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ANALYSIS OF THE CHALLENGES OF ECONOMIC DIVERSIFICATION IN THE FUTURE

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АНАЛІЗ ВИКЛИКІВ ДИВЕРСИФІКАЦІЇ ЕКОНОМІКИ МАЙБУТНЬОГО

The relevance of the study is driven by the current trend of shaping the economy of the future, characterized by a transition to more resilient, efficient, and evolutionary models of economic activity. Turning to the essence of the axiom of diversification, it's worth noting that at the core of this process lies a system of fundamental assertions which, together, serve not only as a source of advantages but also as a trigger for shaping specific challenges for the economy of the future. Among such assertions are the following: the economy of the future is built upon digital innovation, increasing attention to environmental issues, and advanced technologies, as well as the automation of management processes. According to the above, the purpose of the article is a comprehensive analysis of the challenges of diversifying the economy of the future, which emerge from the essence of the diversification hypothesis. This analysis reviews key factors influencing the diversification process, such as digital innovation, environmental issues, technological changes, and automation. The study demonstrated that understanding the challenges of diversifying the economy requires analysis through the lens of the future, taking into account the evolutionary nature of changes in the economic structure, processes, and management modes. It has been proven that the challenges of diversifying the economy of the future are intertwined with the phenomenon of digital innovation. Big data, artificial intelligence, the Internet of Things, and blockchain technologies have become the foundation for improving production efficiency and resource allocation. However, this has also led to complexities for economic entities that simultaneously engage in multiple types of economic activities. It is noted that the challenges of diversifying the economy of the future are integrated with the growing attention to environmental issues. Currently, many economic entities have set themselves the task of achieving sustainable development, which has created a need for significant complexity in management processes and approaches to conducting business. It has been demonstrated that the challenges of diversifying the economy of the future are integrated with the advancement of technologies and the deepening automation of management processes, which effectively lead to a significant reduction in manual labor.

Актуальність дослідження обумовлена тим фактом, що на сьогодні спостерігається тенденція формування економіки майбутнього, що характеризується переходом до більш стійких, ефективних та еволюційних моделей економічної діяльності. Повертаючись до концепції диверсифікації, слід відзначити, що основою цього процесу є система базових принципів, які разом не лише становлять джерело переваг, але й є каталізатором для формування конкретних викликів перед економікою майбутнього. Серед таких тверджень основними є те, що економіка майбутнього ґрунтується на цифрових інноваціях, зростаючій увазі до екологічних проблем та використанні розвинених технологій та автоматизації у господарських процесах. Відповідно до вищенаведеного, метою статті є загальний аналіз викликів диверсифікації економіки майбутнього, що формуються виходячи зі змісту аксіоми диверсифікації. В рамках цього аналізу розглядаються основні фактори, що впливають на процес диверсифікації, такі як цифрові інновації, екологічні проблеми, технологічні зміни та автоматизація. Результати дослідження підтверджують, що для розуміння викликів диверсифікації економіки необхідно аналізувати їх через призму майбутнього, враховуючи еволюційний характер змін у структурі економіки, процесах та методах господарювання. Дослідження підтверджує, що виклики диверсифікації економіки майбутнього інтегруються розвитком цифрових інновацій. Великі дані, штучний інтелект, Інтернет речей і технології блокчейну стали фундаментом для покращення ефективності виробництва та розподілу ресурсів. Однак, вони також призвели до ускладнення розвитку економічних суб'єктів коштом урізноманітнення видів економічної діяльності. Констатовано, що виклики диверсифікації економіки майбутнього інтегруються зростанням уваги до екологічних проблем (вже зараз багато економічних суб'єктів ставлять перед собою завдання досягнення сталого розвитку, що породжує потребу у значному ускладненні процесів господарювання та підходів до ведення бізнесу). Доведено, що виклики диверсифікації економіки майбутнього інтегруються розвитком технологій та поглибленням автоматизації процесів господарювання, що фактично призводить до значного скорочення обсягу ручної праці.

Keywords: *goods and services; sectors; economic sectors; labor market transformations; risks.*

Ключові слова: *товари та послуги; галузі; сектори економіки; трансформації на ринку праці; ризики.*

Target setting. Currently, we're witnessing the emergence of a future economy marked by transitioning to more resilient, efficient, and evolving economic models. Referring back to the outlined axiom, however, it's important to note that the foundation of this delineated process has become a system of fundamental assertions, which collectively serve not only as a source of numerous advantages for business but also as a trigger shaping certain challenges in diversifying the economy of the future. Among such assertions are the following: the economy of the future is based on digital innovation, increasing attention to environmental issues, and advanced technologies, as well as the automation of management processes.

