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Research Article



OPTIMIZING BANKING PERFORMANCE THROUGH ARTIFICIAL INTELLIGENCE IN SELECTED BANKS IN WESTERN BARANGAY, BICUTAN, TAGUIG CITY

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ABSTRACT

Aims: The study aimed to assess the extent of artificial intelligence (AI) integration in banking operations and its impact on banking performance in selected banks in Western Barangay, Bicutan, Taguig City. Specifically, it sought to evaluate how AI influences operational efficiency, strategic decision-making, risk management, customer satisfaction, and financial growth. Study design: A quantitative descriptive-correlational research design was employed. The study utilized a survey-based approach to gather data from 100 banking personnel, including managers, tellers, and IT staff, from selected banks in Western Barangay, Bicutan. The design enabled the researcher to assess the extent of AI integration and examine the relationship between AI adoption and various performance metrics. Methodology: A structured survey questionnaire was developed, comprising three sections: demographic profile, dimensions of AI integration (such as financial analytics, risk management, process automation, and customer service), and banking performance indicators (e.g., operational efficiency, strategic decision-making, risk management, customer satisfaction, and financial outcomes). Descriptive statistics and Pearson correlation analysis were used to analyze the data and determine the relationship between AI integration and banking performance. Ethical considerations, including informed consent and confidentiality, were observed throughout the study. Results: The findings revealed a moderate level of AI integration in banking operations, with an overall mean of 3.06. The highest integration was observed in Al-driven process automation (mean = 3.19), followed closely by Al-based customer service and personalization (mean = 3.17). Al-powered financial analytics and fraud detection systems showed moderate integration. The banking performance, as influenced by AI adoption, had an overall mean of 3.05. The highest performance impacts were seen in risk management (mean = 3.23) and strategic decisionmaking (mean = 3.21). However, customer satisfaction (mean = 2.54) was identified as an area requiring further development. A Pearson correlation coefficient of 0.433, with a p-value of 0.000, confirmed a moderate positive relationship between AI integration and banking performance. Conclusion: The study concluded that AI integration has positively impacted banking performance, particularly in operational efficiency, risk management, and strategic decisionmaking. However, customer satisfaction remains an area needing improvement. The study highlights that while AI adoption leads to enhanced performance across several dimensions, a more balanced approach is necessary to ensure that technological advancements translate into superior customer experiences and long-term financial growth. The significant positive relationship between AI integration and banking performance emphasizes the importance of continuing AI investments to unlock its full potential for institutional success.

Keywords: Artificial Intelligence, Banking Performance, AI Integration, Operational Efficiency, Strategic Decision-Making, Customer Satisfaction, Risk Management, Financial Growth.

INTRODUCTION

Artificial intelligence (AI) has significantly reshaped the global banking landscape, becoming a cornerstone of strategic innovation and operational transformation. Across international markets, banks have aggressively integrated AI technologies to gain competitive advantages, enhance customer experiences, minimize operational costs, and mitigate financial risks. According to the World Economic Forum (2024), AI is no longer seen as a future possibility in banking but as a present necessity. Institutions that adopt AI are observed to be better positioned in terms of adaptability, customer loyalty, and financial resilience (World Economic Forum, 2024). Recent studies underscore that banks implementing AI across various domainssuch as predictive analytics, customer service, and fraud prevention-are witnessing marked improvements in their operations and customer engagement (Gartner, 2023). Leading international banks such as JPMorgan Chase, HSBC, Citibank, and Bank of America have heavily invested in AI-based solutions across multiple functions, including credit scoring, fraud prevention, customer service, investment forecasting, and regulatory compliance. A report by PwC (2023) highlights that AI adoption in these banks has resulted in a

*Corresponding Author: JARRA ANDREA A. JACA, Philippine Christian University, Philippines. 25% increase in operational efficiency, a 15% growth in customer base, and a 20% boost in net profitability, further establishing Al's role as a key driver of performance.

One of the most significant global applications of AI in banking is in financial analytics. Machine learning algorithms have empowered banks to develop predictive models that analyze historical and real-time data, offering insights into market trends, credit risks, and portfolio management. In a study by McKinsey & Company (2023), AI-based financial analytics tools were shown to have significantly enhanced decision-making processes in banks, offering dynamic portfolio recommendations and improving risk assessments. JPMorgan's COiN platform, for instance, utilizes AI to review legal documents, cutting loan servicing time by up to 360,000 hours annually (Accenture, 2024). Similarly, Goldman Sachs leverages AI-driven trading strategies to optimize asset management, demonstrating how AI has moved beyond experimentation and is now a pivotal tool in shaping investment outcomes and financial stability.

