

INNOVATION IN INVESTMENT BANKING AS A RESPONSE TO GLOBAL CHALLENGES
ІННОВАЦІЇ В ІНВЕСТИЦІЙНОМУ БАНКІНГУ ЯК ВІДПОВІДЬ НА ГЛОБАЛЬНІ ВИКЛИКИ

Olena Pryiatelchuk

Doctor of Economics, Professor of the Department of International Business, Educational and Scientific Institute of International Relations, Taras Shevchenko National University of Kyiv,
e-mail: pryiatelchuk@gmail.com

ORCID ID: <https://orcid.org/0000-0002-5222-452X>

Zakharrii Tkachov

PhD Student, Department of International Business, Educational and Scientific Institute of International Relations, Taras Shevchenko National University of Kyiv,

e-mail: zakhariitkachov@gmail.com

ORCID ID: <https://orcid.org/0009-0006-2791-7611>

Приятельчук О.А.

Доктор економічних наук, професор кафедри міжнародного бізнесу Навчально-наукового інституту міжнародних відносин Київського національного університету імені Тараса Шевченка,

e-mail: pryiatelchuk@gmail.com

ORCID ID: <https://orcid.org/0000-0002-5222-452X>

Ткачов З.В.

Аспірант, кафедра міжнародного бізнесу Навчально-наукового інституту міжнародних відносин Київського національного університету імені Тараса Шевченка,

e-mail: zakhariitkachov@gmail.com

ORCID ID: <https://orcid.org/0009-0006-2791-7611>

Abstract. *In the modern world, investment banking plays a crucial role in the global economy by facilitating capital raising for companies, supporting economic growth, and ensuring financial stability. The article analyzes numerous risks for investment banks associated with globalization, economic crises, technological progress and strengthening of regulatory requirements. In response to these challenges, innovation has become a key factor enabling banks to remain competitive. The adoption of advanced technologies such as blockchain, artificial intelligence, and big data is significantly transforming business practices and opening new avenues for growth and development. Innovative financial instruments, new risk management models, and operational process optimization are integral parts of modern investment banking. The purpose of this article is to investigate and analyze the role of innovation in investment banks' responses to global challenges. It was determined that innovation in the banking sector profoundly impacts the efficiency and resilience of financial institutions. Implementing cutting-edge technologies like blockchain, artificial intelligence, and machine learning ensures high levels of transparency and security in financial operations, automates analytical processes, and enhances decision-making accuracy. Furthermore, innovative approaches to risk management help banks effectively assess and control risks while developing hedging strategies. Innovations in creating new financial instruments, such as cryptocurrencies and smart contracts, offer new opportunities for portfolio diversification and cost reduction. Investment banks also actively utilize crowdfunding and robotic process automation (RPA) to raise capital and improve operational efficiency. Social responsibility and sustainable development were identified as important areas of focus for investment banks, contributing to reducing environmental impact and enhancing community well-being. It was proved that the success of innovation in the banking sector*

depends on banks' ability to effectively balance the advantages and drawbacks of each technology, invest in human capital development, and ensure compliance with regulatory requirements.

Keywords: *investment banking, global challenges, technological innovations, blockchain, artificial intelligence, big data, financial instruments, risk management, process automation, innovative strategies, adaptation.*