Analysis of recent research and publications. The theoretical and scientific-methodological foundations of diversification have been explored in the works of Shultz S.L., Lutskiy O.M. Our applied perspectives on the spheres of diversification within the future economy have been further developed in the studies of Tsoghla O.O., Brin P.V., Korinko M.D., Skorobogatov M.M., and Kucerubova O.I.

Objectives of the article. In line with the aforementioned, the purpose of the article is to conduct a comprehensive analysis of the challenges associated with diversifying the economy of the future. This analysis entails reviewing key factors that influence the diversification process, including digital innovation, environmental concerns, technological advancements, and automation.

The paper main body with full reasoning of academic results. Within the research, attention is focused on the phenomenon that, in essence, diversifying the economy of the future involves expanding the variety of its sectors and industries at national, regional, or local levels. This pursuit aims to mitigate the risks of economic losses [4; 8].

What's specific is that the sphere of diversifying the economy of the future consists exclusively of resilient, efficient, and evolving models of economic activity, among which:

1. Models of resource sharing among enterprises. These models are based on joint utilization or shared access to resources, contingent upon their ability to generate a substantial positive impact on the competitiveness of economic entities. This can be realized through collaborative procurement of materials and equipment, shared logistics and delivery services, joint advertising and marketing efforts, as well as cooperative research and development initiatives. Exactly, several small enterprises can collaborate in one or multiple areas of activity to share production or warehouse space, thereby reducing rental payments and infrastructure costs. Moreover, economic entities can also collectively invest in research and development of new technologies or share existing research resources, reducing costs for innovation and facilitating knowledge and expertise exchange [8].

2. Digital business models. These models leverage information technologies for creating, disseminating, and exchanging information, which forms a substantial part of their value proposition. This is made possible through e-commerce, cloud technologies, the Internet of Things, and other digital platforms. Economic entities have the opportunity to diversify their operations in the following ways [1-2; 4]:

- establishing or expanding their online stores, or utilizing established e-commerce platforms like Amazon, eBay, or Etsy to market and sell their products. This strategy enables them to reach a global audience and facilitate sales around the clock, without the constraints of physical presence.
- diversifying their service offerings by leveraging cloud services for data storage, processing, and exchange. For instance, utilizing Google Cloud, Amazon Web Services, or Microsoft Azure allows for diversification in computing and software development capabilities.
- diversifying their goods and services by integrating them with the Internet of Things. This allows for the creation of more intelligent and convenient solutions for consumers (including smart home devices, industrial solutions for

monitoring and managing processes, as well as smart health and fitness products).

3. Circular economy models. These models are based on reducing waste and preserving resources to mitigate negative environmental impact. This is achievable through resource recycling and reuse, exchange, and enhanced circulation. For example, economic entities can:

- develop exchange programs where used goods or materials can be exchanged or recycled to extend their lifecycle. Currently, businesses have various exchange programs for used clothing or electronics in exchange for new ones with additional payment or discount.
- create processes for recycling worn-out resources in the production of new products. For instance, utilizing recycled plastic for manufacturing new packaging or construction materials
- develops products with ease of restoration or repair in mind. For example, focusing on the use of easily replaceable components in complex devices or manufacturing goods that are easily repairable.

4. Models based on knowledge. These models are grounded in the production of goods and services through processes of creating and processing information and knowledge as the primary source of value. For example, economic entities that:

- work in the fields of art, design, advertising, and entertainment to create value through creative expression and communication;
- work in data analysis and processing sectors, create value in the production of informational products, reports, forecasts, and analytical research for strategic decision-making;
- work in education and consulting services sectors, create value by imparting knowledge to their clients and providing expertise.

Notably, the future economy's focus on the outlined diversification sectors is propelled by the ongoing broadening of diversity across its industries and sectors. This is achieved through [3; 5; 7-8]: fostering digital innovations, forging qualitatively new paths for cost reduction, enhancing production and management efficiency, preserving resources, and mitigating negative environmental impact.

Additionally, some of the outlined processes, alongside opportunities, also pose qualitatively new challenges for production, trade, distribution, and consumption [7-8].