The integration of AI into fraud detection and risk management has fundamentally altered how banks approach security. Traditional fraud detection methods, relying heavily on manual checks and rule-based systems, are rapidly being replaced by machine learning models capable of detecting anomalies with higher accuracy. A 2023 study by IBM showed that AI-driven fraud detection systems increased threat detection rates by over 70%, compared to traditional systems. This transition has been further amplified by AI's ability to monitor transactions 24/7, predict fraudulent behavior, and alert security teams instantly, leading to both reduced losses and enhanced customer trust (IBM, 2023). In the regulatory space, AI-driven RegTech solutions are also gaining traction. With the global regulatory landscape becoming increasingly complex, AI tools help banks meet requirements such as Basel III, GDPR, and Anti-Money Laundering (AML) regulations with greater efficiency. For instance, AI systems have enabled banks to automate compliance processes, significantly reducing the costs associated with manual regulatory reporting (Deloitte, 2023).

The role of automation through AI has been another transformative aspect in the banking sector. Robotic Process Automation (RPA), coupled with AI, is being used to streamline both backend and frontend banking processes, such as customer on boarding, loan processing, and transaction reconciliation. A survey by Deloitte (2024) found that banks employing Al-driven automation experienced a 40% reduction in processing times and a 30% increase in customer satisfaction rates. In customer service, Al-driven chatbots and virtual assistants, like Bank of America's Erica and Capital One's Eno, are managing millions of customer interactions daily. These tools handle queries, assist with financial management, and offer personalized advice, significantly improving customer service levels (Deloitte, 2024). Al's role in investment and loan management is similarly evolving. International financial institutions are now deploying AI tools to analyze borrower profiles comprehensively, using non-traditional data sources such as social media activity and online behavior to assess creditworthiness. BlackRock's Aladdin platform, for example, utilizes AI to monitor investment risks and recommend portfolio adjustments proactively. This real-time optimization allows banks to offer more personalized financial advice and tailor investment strategies to individual risk profiles and financial goals (Forbes, 2023). Customer service personalization through AI has become a defining feature of modern banking. Recent studies show that financial institutions are leveraging AI to build more detailed customer profiles, which helps in offering tailored product recommendations, personalized marketing, and proactive service offerings. A report by PwC (2024) reveals that AI algorithms have allowed banks to predict when customers may need specific financial products, improving conversion rates and customer retention.

In the Philippines, AI is becoming a critical tool in reshaping the banking sector, in alignment with international trends but adapting to the country's unique economic, regulatory, and infrastructural conditions. The Bangko Sentral ng Pilipinas (BSP) has promoted the adoption of digital technologies through initiatives like the National Retail Payment System (NRPS) and the Digital Payments Transformation Roadmap 2020-2025. These programs emphasize the importance of AI, blockchain, digital identity, and cybersecurity in enhancing financial inclusion, operational efficiency, and customer experiences (BSP, 2024). Recent studies reveal that over 70% of transactions in major Philippine banks have migrated to digital channels, many of which leverage AI technologies such as fraud detection algorithms and Al-powered chatbots (BSP, 2024). Despite these advancements, the adoption of AI in Philippine banking faces significant challenges. The digital divide between large banks and smaller institutions, especially those in rural areas, remains a barrier. Smaller banks often struggle with limited capital, outdated infrastructure, and a shortage of skilled personnel, making it difficult for them to compete with larger, more technologically advanced banks (PwC, 2024). Moreover, issues surrounding data privacy and consumer trust continue to hinder broader AI adoption, with concerns

about how personal and financial data are handled (National Privacy Commission, 2023).

In Barangay Bicutan, Taguig City, AI adoption in banking is beginning to mirror national and global trends but is also influenced by local conditions. Banks like BDO, Metrobank, and BPI have integrated AI technologies such as digital kiosks, mobile banking services, and customer service chatbots, improving transaction speed and fraud detection. However, smaller banks in the area face significant challenges, including limited financial resources and customer skepticism about AI-driven services. A recent local survey found that 65% of residents in Barangay Bicutan are aware of AI applications in banking, but only 40% trust these services fully (Taguig City Government, 2024). This highlights the need for digital literacy initiatives to enhance trust and understanding of AI's benefits.

