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The Banking Economic Value Model Based on the Perspectives of Investment, Credit, Service Quality, and Digital Banking with the Moderating Role of Bank Digitalization Level: A Systematic Literature Review

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Abstract: The rapid development of technology, particularly in the application of artificial intelligence (AI) in the banking sector, has attracted the attention of many researchers. The implementation of AI in various operational aspects of banking, such as investment, AI usage in credit, service quality, and bank digitalization, is expected to enhance the economic value of banks. This study aims to analyze the relationship between AI usage in the banking sector and its impact on the economic value of banks using a qualitative approach. This research analyzes 85 literatures related to these variables, obtained from journals indexed in ScienceDirect, Emerald, Google Scholar, and indexed in Scopus Q5 to Q2 and Copernicus. The research model focuses on literature analysis to identify the contribution of variables involving AI in enhancing the economic value of banking. The findings show that investment in AI, AI usage in credit, AI-based service quality, and the level of bank digitalization significantly contribute to the improvement of bank economic performance. The impact on theory indicates that AI and banking digitalization strengthen a new paradigm in enhancing the competitiveness and operational efficiency of banks. This study provides important insights for the development of a banking economic value model in the digital era while opening opportunities for further research on other factors that may influence the economic performance of banks.

Keyword: Perspectives of Investment, Credit, Service Quality, and Digital Banking, Role of Bank Digitalization Level

INTRODUCTION

The digital transformation sweeping across the banking industry has brought significant changes to business models, operational efficiency, and the economic value generated. The use of

technology based on Artificial Intelligence (AI) in service quality, investment optimization, and credit management has enhanced the global competitiveness of banks. Digital banking has also grown rapidly, offering convenience and accessibility like never before. However, not all banks have been able to maximize their economic potential, especially in an era of increasingly intensive digitalization.

Previous research has empirically demonstrated the positive impact of investment, credit, and service quality on banking economic performance. For example, a study by Manta et al (2024), developed a digitalization index for the banking sector in Eastern Europe. This study showed that digitalization enhances banking performance (ROE) through investments in digital infrastructure and customer engagement, although the impact may slow down in saturated markets. A study by Deloitte (2020) highlighted digital transformation in investment banking, illustrating how the application of technology can improve efficiency and provide a better user experience. Furthermore, Deloitte (2020), emphasized that the quality of e-banking services, particularly in digital service dimensions, could increase customer adoption and satisfaction, a crucial factor in supporting banking digitalization. An OECD, 2020 (Deloitte, 2020) study discussed digital disruptions in banking and how technological innovation strengthens customer trust and efficiency. Research by Yongjie Zhu and Shanyue Jin (2023), examined the relationship between digitalization levels and banking performance, finding that investment in technology moderates the impact of innovation on bank performance**.** Marinč (2013) showed that information technology (IT) in banking, such as high-frequency trading systems, contributes to internal process efficiency and expanded service accessibility in broader geographical markets. Vasile et al., (2021), investigated the role of digital transformation in driving financial product innovation and found that digitalization has a positive impact on service efficiency and customer retention. Sezer Bozku¸sKahyaoˇglu (2021) explored the relationship between digital banking investment and economic performance, showing that digitalization transforms how customers interact with financial services, enhancing profitability and customer loyalty.

Masciandaro & Russo (2022), examined the interaction between financial regulation and bank digitalization, emphasizing the importance of moderating digital policies to drive banking performance and efficiency. AI-based service quality in banking enhances customer perception of the economic value offered, strengthening customer loyalty (Kumar Satheesh and Samala Nagaraj, 2021). Digital technologies positively impact bank performance, particularly through the integration of IT-based services with traditional physical channels(Saghiri & Mirzabeiki, 2021; Son et al., 2020). Banking digitalization can boost bank profitability, especially when prioritizing the adaptation of digital policies aligned with technological advancement levels (Manta, Bădîrcea, et al., 2024). Proper technological adaptation can strengthen competitiveness and operational efficiency, thereby contributing to improved financial performance of banks(Manta et al., 2023).

