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Vladyka Yuliia Pavlivna, Candidate of Sciences (Economics), Associate Professor, Associate Professor of Finance, Banking and Insurance, National Aviation University, 03058, Kyiv, ave. Huzera, 1. phone: 044-406-70-38, <https://orcid.org/0000-0001-7260-5146>

Hrechka Myroslava Yurievna, student, National Aviation University, 03058, Kyiv, ave. Huzera, 1, phone: 044-406-70-38, <https://orcid.org/0009-0000-0154-1413>

Babiy Bohdan Vitaliyovych, student, National Aviation University, 03058, Kyiv, ave. Huzera, 1, phone: 044-406-70-38, <https://orcid.org/0009-0000-0444-1423>

EFFECTIVE INNOVATIVE BANKING TECHNOLOGIES

Abstract. The article reveals the relevance of the issue of increasing the efficiency of the use of the banking institution's resources. The concept of "efficiency" has been studied. The main role of the innovative development of banks at the current stage and the favorable impact of innovations on the activity of banks, which is aimed at increasing competitiveness, increasing the trust of customers in banking organizations, are determined and improvement of activity efficiency. The main theoretical approaches to understanding the concepts of "innovation" and "banking innovation" are indicated.

Specific features and directions of implementation of innovative technologies in banking activity are identified, among which can be attributed: financial component, technological component, and organizational and structural component. The importance of the use of innovative technologies by the bank for more efficient use of the banking institution's resources is described. The role of artificial intelligence in banking is considered. The possibilities of resource optimization through the development of digital service channels and mobile applications were analyzed.

Blockchain technologies and other modern innovations in the transformation of banking were studied. The importance of using data analytics for credit risk assessment and identification of suspicious transactions, reduction of financial losses is revealed. The problems of cyber security of the banking sector and the possibilities of ensuring security and improving the level of customer service were analyzed. The disadvantages and advantages of implementing these technologies, as well as their potential for efficiency, are revealed. The rationality of the use of innovative technologies with the aim of increasing the efficiency of the use of





resources is analyzed, and the ways of its implementation in the activity of a banking institution are highlighted.

Keywords: innovative technologies, innovations, artificial intelligence, blockchain technologies, resource efficiency, banking institution.

Владика Юлія Павлівна, кандидат економічних наук, доцент, доцент кафедри фінансів, обліку та оподаткування, Національний авіаційний університет, 03058, м. Київ, просп. Гузера, 1. тел.: 044-406-70-38, <https://orcid.org/0000-0001-7260-5146>

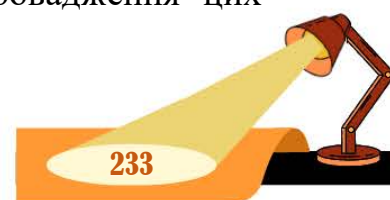
Гречка Мирослава Юріївна, студентка, Національний авіаційний університет, 03058, м. Київ, просп. Гузера, 1. тел.: 044-406-70-38, <https://orcid.org/0009-0000-0154-1413>

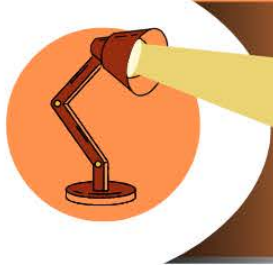
Бабій Богдан Віталійович, студент, Національний авіаційний університет, 03058, м. Київ, просп. Гузера, 1. тел.: 044-406-70-38, <https://orcid.org/0009-0000-0444-1423>

ЕФЕКТИВНІ ІННОВАЦІЙНІ ТЕХНОЛОГІЇ БАНКІНГУ.

Анотація. Актуальність питання підвищення ефективності використання ресурсів банківської установи. Досліджено поняття «ефективність». Визначено основну роль інноваційного розвитку банків на сучасному етапі та сприятливий вплив інновацій на діяльність банків, спрямовану на підвищення конкурентоспроможності, підвищення довіри клієнтів до банківських організацій, підвищення ефективності операцій. Вказано основні теоретичні підходи до розуміння понять «інновація» та «банківська інновація». Визначено особливості та напрями впровадження інноваційних технологій у банківську діяльність, серед яких можна виділити: фінансову складову, технологічну складову та організаційно-структурну складову. Охарактеризовано важливість використання банком інноваційних технологій для більш ефективного використання ресурсів банківської установи. Розглянуто роль штучного інтелекту в банківській справі. Проаналізовано можливості оптимізації ресурсів шляхом розвитку цифрових каналів обслуговування та мобільних додатків.