Theoretical Framework

The study is anchored on Everett Rogers's Innovation Diffusion Theory (IDT) (1962) and Jay Barney's Resource-Based View (RBV) Theory (1991) to explain the integration of artificial intelligence (AI) into banking operations and its subsequent impact on banking performance. The Innovation Diffusion Theory (IDT), which outlines how innovations spread within a social system over time, provides an essential framework for understanding how AI is adopted in banking. According to IDT, the adoption of AI in banking operations depends on factors such as its perceived relative advantage, compatibility with existing systems, complexity, trial ability, and observability. Recent studies, such as those by Kumar et al. (2023) and Williams (2024), further validate the relevance of these factors in driving AI adoption within the banking sector, demonstrating that institutions that perceive Al as advantageous and easily integrated tend to adopt these technologies more quickly. For example, in their 2023 study, Kumar et al. found that the perceived cost-effectiveness and efficiency gains of AI have led to its rapid adoption by banks in developed economies, a trend that has begun to influence emerging markets as well.

On the other hand, the Resource-Based View (RBV) Theory, which asserts that organizations gain competitive advantages by acquiring and utilizing valuable, rare, and inimitable resources, is also highly applicable in this study. Al capabilities, as strategic resources, play a critical role in enhancing banking performance. Banks that effectively leverage AI technologies are able to improve operational efficiency, enhance risk management systems, deliver personalized customer experiences, and increase profitability (Barney, 1991). This concept has been echoed in recent studies such as those by Cheng and Zhang (2023), who found that banks leveraging AI for risk management achieved a 40% reduction in fraud-related losses, thus directly contributing to improve financial performance. Similarly, AI-enabled process automation and financial forecasting have allowed banks to optimize resource allocation, resulting in substantial cost reductions and enhanced profitability (Huang *et al.*, 2023).

The integration of AI in banking operations encompasses various dimensions. AI-driven financial analytics, for example, allows banks to use machine learning models to forecast market trends and optimize financial strategies. According to a 2024 report by Accenture, AI-based predictive analytics have enabled banks like JPMorgan Chase to anticipate market shifts, providing more accurate investment insights and improving financial outcomes. AI-based fraud detection systems, as highlighted by Lee (2024), help banks identify suspicious activity faster, enhancing security and mitigating risks associated with financial crime. Similarly, AI-powered customer service systems, such as chatbots and virtual assistants, have improved customer satisfaction by offering personalized and responsive services

(Bates, 2023). A study by the International Finance Corporation (IFC, 2023) found that AI integration in customer service led to a 30% improvement in customer retention rates in Southeast Asia.

A study by Deloitte (2023) revealed that Al-driven process automation has transformed the back-office operations of banks, leading to more efficient loan processing, faster account reconciliation, and reduced human errors. In the context of financial services, Al tools such as robotic process automation (RPA) have become integral in streamlining routine tasks, which reduces processing times by over 40% (Deloitte, 2023). This automation has not only cut costs but also freed up human resources for more strategic, high-value tasks, driving further improvements in operational efficiency and banking performance (Bain & Company, 2023).

The relationship between AI integration and banking performance is also evident in the enhancement of risk management and compliance. As cybersecurity threats become more sophisticated, banks are increasingly adopting AI to bolster their defense mechanisms. A report by PwC (2023) highlighted that AI-enhanced fraud detection systems can reduce false positives and improve threat detection rates by up to 70%, a significant advancement over traditional fraud monitoring systems. This has profound implications for banks' ability to safeguard customer data and financial assets while maintaining regulatory compliance.

Moreover, the impact of AI on banking performance is evident in customer satisfaction and service quality. Research by McKinsey & Company (2024) found that banks that implemented AI for personalized marketing and service delivery experienced a 20% increase in customer satisfaction scores. By analyzing vast datasets, AI enables banks to offer tailored product recommendations, personalized financial advice, and timely interventions to meet customer needs, thus enhancing the overall customer experience (PwC, 2023). This shift towards personalized service has not only improved client loyalty but has also translated into higher revenue streams for banks.

Furthermore, Al's role in refining investment and loan management has been increasingly recognized. BlackRock's Aladdin platform, for instance, uses Al to monitor investment risks and recommend adjustments in real time, enabling proactive management of large portfolios. A study by Lee and Sim (2023) emphasized that Al-based tools allow banks to provide more accurate credit assessments by incorporating non-traditional data sources, such as social media activity and online behavior, into their decision-making processes. This shift has helped improve the accuracy of loan approvals and minimize default rates.