The core challenges of diversifying the future economy, as outlined in the research by Skorobogatov M.M. and Kucerubova O.I., can be illustrated by fundamental statements that define the content of the axiom's extension or alteration to enhance overall diversity [6].

Assertion 1. The economy of the future is grounded in digital innovation. It's notable that as big data, artificial intelligence, the Internet of Things, and blockchain technologies have become foundational for enhancing production efficiency and resource allocation, economic entities are consistently integrating these into various types of economic activities simultaneously. The outlined complexities arise due to the following factors [5; 7-8]: 1) the need for continuous updating of knowledge and skills of the human resource; 2) the necessity for managing a wide range of risks and increasing demands for data security; 3) transformations in the labor market leading to increased labor costs; 4) the absence of adaptive and effective rules and standards for utilizing digital innovations. So, the challenges of diversifying the economy of the future, which are synthesized by digital innovations, are systematized in Figure 1.

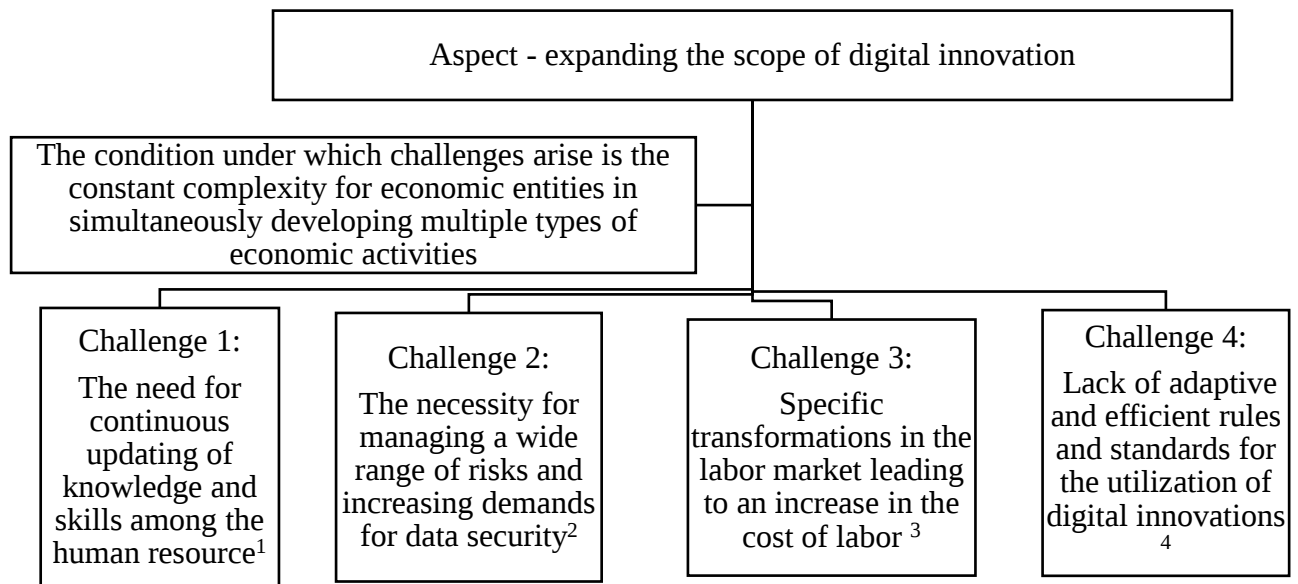


Figure 1. The challenges of diversifying the economy of the future, synthesized by digital innovations

Note:

1. The rapid pace of technological change necessitates continuous learning and upskilling of workers. However, employees may not always adapt quickly to new tools and technologies, which becomes a key factor in competitiveness in the labor market.
2. With the increase in data volumes and their processing, there is a risk of information leakage and cyber-attacks. Economic entities must develop and implement effective risk management and cybersecurity strategies.
3. The emergence of new technologies changes the requirements for professionals and reshapes the structure of the labor market. Some professions may disappear, while others become more important. This can lead to instability in the labor market and increased competition for talented specialists.
4. The development of digital technologies is happening faster than the development of regulatory acts and standards regulating their use

Source: formed based on [1; 5; 7-8]

Assertion 2. The economy of the future is based on increasing attention to environmental issues (many economic entities have already set themselves the goal of achieving sustainable development). These changes require significant complexities in business operations, particularly as processes and approaches to conducting business become more intricate and demand greater attention, resources, and managerial efforts due to various factors influencing modern companies. This process arises from the following factors [4-5]: 1) changes in the economic environment; 2) the need to change methods of production, distribution, and consumption of goods and services; 3) increasing consumer demands and market pressure. Thus, the challenges of diversifying the economy of the future, synthesized by the growing attention to environmental issues, are systematized in Figure 2.