Based on the above discussion, it can be concluded that banking digitalization, through the use of technologies such as AI, significantly contributes to improving bank performance and operational efficiency. Research indicates that investments in digitalization enhance competitiveness and customer satisfaction, although challenges remain, especially in saturated markets. Proper adaptation of digital policies is crucial for the long-term success of banks, where policies aligned with technological advancements will support operational effectiveness and the growth of bank profitability in the future.

Formulation of the problem

Based on the background of the problem, the problem formulation can be constructed as follows:

1. How can investment using AI enhance the economic value of banking?
2. How can banking credit using AI improve the economic value of banking?
3. To what extent can service quality using AI improve the economic value of banking?
4. To what extent can digital banking using AI enhance the economic value of banking?
5. To what extent can the level of bank digitization using AI moderate the relationship between investment, credit, service quality, digital banking, and the economic value of banking?

LITERATURE REVIEW

Economic Value of Banking

The Economic Value of Banking, according to experts, relates to how banks create added value through optimal financial performance. Several key concepts in this economic value include Economic Value Added (EVA) and Market Value Added (MVA).

Economic Value Added (EVA) is a financial performance measure that indicates how much a company creates added value for its shareholders after deducting the cost of capital. A positive EVA shows that the bank generates profits that exceed the invested capital cost(Mardhiyah et al., 2023). Research by Muhammad & Azmiana (2021) and Arias et al., (2022), shows that EVA has a positive impact on stock returns, indicating the relevance of EVA in enhancing company value.

Diana et.al (2024), define the economic value of banking in the context of financial performance measurement that adds value to shareholders and enhances the company's market value. In their research, they emphasize the importance of indicators such as Economic Value Added (EVA) and Market Value Added (MVA) as tools to measure the extent to which banking companies generate profits that exceed the cost of capital. This value is considered important because it reflects the efficiency and effectiveness of management in creating additional value for shareholders and attracting more investment (Fungáčová et al., 2019).

Market Value Added (MVA) represents how the market evaluates a company's performance in relation to the capital invested (Angelica et al., 2022). A higher MVA indicates an increase in stock price, which is linked to gains for shareholders (Fernández, 2021). Studies conducted by Levasseur et al (2020) and Xiong et al (2019) show that MVA also has a significant relationship with stock returns, emphasizing the importance of effective capital management in enhancing the market value of banks.

The measurement of economic value in the banking sector involves various indicators that reflect financial performance and the ability to create added value for shareholders and the economy. Economic Value Added (EVA) is used to calculate net operational profit after tax, minus the cost of capital, indicating the efficiency of value creation within the company. Market Value Added (MVA) measures the difference between a company's market value and the invested capital, reflecting the market's perception of long-term performance. Other indicators, such as Return on Assets (ROA) and Return on Equity (ROE), assess the efficiency of asset utilization and profitability from shareholders' equity. Additionally, the Net Interest Margin (NIM) measures the management of interest-based assets, the Cost to Income Ratio (CIR) reflects operational efficiency, and the Capital Adequacy Ratio (CAR) evaluates the ability to absorb financial risks. All of these indicators play a crucial role in evaluating a bank's success in creating sustainable economic value (Angelica et al., 2022; Fernández, 2021; Levasseur et al., 2020; Xiong et al., 2019).

Level of Bank Digitalization using AI

The level of bank digitalization refers to the extent to which banks adopt digital technologies in their operations and services, including the use of artificial intelligence (AI) to enhance service quality, operational efficiency, and customer experience (Bontadini et al., 2024). AI can be utilized

in various aspects of banking such as chatbots, data analytics, fraud detection, service personalization, and risk management (Krystyna Niziol, 2021; Sarker, 2023). Bank digitalization through AI involves transforming manual processes into automated ones, real-time data processing to improve business decisions, and the use of machine learning algorithms to analyze more complex customer behavior patterns(Teigland et al., 2018)(Velev & Zahariev, 2022). In this context, AI helps banks to accelerate responses to customer needs, improve the accuracy of analysis, and offer more personalized services(Chien et al., 2021).