The overall banking performance, as influenced by AI adoption, is linked to superior financial outcomes, such as increased profitability and market share. According to a study by the World Economic Forum (2024), AI adoption in banks has led to a 15% increase in revenue growth, particularly through enhanced customer engagement and service efficiency. This growth is supported by AI's ability to optimize resources, reduce costs, and create new revenue streams by enabling more personalized products and services (OECD, 2023).

In the Philippine context, the integration of Al into banking operations follows similar trends observed globally. As highlighted in recent reports by the Bangko Sentral ng Pilipinas (BSP, 2024), Al technologies are being used extensively in major banks for fraud detection, credit scoring, and process automation. However, smaller banks, especially in rural areas, face significant challenges in Al adoption due to budget constraints, lack of technical expertise, and

digital infrastructure issues (BSP, 2024). A study by Reyes (2023) on Filipino banks revealed that while large banks have embraced AI to improve operational efficiency, smaller institutions remain slow to adopt these technologies, thus creating a disparity in banking service quality and access across regions.

The conceptual framework of this study posits that the integration of AI across key areas of banking operations will positively influence banking performance. Research by Chen et al. (2023) suggests that AI utilization enhances the decision-making capabilities of bank managers by providing data-driven insights and predictive analytics. This, in turn, contributes to improved strategic decisions and overall financial growth. Additionally, AI integration facilitates stronger customer relationships, as highlighted by the 2023 study by Huang and Li, which showed that AI-driven personalization resulted in a 35% increase in customer lifetime value. Therefore, the adoption of AI technologies within banking operations is expected to lead to better banking performance in terms of operational efficiency, risk management, customer satisfaction, and financial outcomes.

Through this framework, the study aims to examine the specific contributions of AI to banking performance at the local level in Barangay Bicutan, Taguig City, offering valuable insights into the challenges and opportunities AI presents in transforming community-based banking systems. The studies referenced underscore that AI is not just a tool for improving efficiency but also a strategic asset that can significantly enhance competitive positioning in the ever-evolving banking landscape.

METHODOLOGY

This study employed a descriptive-correlational research design to examine the impact of artificial intelligence integration on the banking performance of selected banks in Western Barangay Bicutan, Taguig City. The descriptive aspect of the study involved assessing the extent of AI integration and the level of banking performance. At the same time, the correlational component explored the relationship between the two variables. This design was deemed appropriate as it allowed the researcher to describe existing conditions systematically and identify significant associations without manipulating any variables.

The study's respondents consisted of one hundred (100) banking personnel, including managers, assistant managers, tellers, customer service representatives, and IT staff from selected banks operating within Western Barangay Bicutan. The selection of respondents utilized purposive sampling, a non-probability sampling technique wherein participants were chosen based on specific criteria relevant to the study. The primary criteria were that the respondents must have been currently employed in a bank within the study area and must have had direct knowledge or involvement in banking operations that utilized artificial intelligence technologies. Purposive sampling was deemed appropriate because it ensured that the selected respondents possessed the necessary familiarity and experience to provide reliable insights on the integration and impact of AI in banking operations.

Data were gathered through a structured survey questionnaire, which was developed based on the variables identified in the conceptual framework. The questionnaire was divided into sections corresponding to the dimensions of artificial intelligence integration and banking performance indicators. Before the full administration, the instrument underwent pilot testing with a small group of respondents outside the study sample to ensure its validity and

reliability. Based on the pilot test results, necessary revisions were made to enhance clarity and precision.

The data collected from the respondents were statistically treated and analyzed using descriptive statistics, such as mean and standard deviation, to summarize the extent of AI integration and the level of banking performance. Furthermore, Pearson correlation analysis was employed to determine the significance and strength of the relationship between the extent of artificial intelligence integration and banking performance. All statistical analyses were performed using appropriate statistical software to ensure accuracy and consistency of results. Ethical considerations, such as informed consent, confidentiality of responses, and voluntary participation, were strictly observed throughout the study.

RESULTS AND DISCUSSIONS

1. What is the extent to which artificial intelligence is integrated into the banking operations of selected banks in Western Barangay Bicutan, Taguig City?

The results presented in Table 1 show that the extent to which artificial intelligence (AI) is integrated into the banking operations of selected banks in Western Barangay Bicutan, Taguig City is generally described as "Agree," with an overall mean of 3.06 and a standard deviation of 0.64. These findings align with recent studies highlighting the increasing adoption of AI in the banking sector globally. For instance, a study by Deloitte (2023) emphasized that AI integration in banking is primarily driven by the need for operational efficiency, improved customer service, and enhanced risk management. This has been echoed in the Philippine context, where the integration of AI tools into banking operations has been seen as a key enabler for increasing the efficiency and scalability of financial services (Bangko Sentral ng Pilipinas, 2023).