Досліджено технології блокчейн та інші сучасні інновації в трансформації банківської справи. Розкрито важливість використання аналітики даних для оцінки кредитного ризику та виявлення підозрілих операцій, зменшення фінансових втрат. Проаналізовано проблеми кібербезпеки банківського сектору та можливості забезпечення безпеки та підвищення рівня обслуговування клієнтів. Виявлено деякі недоліки та переваги впровадження цих





технологій, а також потенціал їх ефективності. Проаналізовано раціональність використання інноваційних технологій з метою підвищення ефективності використання ресурсів та висвітлено шляхи її впровадження в діяльність банківської установи.

Ключові слова: інноваційні технології, інновації, штучний інтелект, блокчейн-технології, ефективність використання ресурсів, банківська установа.

Statement of the problem. The use of resources is a very important aspect of the functioning of the bank, their efficiency has a direct impact on the financial condition, competitiveness and ability to satisfy the needs of customers. However, in the modern financial market, there are a large number of challenges that create obstacles to achieving maximum efficiency in the use of resources by the bank.

In today's conditions, the question of effective organization of activities and rational use of resources has become acute for banking institutions of Ukraine. The full-scale invasion of the Russian Federation led to disruptions in the banking system, which forced banks to quickly adapt to new conditions.

Conditions of innovation are considered not only as a factor that to some extent predicts progress and economic growth, innovative technologies are the phenomenon that contributes to the modernization of all sectors of the economy, as well considering the banking sector. Modern banks have introduced many innovative technologies, among which are: Internet banking, mobile banking, NFC technologies, use of chatbots, creation branchless banks and many other modern technologies.

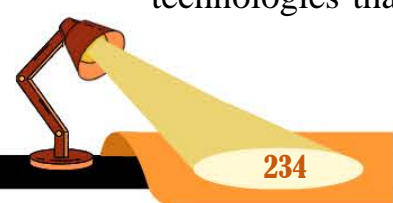
Analysis of recent research and publications. Important aspects of the formation and development of the modern pension system are highlighted by such Ukrainian scientists as Mudra R. R. [1], Dombrovska L. V. and Potrivaeva V. K. [2], Myronenko M. Yu. [3] and other Ukrainian and foreign scientists.

A number of works by the following scientists are devoted to the study of the impact of innovative technologies on the efficiency of banks: Yesina O. G. [4], Kuznetsova M. A., Guigova Yu. I. [5], Koval Y. S. [6], Rysin V. In [7].

The purpose of the article is to study the features and mechanisms banking innovations and consideration of innovations, technologies in the modern world, their impact on the activity of banking institutions.

Presenting main material. Increasing the efficiency of the use of bank resources is always relevant, because banking institutions need constant adaptation to the rapidly changing financial environment, to introduce and develop new technologies, to optimize processes and to improve their services. The use of resources gives us the opportunity to ensure both competitiveness and sustainability of banks in modern conditions.

The modern fifth technological order is based on new information technologies that cover almost all directions of people's activities. The process of





informatization of society appears to be at the global level, as well as at the level of individual national economies, leads to a qualitative change of mediated economic ties. These changes, the purpose of which is the maximum satisfaction of public needs through generation and use of information resources, scientific knowledge, can be characterized as economical development.

Innovative focus on development, according to the general features of the fifth of the technological system in the future becomes a mandatory condition for the integration of economic entities and into the information economy, covering such as material production, and innovation in the field of management, strategic development, marketing.

These trends are also manifested in the financial sphere. Modern financial and credit institutions are actively starting to introduce innovations that can significantly change the nature of their activities, features of interaction with clients, expands the entire range of services provided and offered financial products.