Анотація. *У сучасному світі інвестиційний банкінг відіграє вирішальну роль у світовій економіці, сприяючи залученню капіталу для компаній, підтримуючи економічне зростання та забезпечуючи фінансову стабільність. В статті проаналізовані численні ризики для інвестиційних банків, пов'язані з глобалізацією, економічними кризами, технологічним прогресом і посиленням нормативних вимог. У відповідь на ці виклики інновації стали ключовим фактором, що дозволяє банкам залишатися конкурентоспроможними. Запровадження передових технологій, таких як блокчейн, штучний інтелект і великі дані, суттєво змінює бізнес-практику та відкриває нові шляхи для зростання та розвитку. Інноваційні фінансові інструменти, нові моделі управління ризиками та оптимізація операційних процесів визначені авторами як невід'ємні складові сучасного інвестиційного банкінгу. Метою цієї статті є дослідження та аналіз ролі інновацій у відповідях інвестиційних банків на глобальні виклики. Було визначено, що інновації в банківському секторі глибоко впливають на ефективність і стійкість фінансових установ. Впровадження передових технологій, таких як блокчейн, штучний інтелект і машинне навчання, забезпечує високий рівень прозорості та безпеки фінансових операцій, автоматизує аналітичні процеси та підвищує точність прийняття рішень. Крім того, інноваційні підходи до управління ризиками допомагають банкам ефективно оцінювати та контролювати ризики під час розробки стратегій хеджування. Інновації у створенні нових фінансових інструментів, таких як криптовалюти та смарт-контракти, пропонують нові можливості для диверсифікації портфеля та зниження витрат. Інвестиційні банки також активно використовують краудфандинг і роботизовану автоматизацію процесів (RPA) для залучення капіталу та підвищення операційної ефективності. Соціальна відповідальність і сталий розвиток оцінені як важливі напрямки для інвестиційних банків, що сприяють зменшенню впливу на навколишнє середовище та підвищенню добробуту громади. Доведено, що успіх інновацій у банківському секторі залежить від здатності банків ефективно збалансувати переваги та недоліки кожної технології, інвестувати в розвиток людського капіталу та забезпечити дотримання нормативних вимог.*

Ключові слова: *інвестиційний банкінг, глобальні виклики, технологічні інновації, блокчейн, штучний інтелект, big data, фінансові інструменти, управління ризиками, автоматизація процесів, інноваційні стратегії, адаптація.*

Introduction. Investment banking, as one of the key sectors in the financial industry, has always played a crucial role in the global economy. Modern investment banks not only assist companies in raising capital but also actively contribute to market development, support economic growth, and ensure financial stability. However, in today's world, investment banks face numerous challenges arising from globalization, economic crises, technological progress, and increasing regulatory requirements. Innovation has become a pivotal factor enabling investment banks to adapt to these challenges and remain competitive. The adoption of advanced technologies such as blockchain, artificial intelligence, and big data not only changes business approaches but also opens up new opportunities for growth and development. Innovative financial instruments, new risk management models, and operational process optimization have become integral parts of contemporary investment banking.

The purpose of the article. The purpose of this article is to investigate and analyze the role of innovations in investment banking in addressing the global challenges faced by this industry.

Literature review. Recent studies show that innovations in the banking sector have a significant impact on the efficiency and resilience of financial institutions. The article utilizes

literature that explores various aspects of this impact, including the adoption of advanced technologies, the development of new financial instruments, and approaches to risk management.

In particular, works by Yuri Vladik and Anton Prystupko examine innovative technologies in the banking sector such as blockchain and artificial intelligence, and their influence on enhancing the efficiency of resource utilization in banking institutions. Marina Kuznetsova investigates the development and implementation of innovative banking services in Ukraine, emphasizing the need for adaptation to rapidly changing market conditions.

Oleksandr Malinovsky analyzes the potential of blockchain and smart contracts in banking operations, underscoring their capability to automate financial transactions and increase transparency. Anna Oliynyk explores cryptocurrencies as a new tool in international financial markets, assessing their opportunities and challenges for the global economy.

Additionally, Oleksandr Ratz explores the prospects of using green bonds as a financial instrument for banking investment, promoting environmental sustainability. Articles on crowdfunding and RPA (Robotic Process Automation) discuss new models of financing and business process automation that reduce costs and enhance the efficiency of banking operations.

Thus, the literature review demonstrates a wide variety of approaches to implementing innovations in the banking sector, which contribute to increased efficiency, risk reduction, and adaptation to new challenges.

Main results of the research. During our research, several key findings highlight the importance of innovation in responding to global challenges faced by investment banks. These findings can be categorized into several main areas: technological innovations, new financial instruments and products, innovations in risk management, operational efficiency improvements, and strategies for investment banks to adapt to innovations.

Innovations in the banking sector encompass new technologies, products, and services that are introduced to the financial market (*Kuznetsova M. A., 2020*). The implementation of advanced technologies such as blockchain, artificial intelligence (AI), and machine learning significantly changes traditional approaches to business operations and risk management.