Among the five dimensions, Al-driven process automation recorded the highest mean of 3.19, indicating that banks in the area are relatively more advanced in automating routine processes and internal workflows through artificial intelligence. This suggests that operational efficiency, particularly in tasks such as transaction processing, customer onboarding, and internal reporting, has benefited from Al-enabled automation, leading to faster services and reduced human error. Similar results were observed in a study by Accenture (2023), which found that global banks leveraging Al-driven process automation have experienced a 30% reduction in operational costs and improved transaction processing times by 40%.

Following closely, AI-based customer service and personalization obtained a mean score of 3.17, highlighting that banks have moderately incorporated AI tools like chatbots and customer profiling systems to enhance client interactions. According to PwC (2023), AI-driven customer service has been pivotal in transforming the way banks interact with their clients, with chatbots and virtual assistants improving customer service response times and increasing customer satisfaction. The success of AI in personalizing banking services has also been widely documented in recent studies. For instance, a study by KPMG (2023) found that AI personalization tools in banking have led to a 25% increase in customer retention and a 20% rise in customer satisfaction due to more relevant service offerings and faster responses.

Intelligent investment and loan management also showed a relatively strong integration, with a mean of 3.15, suggesting that selected banks are increasingly relying on AI for credit scoring, risk assessment, and investment advisory services. A report by McKinsey & Company (2023) highlighted that AI-powered credit scoring models have enabled banks to assess loan risks more accurately, reducing default rates by up to 30% while also expanding access to credit for underserved populations. In investment management, AI algorithms are being used to optimize portfolio allocations and provide real-time insights, contributing to better decision-making and risk-adjusted returns (Goldman Sachs, 2023).

Al-powered financial analytics and automated risk detection and fraud prevention, although still rated as "Agree" with mean scores of 2.95 and 2.87 respectively, indicate that while these areas are recognized, they may be less developed compared to process automation and customer personalization. A study by EY (2023) found that while AI in financial analytics has become more prevalent, its adoption remains uneven, with some banks still in the early stages of integrating these tools into their decision-making processes. Similarly, research by IBM (2023) indicated that Al-driven fraud detection systems are highly effective but are underutilized in certain regions, including Southeast Asia, due to the complexity and cost of implementation.

The standard deviations across the items, particularly for intelligent investment and Al-based customer service, reflect moderate variability, suggesting that Al integration levels may differ significantly between institutions. This variability mirrors findings from a global survey by Accenture (2024), which reported that while large, well-capitalized banks are increasingly leveraging Al in multiple operational areas, smaller institutions face challenges in scaling Al solutions due to limited resources and technical expertise.

The implications of these findings are significant for banking institutions aiming to remain competitive in a rapidly evolving digital landscape. The relatively strong integration of process automation points to an opportunity for banks to continue investing in AI to further streamline operations and reduce operational costs. As highlighted by Deloitte (2023), banks that focus on improving Al-enabled process automation can reduce operational expenses by up to 40% while enhancing service delivery and operational efficiency. However, the lower ratings in financial analytics and fraud prevention highlight areas requiring more attention. Banks must prioritize the enhancement of their Al-driven analytical capabilities to enable more accurate market forecasting, risk evaluation, and strategic decisionmaking. A study by Fitch Ratings (2023) suggested that financial institutions must invest in Al-based analytics to stay ahead of competitors, particularly in forecasting market trends and managing investment risks effectively.

Moreover, improving AI applications in fraud detection is crucial to safeguarding both the banks' assets and customer trust, especially as cyber threats become increasingly sophisticated. The importance of AI in fraud prevention has been underscored by research from the European Central Bank (2024), which found that AI-driven fraud detection systems are more efficient than traditional systems, reducing fraud detection time by up to 50%. In addition, since AI-based customer service scored highly, banks should build on this strength by developing more personalized, proactive, and emotionally intelligent AI systems to deepen customer loyalty. Studies by the Digital Banking Report (2023) indicated that banks that develop emotionally intelligent AI systems, capable of understanding customer emotions and providing tailored responses, see a significant increase in customer satisfaction and engagement.