Innovations in the entire banking sector are new technologies, products and services that are implemented on financial market. But before we evaluate the real innovation processes, it is necessary to reveal the general ones fundamental theoretical definitions of the concept of "innovation".

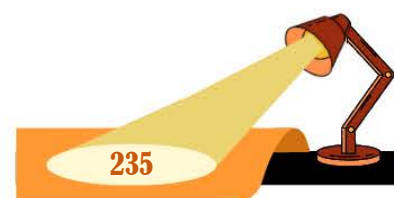
Banking innovation is considered as the end result of the improvement process the life of the bank, which is based on the modernization of banking products and services, the management process, and the implementation process, the purpose of which is to maintain competitive positions on the financial market [1].

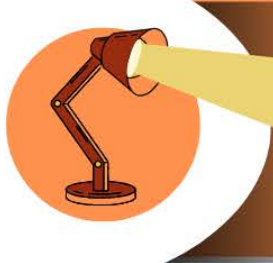
When studying the concept of "resource efficiency", scientists usually pay the most attention to the analysis of a large number of factors, such as capital optimization, rational use of assets, cost reduction, increased profitability and ensuring the stability of the organization's financial condition. There are various approaches to revealing the concept of "effectiveness of resource use", but there is still no general interpretation [2-4].

"Effectiveness of the bank's activity" is most often disclosed through the assessment of performance indicators and financial results [2,3].

The introduction of innovative technologies in the banking sector is necessary to ensure competitiveness and compliance with modern standards. Modern banking has changed a lot under the influence of technological innovations, and banks need to adapt to these changes in order to stay in the market and meet the needs of customers. By providing innovative technologies with greater speed, efficiency and security of resource use, banks can increase their competitiveness and provide better customer service .

The leader among the introduction of innovative solutions in banking is the Chinese smart city Yinchuan, which does not use money and bank cards, but the bank card is the face of the client. To for example, in the system of identification of persons and payment in all city transport is carried out automatically when entering transport.





Automation of processes through the use of artificial intelligence allows banks to reduce labor costs and increase the accuracy of decision-making. Implementation of intelligent systems allows banks to:

- reduce labor costs, as many routine tasks can be automated and workers can be directed to perform more important tasks.
- increase the speed of data processing and operations, which allows customers to receive services faster.
- reduce the risk of errors and fraud with systems that can analyze large volumes of data and detect anomalies.
- increase the level of personalization of financial services, as algorithms can analyze the client's history and make recommendations [9].

Due to the considered benefits, the use and development of artificial intelligence is becoming a key component of banks' strategies for efficiency and competitiveness.

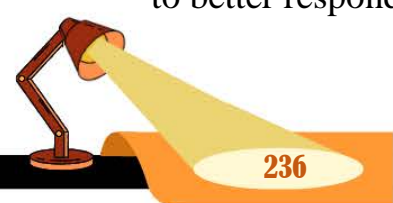
The use of blockchain technologies in the banking sector should ensure greater security and transparency of financial transactions:

- Blockchain uses cryptography to protect data. Transactions are encrypted and verified, making them highly resistant to alteration or hacking, helping to prevent fraud and illegal activities.
- Blockchain is a distributed database accessible to all network participants, making transactions visible and verifiable by all interested parties, such transparency helps to avoid financial manipulation.
- Blockchain allows you to directly conduct financial and other transactions between network participants without the mediation of third-party institutions, which helps reduce costs and risks.
- Blockchain allows transactions to be carried out quickly and around the clock, which allows banks to improve the efficiency of their services.
- Information in the blockchain is securely stored and remains unchanged over time, which helps to avoid data loss or falsification of transaction history.

Blockchain technology is becoming a key tool for ensuring security and transparency in the financial sphere, which contributes to increasing customer trust and ensures greater efficiency of operations [5, 8-10].

Mobile technologies (applications) make all banking more accessible to a range of customers and help reduce costs for physical branches. Advantages of using mobile technologies:

- Customers can transact and check their accounts anytime, anywhere through the mobile app or online banking.
- For the operation of physical branches, large costs for renting space, maintaining staff and infrastructure are necessary, but digital channels allow banks to reduce most of these costs.
- Changes in digital services can be implemented faster, which allows banks to better respond to customer needs and market changes.