The measurement of a bank's digitalization level using AI can be carried out through several key dimensions(Manta, Maria, et al., 2024; Q. T. T. Nguyen et al., 2023). First, AI adoption measures the extent to which AI is implemented in various banking functions, such as chatbots, automatic product recommendations, and big data analytics (Nasrin Eni et al., 2023; Rahman et al., 2023). Next, operational efficiency is assessed by examining the reduction in transaction processing time, automation of routine tasks, and operational cost savings generated by AI (Waltersmann et al., 2021; Wamba-Taguimdje et al., 2020). Customer experience is also an important factor to evaluate, focusing on service speed, personalization, and customer satisfaction (Rane et al., 2023). Security and fraud detection include the extent to which AI is used in risk management and fraud detection. Finally, product and service innovation measures how much AI contributes to the development of new products and services, such as personalized data-driven services or predictive analytics-based credit products (Farouk & Mohammed, 2024; Philip & Babajide, 2024). Several studies measuring bank digitalization with AI emphasize the importance of these indicators to assess the bank's ability to adapt to technological changes and maintain competitiveness in an increasingly digital market (Amiri et al., 2023).

Digital Banking using AI

Digital banking with AI refers to the application of artificial intelligence (AI) technology across various aspects of banking services, enabling faster, more accurate, and personalized processes (Dammak et al., 2024). AI is used to enhance operational efficiency, customer experience, security, and product and service innovation (Mi Alnaser et al., 2023).

Digital banking with AI refers to the integration of artificial intelligence technology into the banking service ecosystem, enabling process automation, improved risk management, and deeper personalization of customer needs (Mancuso et al., 202). This technology includes applications such as chatbots for customer service, big data analytics for strategic decision-making, predictive algorithms for product offerings, and advanced fraud detection mechanisms (Mancuso et al., 2024). AI also allows banks to respond more quickly to market needs, enhance efficiency, and create a more intuitive and secure customer experience (Abdurrahman, 2024).

AI is revolutionizing digital banking by enhancing efficiency in big data management, improving service personalization, and reducing operational risks(Rahman et al., 2024). Digitalization with AI strengthens product innovation and customer experience through predictive analytics (Sudianjaya et al., 2024). The use of AI in banking accelerates digital service transformation and enhances accessibility (Bai et al., 2024). AI technology contributes to operational efficiency in banks and expands service accessibility (Czechowska & Paduszyńska, 2024). AI improves customer loyalty by enhancing the quality of e-banking services. AI moderates the relationship between digital investment and Return on Equity(Pathak & Bansal, 2024). The implementation of AI in banks drives economic performance efficiency. The digitalization index with AI shows the critical role of technology in supporting banking digital infrastructure. The integration of AI with traditional and digital channels enhances customer experience (Arroyabe et

al., 2024). Digital transformation with AI optimizes operational processes and improves user experience (Holmström, 2022).

The measurement of digital banking with AI is conducted through various indicators such as the level of technology adoption (chatbots, predictive analytics, automation), operational efficiency (reduction in costs and processing time), and customer experience (service speed and personalization). Additionally, the effectiveness of AI in security and fraud detection, technology-based product innovation, customer engagement and retention, as well as the enhancement of loyalty through AI-based services, is also measured. Data is collected through surveys, operational analytics from banks, and direct observations of user activity in digital services (Arroyabe et al., 2024; Dammak et al., 2024; Holmström, 2022; Mancuso et al., 2025; Mi Alnaser et al., 2023)

Service Quality using AI

Service quality using AI reflects the transformation of how organizations deliver superior customer experiences through smart technology ((Jalali et al., 2017). AI enables deep personalization by analyzing customer data in real-time, resulting in relevant recommendations and more proactive interactions(Shahzad et al., 2024). This technology also automates processes such as handling customer complaints, answering inquiries via chatbots, and providing 24/7 service, enhancing efficiency without compromising customer satisfaction(Guo et al., 2024).