Overall, the results underscore the need for a balanced and comprehensive AI strategy that not only focuses on automation but equally emphasizes risk management, strategic analytics, and customer-centered innovation. As the Philippine banking sector continues to evolve, these findings align with the global trend of AI- driven transformation in banking, as evidenced in reports by institutions like the Bank for International Settlements (2023) and the International Finance Corporation (2023), which highlighted the ongoing need for banks to adapt their AI strategies to optimize both customer experiences and operational performance.

Table 1. The Summary of the extent to which artificial intelligence is integrated into the banking operations of selected banks in Western Barangay Bicutan, Taguig City

Items	Mean	SD	Description
1. AI-Powered Financial Analytics	2.95	0.46	Agree
2. Automated Risk Detection and Fraud	2.87	0.43	Agree
Prevention			
Al-Driven Process Automation	3.19	0.56	Agree
Intelligent Investment and Loan	3.15	0.87	Agree
Management			
5. AI-Based Customer Service and	3.17	0.88	Agree
Personalization			
Overall Mean	3.06	0.64	Agree

Legend: 1.00 – 1.75 (Strongly Disagree), 1.76 – 2.50 (Disagree), 2.51 – 3.25 (Agree), 3.26 – 4.00 (Strongly Agree)

2. What is the level of banking performance as influenced by artificial intelligence adoption?

The data presented in Table 2 reveal that the level of banking performance as influenced by artificial intelligence (AI) adoption among the selected banks in Western Barangay Bicutan, Taguig City is generally described as "Agree," with an overall mean of 3.05 and a standard deviation of 0.66. These results align with global studies showing that AI adoption has positively impacted various dimensions of banking performance. For instance, a study by KPMG (2023) highlighted that AI in banking has significantly improved risk management, strategic decision-making, and operational efficiency, leading to a more streamlined and secure banking environment.

Among the five dimensions, risk management and security enhancement recorded the highest mean of 3.23, indicating that banks have significantly leveraged AI technologies to strengthen their systems against fraudulent activities and cyber threats. This finding is consistent with the work of IBM (2023), which found that AI-driven fraud detection systems can significantly enhance a bank's ability to identify and mitigate risks in real time. In their research, IBM concluded that AI-enabled risk management tools have led to a 40% improvement in fraud detection rates and a reduction in operational losses. Furthermore, the integration of AI in compliance systems, particularly in relation to regulatory frameworks such as Anti-Money Laundering (AML) regulations, has been a key factor in improving banks' ability to comply with international standards (Deloitte, 2023).

Strategic decision-making closely follows with a mean of 3.21, demonstrating that artificial intelligence is aiding banks in making more informed and data-driven decisions. This reflects the findings of a study by McKinsey & Company (2023), which emphasized that AI tools have revolutionized strategic decision-making in banking by providing deeper insights into market trends, customer behavior, and financial risks. With AI algorithms analyzing large volumes of data, banks are better equipped to identify emerging opportunities, optimize investment strategies, and adjust to market dynamics in real-time. Additionally, AI's role in enhancing decision-making processes in the banking sector has led to a more agile and responsive approach to financial planning, as noted by Accenture (2023).

Operational efficiency also scored positively at 3.20, reflecting that AI has contributed to streamlining banking operations, reducing processing time, minimizing manual errors, and optimizing resource utilization. This finding is supported by the research of Bain & Company (2023), which showed that AI-driven process automation in banking operations, such as loan processing and transaction verification, has resulted in faster service delivery and a reduction in human error. Their report found that automation through AI could cut operational costs by 30% while simultaneously improving service quality. Similarly, a study by the World Economic Forum (2023) revealed that banks leveraging AI for operational optimization have experienced a 25% improvement in resource efficiency and a significant reduction in processing times for routine tasks.

However, customer satisfaction and service quality registered the lowest mean at 2.54, although still interpreted as "Agree." This finding suggests that while AI has enhanced backend operations and decision-making processes, there remains a gap in translating these technological advancements into superior customer experiences. The Digital Banking Report (2023) echoed this concern, noting that while banks are increasingly using AI to optimize internal processes, customer-facing AI applications such as chatbots, personalization tools, and virtual assistants are still in the early stages of development. Moreover, the challenge of providing seamless, human-like interactions in AI-driven customer service remains a key issue for many banks (PwC, 2023).

A study by Forrester (2023) pointed out that while Al-driven customer service can lead to operational cost savings, the true value of Al in customer satisfaction lies in its ability to provide personalized, proactive, and emotionally intelligent responses. Banks that are successful in creating these personalized experiences have seen improvements in customer loyalty and retention rates, as evidenced by a study from Accenture (2023) that showed Al-enhanced customer interactions led to a 20% increase in customer satisfaction and a 15% rise in loyalty.

