AI in the Banking Sector: A Friend or A Foe?

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ABSTRACT

Purpose – This research aims to investigate the impact of artificial intelligence (AI) with regard to customer service in Philippine banking institutions and aims to enhance the knowledge of the banking industry, policymakers, and researchers through the evaluation of AI adoption, assessment of the benefits as well as issues that it will cause, exploring relationships with customers, employment implications, and its effect on financial inclusion.

Design/Methodology/Approach - This study will use the mixed-method approach for the collection of data from bank customers and employees by using quantitative and qualitative research techniques. This will be conducted in the banking institutions of the Philippines by focusing on Metro Manila and other urban areas.

Findings - It was concluded that there is a huge gap in the growing literature on AI in banking, and most papers tend to focus on technological issues by paying less qualitative attention to the customer experience. However, not much research has been done in this respect about how consumers actually engage with AI tools and chatbots and their impact on overall satisfaction and loyalty. Moreover, the ethical implications and regulatory challenges of adopting AI in banks warrant further research.

Research Limitations – The study focuses on urban areas and may not accurately reflect the banking experiences in the rural area. Additionally, the fast growth of AI could change how important the findings are in the long run.

Practical Implications – The findings are therefore anticipated to significantly contribute to the academic literature and the practical applications of the banking sector. The research, thereby illuminating the effect of AI on customer service, might guide banks on how effectively they should integrate AI technologies into their strategies. It may further guide policymakers in designing regulations whereby ethical standards can be maintained while the banks become more dependent on AI solutions for interacting with their customers. Importantly, this study may contribute value to understanding and projecting the future of work in the Philippine banking sector and how human-AI collaboration may be used to deliver exceptional customer service.

Originality/value – The study fills a gap in the Philippines on how customers feel about using AI in banking, particularly regarding AI-driven customer service tools such as chatbots. This also provides important insights about ethical AI adoption, necessary regulatory frameworks, and the potential impact of AI on future job roles in the banking industry

Keywords - *Artificial Intelligence, Banking Sector, Data Privacy, Ethical AI, Job Displacement, Regulatory Compliance, Risk Management, Innovation, Financial Technology (FinTech).*

JEL Code – G21, O33, D83, L86, E44

I. INTRODUCTION

Artificial Intelligence (AI) has become a very important part of our modern innovation, which is used by different industries, and one of these is the banking sector. Artificial Intelligence (AI) was officially introduced by Marvin Minsky and John McCarthy in 1956 during a workshop at Dartmouth College in New Hampshire, which was funded by the Rockefeller Foundation and later considered the fathers of AI. Since then, there have been ups and downs in the history of AI. The banking industry has evolved from using the traditional Bank 1.0 system, which involved issues such as cheque forgery, embezzlement, and manual processing of accounts, to the more advanced Banking 5.0, which focuses on giving the customer the best experience by using data analytics and AI to determine their needs and preferences.

According to Kumar, A., & Singh, R. (2024), Artificial Intelligence (AI) is a very useful tool for financial institutions especially the banking sector as this helps them meet the demands of their customers. Since the pandemic season, the AI dependency of the banking sector has increased as many of their

customers are switching to online banking to access their finances anytime and anywhere. NexGen Banking (2024) reiterates that with the integration of the banking sector and artificial intelligence, overall customer satisfaction increased. The Global Treasurer (2024) emphasizes that many people nowadays prefer to go out cashless. They often go to their favorite restaurants and malls and even travel without bringing cash with them. Being cashless nowadays is considered as hassle-free as they just need to tap their cards or phones to pay. Sapid Blue (2024) asserts that AI has brought significant changes in the business operations of the banking sector. AI has successfully transformed bank operations at a new level which enables them to increase customer satisfaction.

According to a recent CITI GPS report, the potential increase of the global banking industry by 2028 is around $2 trillion, with a 9% increase over the following five years (Citi 2024). NexGen Banking (2024) implies that AI has the potential to increase the productivity of the banks by automating their routine tasks and streamlining the processes and operations. The application of AI in banking institutions is used to innovate their services, like creating voice assistants or chatbots, developing and enhancing their mobile banking, online banking, credit card services, etc.