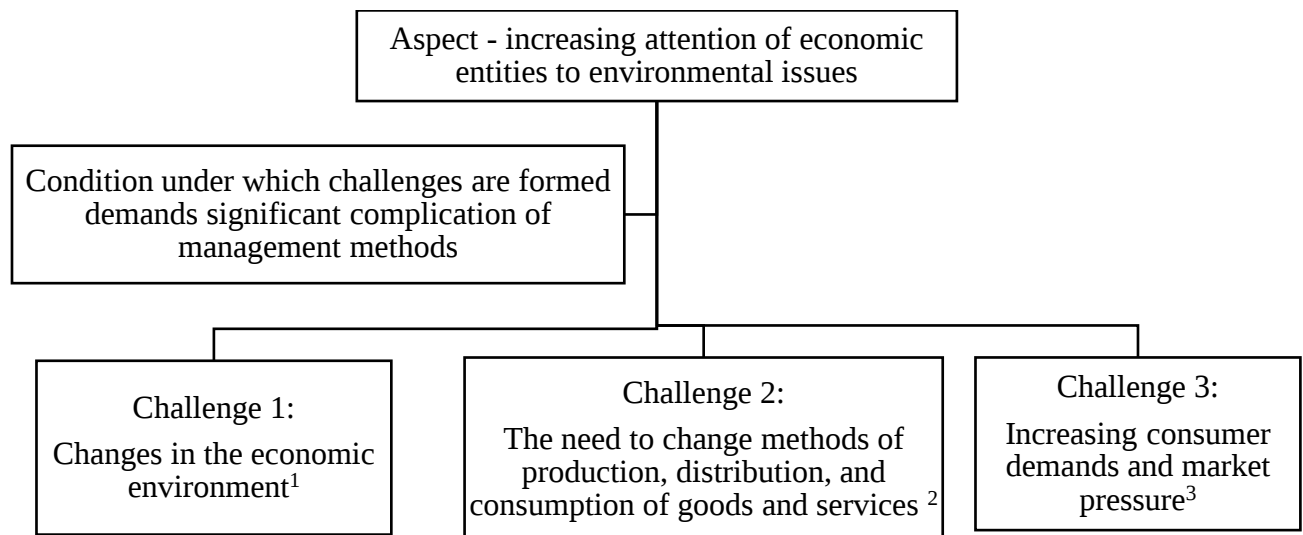


Figure 2. The challenges of diversifying the economy of the future, synthesized by the growing attention to environmental issues

Note:

1 Changes in the economic environment are driven by the rising scarcity of resources and the resulting need to seek alternative resource sources or technologies that more efficiently utilize existing resources or make their augmentation more effective.

2 To achieve sustainable development, it is necessary to reconsider traditional methods of production, distribution, and consumption of goods and services. This may involve the implementation of environmentally friendly technologies, reducing the use of unjustified resources, and increasing the efficiency of resource utilization.

3 Consumers are increasingly preferring products and services that are produced and provided with consideration for environmental aspects. This creates pressure on economic entities and requires the implementation of more environmentally friendly business practices.

Source: formed based on [1; 4-5]

Assertion 3. The economy of the future is based on advanced technologies and process automation. Such changes lead to a significant reduction in manual labor volume. This process arises due to the following factors [4; 8]: 1) the development of artificial intelligence (which expands the range of tasks and functions that can be performed without human involvement); 2) robotization and automation of production; 3) automation of distribution and consumption processes of goods and services. Thus, the challenges of diversifying the economy of the future, synthesized by the advancement of technologies and deepening automation of management processes, are systematized in Figure 3.