Lastly, financial growth and profitability obtained a mean of 3.10, indicating that AI adoption has moderately contributed to the banks' financial outcomes but may not yet have reached its full potential in maximizing revenue and profit margins. This finding aligns with the report by the International Finance Corporation (IFC, 2023), which found that AI-driven innovations in banking can significantly boost profitability, but many institutions have yet to fully capitalize on AI's potential to drive revenue growth. Similarly, a report by the Financial Times (2023) found that AI tools, while improving efficiency and risk management, have had a more moderate impact on revenue generation in comparison to other sectors, such as investment banking, where AI has already had a more profound effect on profitability.

The implications of these findings are particularly important for banking institutions seeking to maximize the benefits of AI integration. While banks have successfully utilized AI to enhance risk management, strategic planning, and operational efficiency, there is a pressing need to focus more on improving customer experience through AI-driven innovations. A study by Accenture (2024) recommended that banks focus on developing more advanced customer-facing AI applications, such as personalized financial advice and smarter chatbots, to bridge the gap between operational improvements and customer satisfaction.

Efforts must be directed toward designing AI systems that not only streamline internal processes but also proactively engage, understand, and satisfy customer needs. This is particularly important in light of findings by McKinsey & Company (2023), which suggested

that AI's full potential in banking lies in its ability to create more personalized and customer-centric banking experiences. Moreover, banks should invest further in analytics that drive profitability, moving beyond operational savings to harness AI for product development, market expansion, and customer retention strategies. Studies by Bain & Company (2023) indicated that AI-driven market insights have the potential to unlock new revenue streams by allowing banks to offer customized financial products based on individual customer preferences.

By addressing these critical areas, banks can ensure that the full spectrum of AI's capabilities is harnessed not just for internal improvements, but also for outward-facing growth, client satisfaction, and long-term financial sustainability. This aligns with recent trends in the industry, where AI's role is evolving from a tool for operational improvement to a strategic asset for driving growth and innovation (Forbes, 2023).

Table 2. The summary of the level of banking performance as influenced by artificial intelligence adoption

Items	Mean	SD	Description
1. Operational Efficiency	3.20	0.74	Agree
2. Strategic Decision-Making	3.21	0.79	Agree
 Risk Management and Security Enhancement 	3.23	0.80	Agree
4. Customer Satisfaction and Service Quality	2.54	0.45	Agree
5. Financial Growth and Profitability	3.10	0.53	Agree
Overall Mean	3.05	0.66	Agree

Legend: 1.00 – 1.75 (Strongly Disagree), 1.76 – 2.50 (Disagree), 2.51 – 3.25 (Agree), 3.26 – 4.00 (Strongly Agree)

3. Is there a significant relationship between the extent of Al integration and the banking performance?

The results presented in Table 3 reveal the test of the relationship between artificial intelligence (AI) integration and banking performance among the selected banks in Western Barangay Bicutan, Taguig City. The computed correlation coefficient (r-value) is 0.433, indicating a moderate positive relationship between the extent of AI integration and the level of banking performance. The associated p-value is 0.000, which is less than the significance level of 0.05. Consequently, the null hypothesis, stating that there is no significant relationship between artificial intelligence integration and banking performance, is rejected. This finding confirms that as the degree of AI adoption in banking operations increases, banking performance in terms of operational efficiency, strategic decisionmaking, risk management, customer satisfaction, and financial growth also improves.

This result aligns with previous studies that have demonstrated a positive correlation between AI adoption and improvements in banking performance. For example, a study by PwC (2023) found that AI integration positively impacted operational efficiency, enabling banks to reduce costs and improve decision-making processes, leading to better overall performance. Similarly, research by McKinsey & Company (2023) highlighted that banks embracing AI experienced enhanced risk management capabilities and improved customer satisfaction scores. The moderate correlation observed in this study suggests that AI adoption has a substantial impact on various banking performance metrics, even at the community banking level, where resources for AI implementation may be more limited compared to larger institutions.

The implication of this result is that artificial intelligence serves as an influential factor in enhancing banking performance at the community level. Banks that have embraced AI technologies across various operational dimensions are more likely to experience improvements in their internal processes, decision-making capabilities, security systems, customer engagement, and profitability. This is consistent with findings from a global survey by Deloitte (2023), which reported that AI adoption in banking directly contributed to increased operational efficiencies, improved customer service, and enhanced profitability.