Furthermore, AI enhances the speed and accuracy of services by detecting patterns in customer behavior, reducing response time, and predicting customer needs more accurately (Chen et al., 2022). For example, AI in banking can identify suspicious transaction risks or offer investment advice based on a customer's risk profile (Baffour Gyau et al., 2024; Huo et al., 2024). This process not only increases the perceived value for customers but also strengthens their trust in the organization (Dang et al., 2025). Ultimately, AI plays a crucial role in creating a more consistent and adaptive service experience, enabling organizations to remain competitive in the digital era (Zhang et al., 2024). With a focus on responsiveness, speed, and customer satisfaction, AI-based service quality has become a new benchmark for building loyalty and customer retention (Guo et al., 2024).

The measurement of service quality using AI can be conducted through several indicators, such as response time, which measures how quickly AI responds to customer requests (Chen et al., 2022). Additionally, customer satisfaction is evaluated through surveys and sentiment analysis, while personalization is assessed based on AI's ability to provide solutions tailored to individual needs(Shahzad et al., 2024). The level of technology adoption is also measured by observing how often customers use AI-based services, and operational efficiency can be assessed through reductions in costs and processing time (Yang et al., 2025). All these measurements can be analyzed using analytics data, surveys, and operational evaluations.

Banking Credit Using AI

Banking credit with AI refers to the application of artificial intelligence technology in the loan process by banks (Nallakaruppan et al., 2024). AI helps banks analyze customer risk profiles, determine creditworthiness, and optimize loan evaluation processes automatically (Mariscal et al., 2024). Using machine learning algorithms, AI analyzes big data to assess repayment ability and the likelihood of default based on financial history, transactions, and other relevant factors (Baffour Gyau et al., 2024; Polireddi, 2024). In practice, AI also enables personalization in credit offerings by making loan product recommendations better aligned with the needs and financial capacity of customers (Luan et al., 2023). For example, AI can help banks offer credit with customized interest rates and provide tighter risk oversight through early warning systems that detect potential payment

issues before they arise (Dammak et al., 2024; C. Wang et al., 2023). This enhances efficiency and accuracy in credit management while reducing the risk of loan defaults.

Additionally, AI can enhance the speed and efficiency of the loan application process. What was once a time-consuming process requiring extensive manual interaction can now be expedited through the application of automation technologies, such as real-time data analysis and the use of chatbots to handle customer inquiries and requests. This not only improves the customer experience but also increases the operational productivity of banks in handling large volumes of loan applications more efficiently(Polireddi, 2024).

The measurement of banking credit using AI can be carried out through several indicators (Nallakaruppan et al., 2024). First, the accuracy of risk analysis, which measures how accurately AI can predict the borrower's ability to repay loans based on transaction data and credit history (Mariscal et al., 2024). Second, the speed of processing credit applications, which assesses how long it takes for AI to complete the loan evaluation and approve applications (Pandey et al., 2024). Third, the reduction in non-performing loan rates, which measures how effectively AI helps banks mitigate bad credit risk by detecting potential payment defaults earlier (Bao et al., 2024; Krishna, 2024). Fourth, customer experience, which is measured by the level of customer satisfaction with the faster and more transparent loan application process. All these indicators can be measured using bank operational data, customer satisfaction surveys, and the results of AI predictive model evaluations (Mi Alnaser et al., 2023; Yi et al., 2025).

Invest Using AI

Investment Using AI refers to the application of artificial intelligence to optimize investment decisions through big data analysis, market trend identification, and automated information processing (Bellardini et al., 2022). AI technology in investment enables real-time processing of large volumes of data, supporting faster and more accurate decision-making (Haller, 2022; Kim et al., 2024). AI algorithms are also utilized to detect hidden patterns in financial markets, predict price movements, and provide investment recommendations based on personalized risk and return analysis(Calabrese et al., 2024; Itani et al., 2024).

Additionally, AI can automatically manage investment portfolios using techniques such as robo-advisors, which assist investors in determining the optimal asset allocation based on their risk profiles and financial goals (Huang et al., 2024; C. H. Wang et al., 2024). AI is also capable of continuously monitoring markets to identify new investment opportunities and provide recommendations on the best timing for buying or selling assets (Gómez-Martínez & Medrano-Garcia, 2025). In this context, AI adds value by reducing potential human biases and enhancing operational efficiency in investment management (Anaya et al., 2024; Baffour Gyau et al., 2024).