Blockchain technology ensures a high level of transparency and security in financial transactions. It allows the creation of decentralized databases that cannot be altered or forged without appropriate permission. This is particularly important for investment banks as it helps reduce fraud risks and ensures the reliability of financial operations. Additionally, blockchain reduces transaction costs, shortens processing times, and enhances operational efficiency.

The use of blockchain technology in the banking sector provides greater security and transparency in financial operations:

- Blockchain uses cryptography to protect data. Transactions are encrypted and verified, making them highly resistant to tampering or hacking, thereby preventing fraud and illegal activities.
- Blockchain is a distributed database accessible to all network participants, making transactions visible and verifiable by all interested parties. This transparency helps avoid financial manipulation.
- Blockchain allows direct financial and other transactions between network participants without the need for intermediaries, reducing costs and risks.
- Blockchain enables fast, 24/7 transactions, allowing banks to enhance the efficiency of their services.
- Information in the blockchain is securely stored and remains immutable over time, helping to prevent data loss or falsification of transaction history (*Vladyka, Yu., Prystupko, A., 2023*).

Investment banks increasingly turn to blockchain technology to improve the transparency and security of their transactions. For example, J.P. Morgan has developed its own blockchain platform called Quorum, used for interbank payments and other financial operations. This technology helps reduce operational costs and increase transaction efficiency.

The use of AI and machine learning enables investment banks to analyze large volumes of data and make informed decisions based on the results. AI can be used to automate analytical processes,

predict market trends, manage risks, and detect anomalies in financial transactions. This significantly improves the accuracy of forecasts and reduces the risk of losses.

Automation of processes through the use of artificial intelligence allows banks to reduce labor costs and improve decision-making accuracy (*Vladyka, Yu., Prystupko A., 2023*).

Big data and analytics enable investment banks to gain deep insights into market trends, customer behavior, and other critical aspects. The use of advanced analytical tools helps banks make more informed decisions, optimize asset portfolios, and improve risk management efficiency.

Investment banks have access to large volumes of data from various sources, including financial markets, customer transactions, social media, and other external sources. Analyzing this data helps identify key trends and patterns that can influence investment decisions. For example, market data analysis can help predict future changes in asset values and identify new investment opportunities.

Additionally, analyzing customer behavior data allows banks to better understand the needs and expectations of their clients. This can include analyzing transactions, credit histories, socio-demographic data, and other factors. As a result, banks can offer more personalized products and services tailored to individual customer needs.

The use of big data also enhances risk management efficiency. With advanced analytical methods, banks can better assess credit risks, market risks, and other types of risks. This includes modeling various market development scenarios, stress-testing asset portfolios, and analyzing the impact of external factors on financial results. Such approaches help banks develop more robust risk management strategies and reduce the likelihood of financial losses.

Analytics also contributes to optimizing asset portfolios. Banks can use data to analyze the performance of different assets and make decisions regarding their purchase or sale based on the insights gained. This helps increase portfolio returns and reduce risks associated with their volatility.

Innovations in the creation of new financial instruments and products play a crucial role in investment banks' responses to global challenges. Specifically, the development of cryptocurrencies, smart contracts, and new financing models opens up new opportunities for growth and development.

Cryptocurrencies such as Bitcoin, Ethereum, and Tether are becoming increasingly popular as alternative financial instruments. Currently, Bitcoin, Ethereum, and Tether are among the top three cryptocurrencies by market capitalization (*Oliynyk, A.A., 2023*). Investment banks are actively exploring the use of cryptocurrencies to diversify their portfolios, reduce risks, and attract new clients. Furthermore, cryptocurrencies can be used for international transactions without the need for traditional banking intermediaries, reducing costs and increasing transaction speed.

Smart contracts implemented on blockchain platforms allow the automation of agreement execution, ensuring their security and reliability. They can be used to automate various financial operations such as dividend payments, asset portfolio management, and more. This reduces operational costs, increases transparency, and ensures compliance with agreement terms.

In practice, compared to traditional paper contracts, smart contracts consist of IT functions integrated into software, with conditions written in code executed on a blockchain-based network rather than on paper and stored with the parties (*Malinovskyi O., 2024*).