Given this moderate yet significant correlation, banking institutions are encouraged to intensify their investments in artificial intelligence solutions, ensuring a comprehensive and well-integrated approach across all departments. This aligns with the recommendations from the Bank for International Settlements (2023), which stated that continued AI investment is crucial for financial institutions to maintain competitive advantage and remain responsive to evolving market demands. Furthermore, the findings suggest that focusing on AI innovation not only modernizes banking operations but also provides strategic advantages that can drive competitive success and sustainable financial growth. This has been corroborated by the World Economic Forum (2024), which emphasized that AI is becoming a critical enabler of growth and transformation in the banking sector.

Strengthening AI adoption, therefore, emerges as a critical strategy for banks aiming to thrive in an increasingly digital and competitive financial environment. The results suggest that banks should focus on enhancing their AI-driven analytics, risk management systems, and customer service tools to achieve higher levels of operational efficiency and customer satisfaction. As highlighted by Accenture (2023), AI tools that automate routine tasks and provide insights into customer behavior not only enhance service quality but also help banks achieve long-term profitability. By strategically investing in AI technologies, banks can position themselves as leaders in innovation, creating a foundation for future success and growth in a rapidly evolving financial landscape.

 Table 3. The Test of the relationship between implementing circular solar energy systems and improving the student learning environment

	Banking Performance				
	r-value	p-value	Decision on Ho		
AI Integration	.433**	.000	Rejected		

Significant if P-value <0.05 Legend: Ho is rejected if Significant Ho is accepted if Not Significant

CONCLUSION

Based on the findings of the study, it is concluded that the extent of artificial intelligence integration in the banking operations of selected banks in Western Barangay Bicutan, Taguig City is generally at a moderate level, with particular strength observed in Al-driven process automation and Al-based customer service personalization. However, areas such as Al-powered financial analytics and automated risk detection still require greater enhancement to maximize operational advantages. The study further concludes that the level of banking performance, as influenced by Al adoption, is also moderate, with the strongest effects seen in risk management, strategic decision-making, and operational efficiency. Despite these advancements, customer satisfaction and service quality emerge as critical areas needing

further improvement to fully translate technological upgrades into enhanced client experiences. Furthermore, the study establishes a moderate yet significant positive relationship between artificial intelligence integration and banking performance, confirming that greater AI adoption contributes to improvements in operational, strategic, security, customer service, and financial outcomes. These results collectively emphasize that while artificial intelligence adoption is yielding tangible benefits in banking operations, a more balanced and comprehensive application of AI across all functional areas is necessary to unlock its full potential in driving superior institutional performance.

Recommendations

Based on the findings and conclusions of this study, several recommendations are proposed to enhance the integration of artificial intelligence and to improve further banking performance among selected banks in Western Barangay Bicutan, Taguig City. These recommendations are grounded on the observed strengths, gaps, and areas needing improvement, particularly in terms of operational efficiency, strategic decision-making, risk management, customer satisfaction, and financial growth:

- Banks should enhance their investment in artificial intelligence technologies, particularly in Al-powered financial analytics and automated fraud detection. Strengthening these components will allow banks to make more precise financial forecasts, improve risk mitigation strategies, and enhance their responsiveness to security threats, thereby promoting institutional resilience and operational soundness.
- Banking institutions must develop more customer-centered Al systems that focus on personalization, responsiveness, and emotional intelligence. Enhancing Al-driven customer service to better anticipate and address client needs will significantly improve customer satisfaction, foster stronger client relationships, and increase long-term customer loyalty.
- Banks should implement continuous training and capacitybuilding programs focused on Al literacy and operations for all banking personnel. Investing in employee development will ensure that staff members are well-equipped to manage, operate, and innovate within Al-driven systems, thus supporting the smooth integration of technology across banking functions.
- 4. It is recommended that banks adopt a holistic AI strategy that systematically integrates artificial intelligence across all core areas of operations. Rather than applying AI solutions in isolated functions, institutions should establish comprehensive AI frameworks that align technology adoption with risk management, decision-making, customer engagement, and financial growth strategies.
- 5. Banks, in collaboration with policymakers and technology providers, should promote research and pilot programs exploring advanced Al applications. Future initiatives should focus on predictive banking models, emotional Al, and blockchain integration to discover new ways of achieving sustainable competitiveness, particularly among community -based and mid-sized financial institutions.

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