Machine learning capabilities in AI are also employed to evaluate systemic risks and market volatility, assisting financial institutions in mitigating losses within investment portfolios (Pérez-Hernández et al., 2024). Furthermore, this technology can integrate various data sources, such as global economic data, social media sentiment, and financial reports, to produce more holistic analyses (Dammak et al., 2024; Mi Alnaser et al., 2023). Consequently, AI has become a strategic tool for creating a competitive advantage in the investment sector (Mancuso et al., 2025; P. H. Nguyen et al., 2024; Polireddi, 2024; Przegalinska et al., 2025).

In addition to the theories outlined by the aforementioned experts, ten journals related to the relationships between these variables have been reviewed by the researcher to draw research conclusions. These journals are categorized by the researcher into respective groups to facilitate the analysis of relationships between the research variables. The categorization of these journals is

presented in a journal metric, which includes the author, journal title, variables used, and research findings. The ten journals can be viewed in the journal metric table as follows:

Table 1. Relevant Journal Metrics

No	Author, Journal Title & Year	Variables used	Research result
1	Varma (2021): Revolution Of Financial Services: Analysing The Impact Of Ai On Banking And Investment	X1: AI Technology Y1: Investments Y1: Banking Value	This study reveals that the implementation of Artificial Intelligence (AI) has significantly transformed the banking and investment sectors, enhancing operational efficiency, customer experience, and risk management. However, AI also presents challenges related to workforce dynamics and skill development. The study highlights industry players' perceptions of the opportunities and risks of AI in creating added value for organizations.
2	Vijayakumar (2021): The Impact of AI-Innovations and Private AIInvestment on U.S. Economic Growth: An Empirical Analysis.	X1: Private investment in AI X2: AI-related patent activities X3: Transformed Data Y: GDP	This research demonstrates that innovation and investment in AI significantly contribute to U.S. economic growth, with impacts varying across sectors and over time. Private sector investment holds the greatest dominance, both in the short term and over the long run.
3	Naeem et al (2024): The Impact of Investment in AI on Bank Performance: Empirical Evidence from Pakistan's Banking Sector	X1: Artificial Intelligence (AI) Investment Control Variables: 1. Bank Size 2. Bank Age Y: Bank Performance	Investments in AI technology play a crucial role in enhancing the economic performance of banks, particularly through operational efficiency and credit management. This research serves as a key reference for businesses considering investments in AI.
4	Lui et al (2022): Impact of artificial intelligence investment on firm value	X1: AI Investment M: Company Characteristics Y : Firm Market Value	Investments in AI are perceived as a risk by investors, particularly for companies lacking robust IT infrastructure or with low credit ratings. Credit ratings serve as a critical factor moderating the impact of AI investments on a company's market value.
5	Al-Araj et al (2022): The Effect of Artificial Intelligence on Service Quality and Customer Satisfaction in Jordanian Banking Sector	X1: Artificial Intelligence (AI) Applications Y1: Customer Satisfaction Y2: Service Quality	This study emphasizes that AI applications, including credit score assessment and liquidity risk evaluation, play a crucial role in enhancing the economic value of banks through improved service quality and customer satisfaction. The practical implications suggest that effective AI integration can enhance customer perception and operational efficiency, ultimately supporting the growth of the banking sector..
6	Meganathan Satheesh and Samala (2021): Applications of Artificial Intelligence on Customer Experience and Service Quality of the Banking Sector	X1: Artificial Intelligence (AI) Applications Z: Service Quality Y: Customer Experience	This study shows that the implementation of AI, including credit score assessment and liquidity risk management, can reflect an improvement in service quality and play a crucial role in enhancing the economic value of banks through operational efficiency and improved customer experience. The integration of technologies such as mobile banking and chatbots is key to meeting the expectations of modern customers while also boosting the bank's financial performance.
7	Demirel & Topcu, (2024): The Impact of	X1: Chat Box User X2: Video Call Users	This study shows that AI-based applications, particularly chatbots, have a significant impact on the expansion of digital banking services through an

