quality of education and research, forming innovative thinking, supporting scientific startups and entrepreneurship, global cooperation, promoting sustainable development.

The scientific and innovative ecosystem contributes to integration of the latest scientific achievements into the educational process, which allows to improve the quality of education. An important element is cooperation with research institutions and business, which provides access to advanced technologies and expertise. This cooperation is necessary to form innovative thinking among young people and researchers, which contributes to development of entrepreneurial initiatives. These transformations enable universities that actively develop their scientific and innovative infrastructure, create conditions for emergence of startups, science parks, and business incubators, ensure appropriate transfer of technologies and development of the knowledge economy supported by university research [2].

Due to development of technology transfer, international cooperation between various universities and scientists is established, which allows universities to be part of global research and educational networks, and also contributes to integration into the world scientific community and increase of their competitiveness. According to the Decree of the President of Ukraine "On sustainable development goals of Ukraine for the period until 2030", the main goals of the innovation ecosystem are defined, which contribute to development of environmentally friendly technologies, energy efficiency and social innovations, which corresponds to sustainable development goals. Universities become platforms for development and implementation of these solutions in society [3].

The scientific and innovative ecosystem acts as a catalyst for sustainable transformations, which contributes not only to increasing the level of scientific research and development, but also to modernization of the university as an institution capable of making significant contribution to sustainable development of society.

Innovative development of universities involves creation of internal organizational and economic mechanisms that will ensure effective planning, control, organization and motivation of the key participants in the scientific and innovative ecosystem. This is aimed at maintaining high quality standards of innovative developments, constant improvement of technical and technological means of their implementation, as well as at the formation of a reliable system of communication with stakeholders.

For Ukraine, the problem of scientific development is the low level of commercialization of university science, which was mostly financed from the state budget. To transfer to market conditions and attract funding for scientific developments, universities need to radically change principles and approaches to commercialization of innovative developments. It is in this direction that formation of innovative ecosystems based on leading universities, which can later create innovative clusters in the relevant areas of research, is effective.

Therefore, the impact of scientific and innovative ecosystems on transformational processes of development of universities consists in creating appropriate conditions for commercialization of scientific achievements of domestic scientists at the national and international levels. It is the scientific and innovative potential that is the basis for strategic development of universities based on sustainable development principles. Sustainable transformation of the university is a process of change aimed at long-term development and adaptation of the institution to modern conditions, taking into account social, economic and environmental aspects.

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QUANTUM COMPUTING FOR BUSINESS RISKS

Reznikov Roman, PhD, Doctoral Candidate
Institute of Industrial Economics, Kyiv, Ukraine
ORCID ID 0000-0001-5581-5651
e-mail: reznikov.roman@nas.gov.ua

In an era defined by rapid changes and global connectivity, businesses must navigate a complex landscape of risks. Quantum computing, with its ability to process and analyze vast data sets, offers transformative potential for identifying, analyzing, and mitigating risks by leveraging news feeds, social media, and predictive modeling. This work explores how quantum computing can revolutionize risk analysis for businesses, highlights key modern cloud quantum technologies, and introduces basic concepts for modeling these scenarios. Quantum computing is emerging as a transformative tool in business risk analysis, particularly in processing vast datasets from news feeds and social media to model future organizational scenarios. Its ability to handle complex computations at unprecedented speeds offers significant advantages in identifying and mitigating risks. Deloitte in its report [1] examines how quantum computing can enhance financial simulations, portfolio optimization, and risk management. It discusses the potential for quantum algorithms to process complex financial models more efficiently than classical computers. Bloomberg Law [2] explores the integration of AI and quantum computing in automating risk monitoring through the analysis of social media and news outlets. It highlights how these technologies can identify potential crises before they escalate, thereby improving organizational resilience. Risk.net resource [3] delves into the challenges and opportunities quantum computing presents in risk management, including its application in stress testing and scenario analysis. In the previous articles authors analyzed usage of Generative AI for risks analysis [4], however usage of quantum computing in the specific of risk analysis using sentiment analysis of news and social media was not well analysed yet.

Quantum computing's unique capabilities stem from quantum bits (qubits), which can exist in superposition, enabling the processing of multiple possibilities simultaneously. This allows quantum computers to analyze massive, unstructured datasets like news feeds and social media at a scale and speed unattainable by classical systems. Applications in Risk Analysis:

- Sentiment Analysis by analyzing real-time social media data and news articles, quantum algorithms can identify trends and public sentiment that may indicate emerging risks.
- Scenario Modeling by quantum simulations allow businesses to model multiple future scenarios, enabling decision-makers to prepare for a wide range of potential outcomes.
- Predictive Analytics via quantum machine learning (QML) enhances the ability to predict market trends and potential disruptions, offering a competitive edge.
- Several platforms provide accessible quantum computing resources for businesses:
- IBM Quantum offers Qiskit, an open-source framework, and cloud-based access to quantum systems.
- Google Quantum AI focuses on quantum supremacy and provides tools like Cirq for quantum programming.
- Amazon Bracket - cloud-based quantum computing service that integrates with machine learning frameworks.
- Microsoft Azure Quantum combines classical and quantum processing for advanced analytics.