Along with all these changes and new opportunities comes every challenge, including raising the critical question: is AI in the banking sector a friend or foe? This paper focuses on the multifaceted role of AI in banking: its advantages, risks, and overall future implications (Integrio, 2023 & VASS Company, 2023)

According to Alotaibi, A. (2024), Artificial Intelligence (AI) has proven to be useful to the banking sector; however, it still comes with various challenges, such as lack of transparency, security and data privacy. The benefits offered by AI are undeniably great, but the banking sector also faces challenges in its operations, which include ethical considerations and even potential risks. With this, it is essential to have a further study in order to ensure that AI technology in banking will not compromise customer relationships and overall satisfaction.

The primary objective of this research paper is to explore the impact of AI on the banking sector by examining both the opportunities and challenges it offers.

Theoretical Framework

This research study aims to focus its theoretical framework by combining theories which can offer a clear understanding with regards to the AI adoption in the banking sector. The researchers decided to use the Diffusion of Innovation Theory and Technology Acceptance Model (TAM) which are both beneficial in providing useful information with regards to the after use of AI. Both theories were developed in the 1960s and 1980s.

With the use and application of these two theories, the researchers can be able to identify the effects of AI to its end users and to the employees of the banking sectors. It can identify the perception of the users whether it is useful and easy to use. It can also help investigate whether its adoption is helpful to the bank employees on their daily operations. It is very crucial to identify this as the researchers aim to have valid and concrete evidence in relation to the AI adoption.

Conceptual Framework

The researchers of this study illustrated the conceptual framework inorder to highlight the various aspects affecting the incorporation of Artificial Intelligence (AI) in the banking sector. In the two (2) figures illustrated below you can be able to identify the different aspects related to the adoption of AI and the variables presented in this research study which are divided into independent and dependent variables.
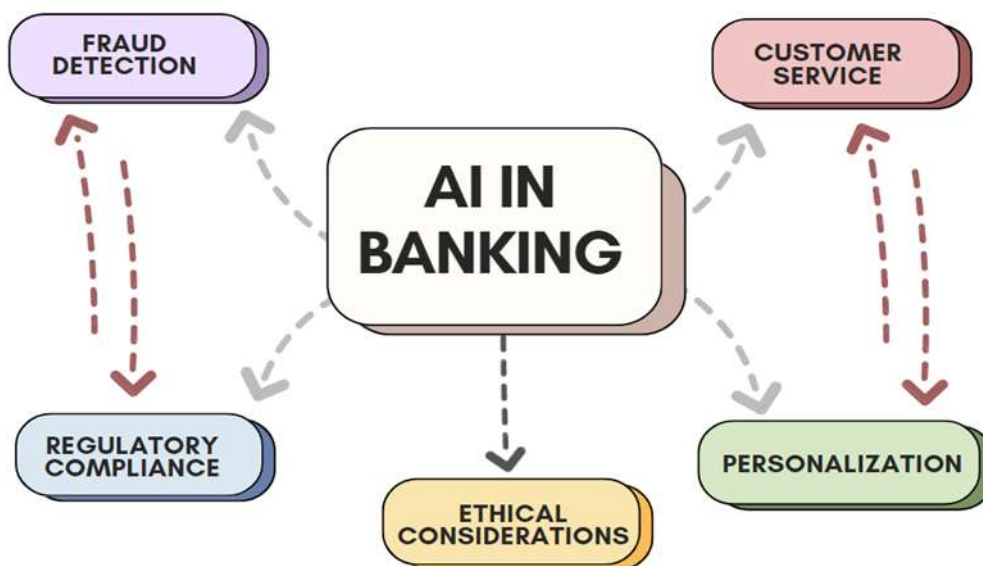
Figure 1. Conceptual Framework of the different aspects in relation to AI adoption in the banking sector
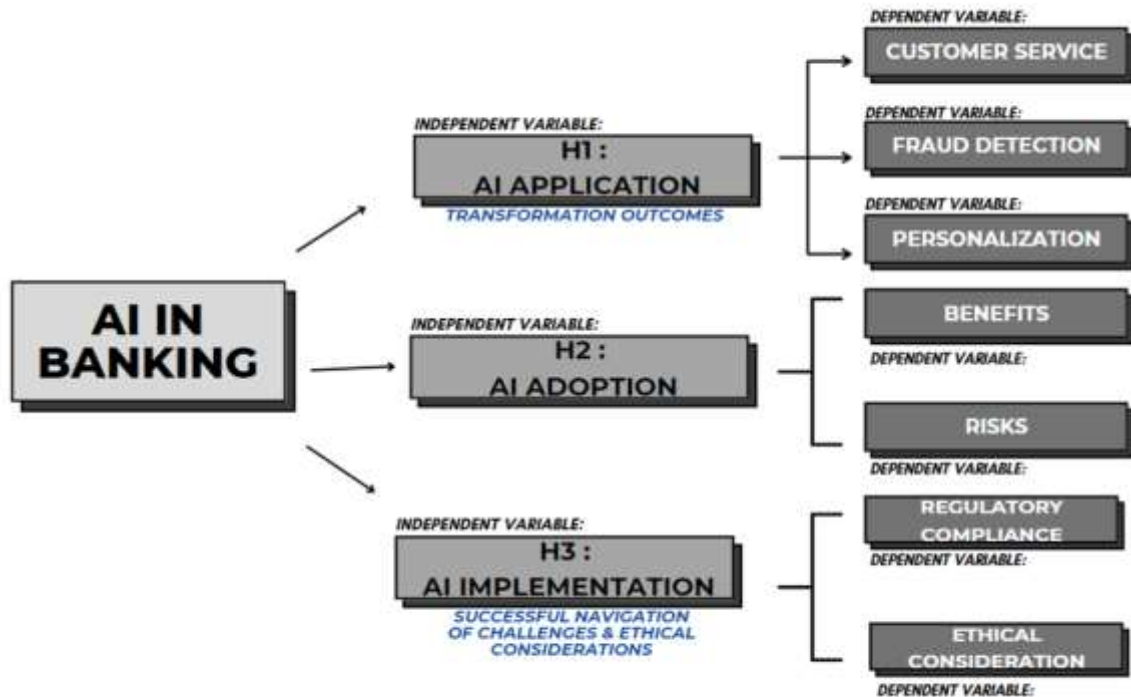
Figure 2. The independent and dependent variables of the study