No	Author, Journal Title & Year	Variables used	Research result
	Artificial Intelligence Applications on Digital Banking in Turkish Banking Industry	Y: Mobile Banking Users	increase in mobile banking users. The enhanced interaction, which is faster and more efficient through AI technology, helps banks extend their service reach, ultimately supporting the digital economic growth of the bank.
8	Indriasari et al (2019): Digital Banking Transformation: Application of Artificial Intelligence and Big Data Analytics for Leveraging Customer Experience in the Indonesia Banking Sector	X1: Artificial Intelligence (AI X2: Big Data Analytics (BDA) Y: Customer Experience	This study shows that AI and Big Data Analytics (BDA) play a key role in the transformation of digital banking, with a primary focus on enhancing customer experience through more personalized services. Banks that implement these technologies not only improve relationships with existing customers but also attract new ones, ultimately contributing to the economic value and overall performance of the bank.
9	Haleem et al(2024): The Effect of Financial Technology Investment Level on European Banks' Profitability	X1: Investment in Financial Technology (Fintech) M: Bank Digitalization Level Control Variables: 1. Control Variables Y: Bank Profitability	This study shows that the level of digitalization and the size of the bank play a significant moderating role in the relationship between investments in financial technology (fintech) and the economic value of banks. Larger and more digitally advanced banks are better able to optimize the benefits of investments in AI and other digital technologies, which contribute to enhanced profitability and their overall economic value.
10	Omoge et al (2022): Disruptive technology and AI in the banking industry of an emerging market	X1: Use of Technology M: Technology Downtime Y: economic value of the bank	This study highlights the importance of technology stability and smooth operation to ensure the successful use of AI in enhancing customer relationships, which in turn supports the performance and economic value of banks.

Explanation	
X	Independent Variable
M	Moderating Variables
Y	Dependent Variable

Source: Processed by Researchers (2024)

RESULTS AND DISCUSSION

Results

Based on the analysis of eighty-five literatures discussing the relationship between AI investment, the use of AI in credit, AI-based service quality, AI-supported digital banking, and the level of bank digitization on the economic value of banking, it can be concluded that these factors significantly contribute to enhancing the economic value of banking. The analyzed literature includes journals indexed in ScienceDirect, Emerald, and Google Scholar, with journal quality indexed in Scopus ranging from Q2 to Q5, as well as those indexed in Copernicus..

It seems like you want to describe a model or concept from your research that needs to be validated in future studies. Please upload or describe the model, and I'll help you structure the explanation or incorporate it into the text.

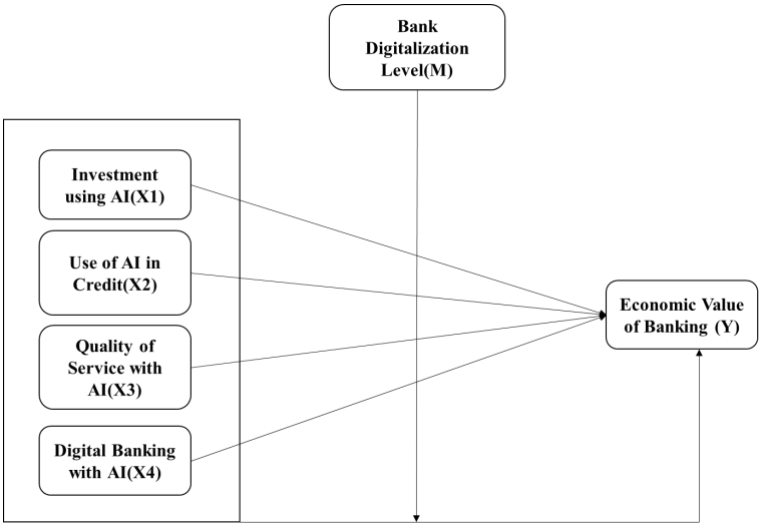

Figure 1: Research Model

The limitations of this study lie in the analysis or review of journals that focus solely on variables such as Investment using AI, AI in Credit Usage, AI-based Service Quality, Digital Banking with AI, and the Digitalization Level of Banks, which contribute to enhancing the Economic Value of Banking. Therefore, future researchers are encouraged to conduct a more in-depth analysis of other factors that could form a more comprehensive model of the Economic Value of Banking.