– Mobile applications allow banks to collect data on customer behavior and provide personalized recommendations and services.

The development of digital service channels turns banking into a more modern and accessible service [7].

Open banking is a combination of banks, third parties and technology providers that allows multiple institutions to create networks for data transfer. The main advantage of Open-banking is savings, due to the reduction of the costs of maintaining a large staff and personal personal support. Disadvantages of Open-banking: probability of technical failures and hacker attacks, as a result of loss of personal information; very large costs of money and time at the beginning [5,10].

The Internet of Things (IoT) provides an opportunity for managers of banking institutions to reduce the number of personnel, reduce service costs, and also reduce customer waiting time. Also, IoT can simplify the use of ATMs and analyze how customers use them in a certain area to adjust their number [11].

Cyber security is becoming an important component for banking institutions in the context of innovative technologies, as they become targets for cyber attacks, due to innovations such as digital service channels, mobile applications. Sufficient attention should be paid to the issue of cyber security in the banking sector, as banks hold confidential customer data. Cybercriminals can carry out fraudulent financial transactions or attacks on bank payment systems [1].

Cyberattacks can lead to loss of customer confidence and financial losses related to service restoration and customer compensation. Banks must invest in cyber security, develop protection strategies and train staff to respond to potential cyber security threats [5, 9, 12].

Cloud technologies provide for the placement of infrastructure in the cloud and the organization of remote communication channels with the bank, the possibility of obtaining additional services, the possibility of forming an individual "hybrid" cloud for a specific client and obtaining additional data protection, expanding the range of services [5].

Voice biometrics allows you to identify a person based on a set of unique voice characteristics and provides additional protection of accounts and personal data. The use of this technology significantly reduces the time of conversation with the operator, does not require any additional data, it is currently used in JSC "PrivatBank" [12].

Banks are currently more likely to use the artificial intelligence tool that allows them to use more innovative technologies, due to which, the data of the company can be reduced as much as possible costs and at the same time improve the quality of services provided.

Also, we can note that individual features can characterize innovative models development of banks, both from the positive and from the risk side, and in general they make it possible to create for us new methods of conducting banking





activities, creating new values for consumers and ensure the growth of competitiveness of banks on the financial market.

There are restrictions on the modern process of introducing innovative technologies into banking activity factors that come from general patterns of financial market development, such as: variability prices that can be observed in most market segments; lack of some information awareness; the cost of innovative solutions increases; distrust of customers to some innovations; indefinite period introduction of innovations; tax differences; the level of risks increases; low level of development innovative infrastructure; low degree of development of legal and financial law.

It can also be noted that the main problems of innovative development of banking activity in Ukraine there are [10]:

- insufficient degree of protection of domestic communication channels, as a result of which risks increase loss or damage of consumer data from fraudsters;
- a low level of legal regulation of banking innovation technologies, which encourages creation of risky circumstances and reduces consumers' commitment to remote service;
- lack of constant access to the Internet and constant communication for many settlements;
- lack of constant access to the Internet and constant communication for many settlements;
- the cost of introducing innovative solutions, which are used in modern the development of banks, as well as the degree of risks that are created at the same time increases;
- low level of technological development of Ukrainian banks, which hinders implementation innovative technologies;
- low level of training of bank personnel and shortage of qualified personnel;
- insufficient level of information awareness of the population.

Conclusions. Such thus, banking innovation technologies that encourage the creation of new perspectives, relatively progressive development in banking, but the innovative development of banks increases competition for demand formation and implementation of all non-standard innovative solutions, which will become an indisputable condition for innovative strategy for the development of banks.

Effective use of innovations becomes a successful factor of a banking institution. In the conditions of martial law, banking institutions are required to quickly adapt to changes, constantly optimize their resources and reorient to the newer needs of customers. Due to all the introduction of innovative technologies, it will be possible to adapt very quickly to new circumstances, as well as minimize costs and remain competitive.





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