Crowdfunding and other innovative financing models are becoming increasingly popular among investment banks. Crowdfunding is an organized collection of funds from many people through a special online platform to finance a new business project (*Crowdfunding: what it is and why it's needed, 2023*).

They allow capital to be raised from many investors through online platforms, expanding project financing opportunities and reducing dependence on traditional capital sources. This is particularly important in conditions of economic instability and increasing regulatory requirements.

Risk management is one of the key functions of investment banks, and innovations in this area help effectively reduce risks and ensure financial stability.

Investment banks actively use advanced analytical methods for risk assessment and management. This includes the use of statistical models, machine learning, and other tools to predict market risks, detect anomalies, and develop hedging strategies.

Innovative risk management approaches include developing new models that allow better risk assessment and control. For example, stress-testing, scenario analysis, and other methods enable banks to predict the impact of various factors on their financial stability and develop effective response strategies.

Insurance and risk hedging are essential tools for risk management. Innovations in this area include the use of derivatives, credit default swaps, and other financial instruments that help reduce the risk of losses and ensure financial stability.

Innovations in improving operational efficiency help investment banks reduce costs, improve service quality, and increase competitiveness.

Process automation reduces operational costs and increases their speed and accuracy. Investment banks are actively implementing robotic process automation (RPA).

RPA is a business process automation technology based on the use of software robots (*RPA: self-study materials, 2023*). RPA allows automating routine operational processes such as transaction processing, accounting, and more. This reduces manual labor costs, decreases the likelihood of errors, and increases operational efficiency.

Effective data management is a key success factor for investment banks. Using advanced tools for data collection, processing, and analysis allows banks to gain deep insights into market trends, customer behavior, and other important aspects. This helps make informed decisions, optimize asset portfolios, and enhance risk management efficiency.

Adaptation to the rapidly changing external environment requires investment banks to develop effective strategies that include investing in new technologies, developing human capital, expanding service offerings, and increasing transparency in their activities.

Investment banks actively invest in new technologies to enhance their competitiveness and efficiency. This includes partnering with technology companies, creating internal innovation centers and labs, and implementing new technologies in their operational processes.

The success of innovative strategies depends on the availability of skilled and motivated employees. Investment banks invest in training and retraining programs for their employees, attracting talent from various fields, including IT, analytics, and cybersecurity. Creating an innovative culture within the company helps stimulate creativity and foster the implementation of new ideas.

To meet changing customer needs and enhance competitiveness, investment banks are expanding their range of services. This includes introducing new financial products such as digital assets and investment platforms, as well as offering consulting services on innovation and risk management. Expanding the range of services helps attract new clients and increase satisfaction among existing ones.

In today's world, clients and regulators expect investment banks to maintain high levels of transparency and ethical behavior. Implementing ethical standards, increasing transparency in operations, and adhering to international standards help build trust among clients and regulators. This also reduces reputational risks and ensures the company's long-term stability.

Investment banks are actively seeking opportunities for partnerships and collaborations with other financial institutions, technology companies, and startups. Such partnerships allow for the pooling of resources and expertise to develop and implement innovative solutions. Collaboration with fintech companies, for example, enables banks to rapidly adopt new technologies and improve operational efficiency.

Banks, as primary institutional participants in the securities market, play a vital role in promoting green investments, positioning themselves as socially and environmentally responsible financial institutions (*Rats O.M., 2022*). Innovative approaches to sustainable development enable banks to reduce their environmental impact and promote social welfare.

Investment banks are actively developing the green bond market, which allows for the financing of projects aimed at reducing greenhouse gas emissions, developing renewable energy, and improving environmental infrastructure. This not only reduces environmental pressure but also enhances the bank's investment appeal.

Implementing energy-saving technologies and using renewable energy sources in banking operations help reduce energy costs and decrease the carbon footprint. Banks invest in solar panels, wind turbines, and other environmentally friendly energy sources.