Statement of the Problem

The researchers of this study seek to determine the advantages and disadvantages of implementing Artificial Intelligence (AI) in the banking sector. This research study was conducted to identify the various obstacles and challenges encountered in the use of AI and recommend ways of improving its use in the future. The purpose of this paper is to determine whether the adoption of AI can be considered as a friend or an enemy.

In order to achieve a viable result, the research questions for this study are posed in both Quantitative and Qualitative approach as shown below:

Quantitative Research Questions:

1) To what extent has AI adoption improved customer satisfaction and loyalty in the banking sector?

2) What is the level of effectiveness of AI in terms of the accuracy of fraud detection systems?

3) What is the perceived level of risk associated with AI adoption among customers?

Qualitative Research Questions:

1) How do bank employees perceive the impact of AI on their roles and job satisfaction?

2) What are the ethical concerns that arise from the use of AI in banking, particularly in decision-making processes?

3) How can banks ensure transparency and accountability in their AI systems?

4) What are the specific challenges faced by banks in implementing AI technologies, and how are they addressing them?

Statement of Hypothesis

H1: AI Application and Transformation

- H1a: AI applications in the banking sector, such as customer service and fraud detection, will lead to significant improvements in operational efficiency and customer satisfaction.

- H1b: The implementation of AI will result in the transformation of various banking processes, including loan approval, risk assessment, and investment advisory.

H2: AI Benefits and Risks

- H2a: AI adoption in the banking sector will lead to increased benefits, such as cost reduction, enhanced decision-making, and personalized customer experiences.

- H2b: The risks associated with AI adoption, including data privacy concerns and ethical dilemmas, will impact the banking sector's reputation and customer trust.

H3: AI Implementation and Ethical Considerations

- H3a: The successful implementation of AI in the banking sector requires strong governance, transparency, and ethical considerations.

- H3b: Addressing the challenges and ethical considerations associated with AI implementation will contribute to building customer trust and maintaining regulatory compliance.