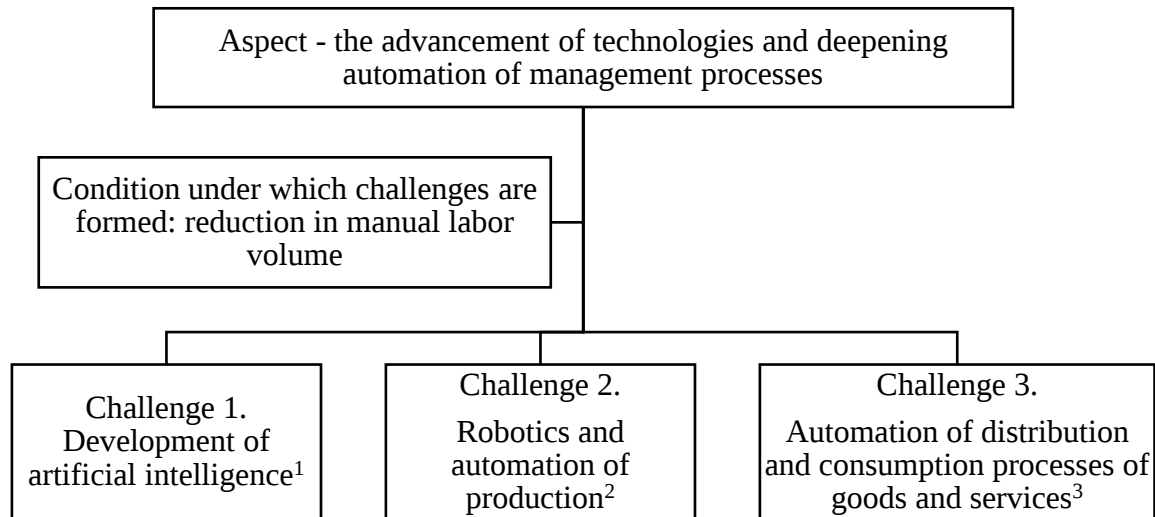


Figure 3. Challenges of diversifying the future economy, based on advanced technologies and automation of business processes

Note:

1 Artificial intelligence allows solving various tasks and performing functions that were previously only available to humans. For example, AI systems can automate the analysis of large data sets, image recognition, voice commands, and more, reducing the need for manual analysis and information processing.

2 Production lines equipped with robots and automated systems can perform routine and repetitive operations faster, more efficiently, and safer than humans. This leads to a reduced need for manual labor in many production processes.

3 With the development of information technologies and the Internet of Things, automated management of the distribution and consumption of goods and services is possible, resulting in a decrease in the number of jobs in some sectors of the economy where manual labor is replaced by automated systems.

Source: formed based on [1; 4; 8]

It's important to note that comprehending the challenges of diversification through the lens of the future is driven by the evolutionary nature of changes in the structure of the economy, processes, and methods of management, all of which we've oriented toward the term "economy of the future. This means that economic challenges and opportunities are constantly changing and evolving in line with new technologies, social trends, political changes, and other factors. This uncertainty applies not only to the development of new types of economic activities, new industries, and sectors of the economy but also to the boundaries and formats of their diversification [3].

Conclusions. The research has demonstrated that understanding the challenges of economic diversification requires analysis through the lens of the future, taking

into account the evolutionary nature of changes in the structure of the economy, processes, and methods of management. The following conclusions have been drawn:

1. The diversification of the economy of the future is based on digital innovation.
It's worth noting that as big data, artificial intelligence, the Internet of Things, and blockchain technologies have become the foundation for improving production efficiency and resource allocation, economic entities are continually integrating these into multiple types of economic activities simultaneously. This integration is driven by factors such as: 1) the need for continuous updating of knowledge and skills among the workforce; 2) the necessity for managing a wide range of risks and increasing demands for data security; 3) transformations in the labor market leading to increased labor costs; 4) the absence of adaptive and effective rules and standards for utilizing digital innovations.
2. The diversification of the future economy is based on increasing attention to environmental issues (currently, many economic entities have set themselves the task of achieving sustainable development). Such changes require a significant complexity in management approaches, particularly making business processes and strategies more intricate and demanding more attention, resources, and managerial efforts due to various factors affecting modern companies. This process arises due to the following factors: 1) changes in the economic environment; 2) the need to change methods of production, distribution, and consumption of goods and services; 3) increasing demands from consumers and market pressure.
3. Diversification of the future economy is based on advanced technologies and automation of business processes. These changes lead to a significant reduction in the volume of manual labor. This process arises due to the following factors: 1) the development of artificial intelligence (which expands the scope of tasks and functions that can be performed without human involvement); 2) robotics and automation of production; 3) automation of distribution and consumption processes of goods and services.

The prospects for further research lie in the systematization and expanded analysis and forecasting of the impact of digital technologies on the economy of the future.

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