Discussion

Investment using AI and Economic Value Banking

Investment in Artificial Intelligence (AI) technology can have a significant impact on the economic value of banking by improving operational efficiency and risk management (Varma, 2021; Vijayakumar, 2021). I enables banks to automate processes such as credit checks, fraud detection, and risk analysis, reducing operational costs and speeding up services (Mariscal et al., 2024; Vijayakumar, 2021) Additionally, AI technology helps banks enhance customer experience through more personalized and faster services, such as the use of chatbots and data-driven product recommendations (Baffour Gyau et al., 2024; Polireddi, 2024). Increased customer satisfaction and loyalty can result in higher revenue, positively impacting the bank's market value and profitability (Mardhiyah et al., 2023; Muhammad & Azmiana, 2021).

Moreover, investment in AI enables banks to innovate in the development of new products and services, enhancing their appeal in an increasingly competitive market (Bellardini et al., 2022; Haller, 2022). The competitive advantage gained through AI adoption can increase market share and financial stability, contributing to the enhancement of the bank's economic value (Dammak et al., 2024; Mi Alnaser et al., 2023; Pérez-Hernández et al., 2024). By better managing risks and improving data-driven decision-making, banks can reduce potential losses and enhance their reputation among investors. All these factors together create a stronger foundation for long-term growth, ultimately increasing the bank's overall economic value(Gómez-Martínez & Medrano-Garcia, 2025; Huang et al., 2024).

The Use of AI in Credit and the Economic Value of Banking

The use of Artificial Intelligence (AI) in credit can significantly contribute to the enhancement of the economic value of banking by improving efficiency in risk assessment and credit portfolio management (Lui et al., 2022; Mariscal et al., 2024; Naeem et al., 2024). AI enables banks to

perform more accurate and faster credit analysis by leveraging big data to assess the creditworthiness of individuals or companies (Nallakaruppan et al., 2024; Polireddi, 2024). With AI algorithms that continuously learn and adapt, banks can minimize the risk of loan defaults and improve the quality of their credit portfolios (Bao et al., 2024; Pandey et al., 2024). This reduces operational costs associated with default risks and enhances the financial stability of the bank.

Additionally, the use of AI in the credit process can accelerate credit decisions, reduce administrative burdens, and improve customer experience (Mariscal et al., 2024; Mi Alnaser et al., 2023). Banks can provide more responsive and personalized services through AI applications such as chatbots and credit recommendation systems tailored to customers' needs (Luan et al., 2023; Yi et al., 2024). By enhancing service quality and customer satisfaction, banks can attract more customers and expand their market share, which, in turn, can increase profitability and market value. Overall, the implementation of AI in credit allows banks to improve efficiency, reduce risks, and optimize the customer experience, contributing to the enhancement of the economic value of banking.

Service Quality with AI and Banking Economic Value

Service quality driven by Artificial Intelligence (AI) can significantly enhance the economic value of banking, particularly in terms of operational efficiency and customer satisfaction (Al-Araj et al., 2022; Meganathan and Samala, 2021). AI enables banks to offer faster, more personalized, and responsive services through applications such as chatbots, virtual assistants, and predictive analytics (Guo et al., 2024; C. Wang et al., 2023). By leveraging customer data more deeply, AI can provide more accurate recommendations and solutions that are better aligned with individual needs, enhancing the customer experience (Baffour Gyau et al., 2024; Dang et al., 2025). Higher customer satisfaction is often directly linked to improved customer loyalty, which, in turn, can increase the bank's revenue and reduce the costs associated with acquiring new customers (Shahzad et al., 2024; Yang et al., 2024).

Furthermore, AI helps banks improve operational efficiency by automating various processes, such as transaction processing, identity verification, and risk management (Al-Araj et al., 2022; Jalali et al., 2017) This not only reduces operational costs but also enhances the speed and accuracy of the services provided to customers. Banks that can offer better service quality through AI can differentiate themselves in a competitive market, attract more customers, and improve their reputation. All of these factors contribute to the enhancement of the economic value of banking, both in terms of profitability, market growth, and long-term stability (Guo et al., 2024).