II. REVIEW OF RELATED LITERATURE

Artificial Intelligence (AI) is widely used in the banking sectors nowadays. The integration of AI in the banking sector has been the subject of continuous debate whether it is really beneficial or if it imposes danger in the banking sector. The aim of this literature review is to summarize existing literature to address our research questions: primary applications of AI, potential benefits and risks related to AI adoption and how can financial institutions navigate the involved challenges and ethical considerations of AI. This literature review will discuss the organizational structure of various literatures using thematic analysis. This literature review examines three primary themes: Technology Application, Technology Adoption, and Technology Implementation. The Technology Application theme will delve into the various uses of advanced technologies, such as enhancing customer service, detecting fraud, and personalizing services. In contrast, the Technology Adoption theme will investigate the advantages and potential risks associated with these technologies. Finally, the Technology Implementation theme will explore the regulatory compliance and ethical considerations involved in deploying these systems. By analyzing these themes, this review seeks to offer a comprehensive understanding of the overall impact of advanced technologies on the banking industry.

AI Application

Advanced technology is transforming customer service, fraud prevention, and personalization in the banking industry. This innovative approach has significantly enhanced customer interaction and satisfaction, allowing financial institutions to provide customized and secure experiences. Moreover, it helps banks tailor their diverse services to meet the specific needs of their clients.

West and Allen (2018) suggest that this technology encourages us to rethink how we learn, analyze data, and apply insights to improve decision-making processes, having a profound impact across all aspects of life.

AI applications are essential for optimizing processes and improving decision-making across this industry. By leveraging advanced operational procedures, they enhance customer satisfaction, virtual assistance, and risk management. This approach not only enhances productivity but also fosters a culture of responsiveness and agility in the face of market changes, streamlining activities and enhancing decision-making in this industry (Sardauna and Ali 2024).

The three main targets of AI Application in the banking sector are Customer Service, Fraud Detection and Personalization.

    i.   Customer Service

Artificial Intelligence (AI) has successfully infiltrated various industries, including the banking sector. It has fully transformed the customer service by its promising and enhanced efficiency. Banking sectors have implemented chatbots and virtual assistants which provide 24/7 support and addressed all their customer inquiries. As discussed by Ninh, A. (2024), AI can understand customer requests, interpret human language, and offer personalized solutions by using Natural Language Processing (NLP). These technologies significantly improved customer satisfaction which resulted in their increased engagement in the online banking platform.

According to Farishy (2023), Industry 4.0 also known as the fourth industrial revolution, has altered society and economy by introducing artificial intelligence which transformed the financial sector as a whole. Bhattacharya & Sinha (2022) emphasizes that AI is becoming more and more integrated into our daily lives, & banks must employ AI at scale to stay relevant. They also reiterate that as the use of digital banking grows, so are the client expectations. Arora (2023) highlights that the use of technology not only provided ample growth opportunities to the banks but also enabled them to provide quality services to the customers.

Several studies have explored the potential of AI to enhance customer service in the banking sector. Abdillah, Hussein, & Ratnawati (2020) focuses on the role of AI in improving customer satisfaction by using personalized recommendations and efficient problem-solving. Arora (2023) highlights that AI is useful with the automation of routine tasks, freeing up human employees in order to focus more on complicated customer inquiries. By using AI-based techniques and applications, there is a provision of customized financial services to the customers along with facilities of digital wallet and voice assisted banking services. Bhattacharya and Sinha (2022) argue that advanced technology can provide immediate assistance, thereby improving customer experiences. Ninh, A. (2024) highlights that this automation not only reduces wait times but also enhances the overall customer experience by delivering fast and accurate responses.

According to IBM (2024), these systems analyze user data, including past interactions and preferences, to create personalized experiences. For instance, companies like Amazon use algorithms to recommend products based on a customer's browsing and purchasing history, which helps increase engagement and satisfaction.

However, despite the benefits of these technologies, certain limitations have impeded their widespread adoption in the financial sector. Concerns about job displacement may negatively affect the economy by increasing unemployment, alongside significant risks related to security and privacy breaches that can jeopardize customers' personal information.

These concerns have raised questions on AI's overall impact in the banking sector. The successful implementation of AI in the banking sector requires consideration of many ethical and privacy concerns.

ii. Fraud Detection

Bank Fraud is a major threat that can cause serious financial losses to individuals, businesses, and financial institutions. AI has helped solve this kind of issue by analyzing real-time data, monitoring transactions, finding unusual patterns etc.