Social responsibility is an integral part of modern investment banking activities. It involves not only adhering to ethical standards and treating clients and partners responsibly but also actively participating in societal development and addressing social issues. Investment banks that integrate social responsibility into their strategies not only improve their reputation but also create long-term business advantages, contributing to stability and prosperity. Key areas of social responsibility actively developed by banks include:

- **Financial inclusion:** Investment banks develop programs to improve financial literacy and ensure access to financial services for low-income populations. This includes creating special credit products, developing mobile applications for easy financial access, and conducting educational campaigns.

- **Investing in social projects:** Banks actively invest in projects aimed at improving social infrastructure, such as building schools, hospitals, housing for the underprivileged, and developing community initiatives. This not only improves living conditions but also enhances the bank's reputation in society.

- **Supporting entrepreneurship:** Investment banks create support programs for small and medium-sized businesses, providing favorable credit terms, consulting support, and training. This promotes economic development and job creation.

Thus, innovations in the field of environmental sustainability and social responsibility are becoming significant areas of activity for investment banks. They not only help reduce environmental and social impacts but also create new opportunities for business development and enhance competitiveness in the market.

Below is a table outlining the advantages and disadvantages of innovations in the banking sector (Table 1):

Table 1.

Advantages and Disadvantages of Innovations in the Banking Sector

Innovations in the Banking Sector	Advantages	Disadvantages
Blockchain	- high transparency and security of transactions	- high implementation costs
	- reduction of fraud risk	- long adaptation period of existing systems
	- reduction of transaction costs	- insufficient legislative regulation
	- automation of financial operations	
Artificial Intelligence (AI)	- automation of analytical processes	- need for highly skilled personnel
	- market trend forecasting	- ethical issues and risks of confidentiality
	- improved decision-making accuracy	- high initial investments
Big Data	- deep insights into market trends	- challenges in storing and processing large volumes of data
	- personalization of services	- client data confidentiality concerns
	- enhancing risk management efficiency	- high complexity of data analysis
Cryptocurrencies	- new opportunities for portfolio diversification	- висока волатильність та ризики
	- international transactions without intermediaries	- insufficient regulation and legislative uncertainty

Smart contracts	- automated execution of agreements	- high costs of development and implementation
	- reduction in operational costs	- risks of errors in code and cybersecurity
Crowdfunding	- capital attraction from a large number of investors	- high risk of project underfunding
	- reduced reliance on traditional sources of capital	- lack of guarantees for investment return
RPA (Robotic process automation)	- automation of routine operations	- high initial implementation costs
	- reduced costs on manual labor	- need for software support and updates
	- increased speed and accuracy of operations	- potential job loss for workers
Green Obligations	- financing environmental projects	- limited number of investment projects meeting criteria
	- increasing investment attractiveness	- high cost of implementing environmental standards
Social responsibility	- enhancing the bank's reputation	- high costs of social projects
	- improving living conditions in communities	- complexity in measuring the effectiveness of social initiatives
	- increasing financial literacy among the population	- need for constant adaptation to changing social needs and expectations

Source: created by the authors based on their own research

Thus, the success of implementing innovations in the banking sector depends on banks' ability to effectively balance the advantages and disadvantages of each technology, invest in human capital development, and ensure compliance with regulatory requirements. Only a comprehensive approach to innovation implementation will enable banks to achieve sustainable development and enhance their competitiveness in the market.

Conclusions. Results of our research underscore the importance of innovation for the success and development of investment banks in the modern world. Global challenges faced by these financial institutions necessitate the adoption of advanced technologies, creation of new financial instruments and products, development of effective risk management strategies, and enhancement of operational efficiency.

Innovations enable investment banks to remain competitive, reduce risks, and ensure financial stability. Moreover, they help banks adapt to changing market conditions, meet client needs, and comply with increasing regulatory requirements.

The implementation of new technologies such as blockchain, artificial intelligence, and big data opens new avenues for growth and development. Innovative financial instruments like cryptocurrencies and smart contracts allow for expanding service offerings and attracting new clients. Innovations in risk management and operational efficiency help reduce costs and improve service quality.

Adaptation strategies, such as investing in new technologies, talent development, expanding service offerings, and increasing transparency, contribute to long-term stability and competitiveness of investment banks.

Thus, innovation is a key driver of success in modern investment banking. It enables effective responses to global challenges, ensures growth and development, and enhances client satisfaction and regulatory trust.

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