Digital Banking with AI and the Economic Value of Banking

Digital banking supported by Artificial Intelligence (AI) can significantly contribute to enhancing the economic value of banking through various mechanisms (Haleem et al., 2022, 2024; Indriasari et al., 2019). First, digital technology allows banks to efficiently expand their service reach more quickly, reducing operational costs and improving accessibility for customers (Dammak et al., 2024; Mancuso et al., 2025). AI, in this case, can be used to automate services such as chatbots, predictive analytics, and fraud detection, which improve operational efficiency and provide a better customer experience(Anaya et al., 2024; Chen et al., 2022; Hmoud et al., 2023; Jalali et al., 2017; Shahzad et al., 2024). By reducing administrative burdens and improving decision-making accuracy, banks can increase profit margins and achieve higher cost efficiency.

Furthermore, digital banking supported by AI allows banks to offer more personalized and relevant services to customers (Aliyu Dantsoho et al., 2021; Rathore, 2020; Sharma et al., 2016; Turksen et al., 2024; Varma, 2021). AI memanfaatkan data besar untuk menganalisis perilaku

nasabah dan memberikan rekomendasi produk atau layanan yang sesuai, meningkatkan tingkat kepuasan dan loyalitas nasabah (Haleem et al., 2022; Przegalinska et al., 2025; Rane, 2023; Shahzad et al., 2024). Banks that can adapt digital technology with AI can attract more customers, increase transaction volume, and strengthen their position in an increasingly competitive market. The improvement in customer loyalty, operational efficiency, and market reach all contribute to the enhancement of the economic value of banking, in terms of profitability, market share, and long-term financial stability (Siva et al., 2022; Varma, 2021; Wagobera Edgar Kedi et al., 2024; Yella Sravan, 2024).

Level of Bank Digitalization, Investment using AI, Use of AI in Credit, Quality of Service with AI, Digital Banking and Economic Value of Banking

The level of bank digitization, investment in AI, use of AI in credit, service quality with AI, and digital banking are closely related in enhancing the economic value of banking. The higher the level of digitization within a bank, the greater its ability to adopt advanced technologies, including AI, which boosts operational efficiency and service quality. Investment in AI enables banks to expedite credit decision-making processes, improve data analysis accuracy, and optimize risk management. This directly impacts cost reduction and increased productivity, contributing to better economic performance (Haleem et al., 2024; Mi Alnaser et al., 2023).

In addition, the use of AI in credit allows banks to assess risks more accurately and quickly, reduce bad debt, and improve the quality of loan portfolios (Baffour Gyau et al., 2024; Polireddi, 2024). Digital banking, leveraging AI technology, expands service reach and reduces operational costs through online channels. All of these factors contribute to enhancing the customer experience, strengthening loyalty, and increasing revenue and profitability for banks, which collectively have a positive impact on the economic value of banking (Haleem et al., 2022)

CONCLUSION

The conclusion of this study is that investment in AI utilization, the application of AI in credit, AI-based service quality, digital banking supported by AI, and the level of bank digitalization all significantly contribute to enhancing the economic value of banking. The study also identifies that, while focusing on these variables provides valuable insights, there are many other factors that need to be analyzed in greater depth to expand the banking economic value model more comprehensively.

Therefore, future researchers are encouraged to explore additional factors that can enrich understanding and application in the banking sector..

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Yongjie Zhu and Shanyue Jin. (2023). HowDoes the Digital Transformation of Banks Improve Efficiency and Environmental, Social, and Governance Performance? *Systems*, *11*(328). https://doi.org/In the era of the digital economy, traditional industries have begun to realize digital transformations. For commercial banks, digital transformation is a trend and a requirement and is the only way to achieve sustainable development. At the same time, at the helm of the enterprise, executives play an essential role in the development of commercial banks. This study explored the relationship between digital bank transformation and bank efficiency, environment, society, and corporate governance (

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