Fraud detection is one of the critical areas where AI is proving invaluable. Banks are employing machine learning algorithms to monitor transactions in real-time, identify unusual patterns, and flag suspicious activity. AI models learn from historical transaction data to recognize anomalies that may indicate fraud, enabling faster detection and prevention. (Ninh, A. 2024).

Polireddi (2024) iterates that old banking systems are unable to do most modern business functions and are outcasted by AI and Machine Learning (ML). These technologies improve how banks operate and lower business risks. They are safer, more reliable, and more efficient for analyzing data, managing risks, helping customers, and including detecting fraud.

According to Mytnyk et al. (2023), fraud risks have increased in digital transactions, and machine learning (ML) is a primary tool for fraud detection. Aldasoro et al. (2022) highlight how advanced technologies are reshaping the banking industry, enabling institutions to deliver more efficient, secure, and customer-focused services. The integration of innovative tools like data analytics and automation has allowed banks to improve risk management, streamline operations, and enhance security measures.

However, these advancements also bring challenges, including concerns over transparency, privacy, and potential financial instability. The authors advocate for a regulatory framework that prioritizes accountability and transparency to address these issues. Such a framework would help establish robust governance standards, reducing risks associated with deploying advanced technologies.

While the benefits of these innovations are substantial, the banking sector must address challenges such as fraud detection to maintain customer trust. Continued investment in research to develop adaptive models that safeguard privacy and collaboration with regulators is essential for fostering trust and long-term growth in the industry.

Overall, AI helps banks to respond faster and more accurately to fraud risks while maintaining their customer experience. It is crucial for them to leverage advanced techniques which focus on NLP, machine and deep learning. As AI continue to develop in accordance with various technological advancements, it is important to focus on safeguarding the banking system.

iii. Personalization

The banking sector is in the midst of digital transformation and by using AI as a powerful tool, they are able to reshape the experiences of their customers. Bank personalization is one of the significant AI applications which cater to their customers preferences and needs. Several banks in the Philippines like Unionbank are starting to adopt AI-powered solutions to improve their customer services and experiences. The key trends of bank personalization are AI-Powered Personalized Services, Enhanced Customer Service, Data-Driven Decision Making, Fraud Detection and Prevention and Personalized Marketing.

According to Polireddi (2024) banks and other institutions are increasingly adopting AI and ML due to their adaptability which allows them to cater to businesses of different sizes, compared to more conventional approaches to banking's many computational financial duties, digital financial services powered by AI are reportedly both quicker and more efficient.

Lazo, M., & Ebardo, R. (2023) studies show that the motivation of banks on adopting AI can be classified into three main categories which are enhancing customer experience, boosting profitability, and increasing competitiveness in the market. The categories led to the implementation of innovative solutions such as chat-bots and robo-advisers. By utilizing these the banks can provide immediate responses to their customer's inquiries. Additionally, banks can determine their customer's preferences and enable them to improve their services and foster their relationship with each other. On the other hand, banks adapting to AI technologies can help them stay ahead of their competitors by identifying emerging trends and responding to market changes.

Gallego-Gomez and De-Pablos-Heredero (2020) concluded that companies today face significant challenges like managing large amounts of information and needing to quickly respond to customers and stakeholders. People now prefer more personalized experiences which are easier when technology and bank services come together with AI. The increasing competition in the sector helps banks to connect closely with their customer to improve their efficiency, it also allows the bank to develop capabilities like those of FinTech companies without requiring major changes in the processes or workforce.

Machine learning enables banks to respond quickly to emerging issues. However, Ghandour (2022) explains that there are important challenges to address in using AI and ML, these include privacy violations, job losses, data availability and quality, and strategy alignment with the business goals. AI-based

information systems can impact customer relationships since there will be lacking human interactions, however, according to Naeem, M., et al. (2024) many AI projects also struggle despite investing a lot in it. This is partly due to an unclear understanding of how AI can create real commercial value and alignment with the company's goal and objective.

AI is essential for boosting bank performance, fostering innovation, and gaining a competitive edge, several literatures show that investing in AI can greatly enhance innovation and performance with a bank's age and size playing a significant role. The future of bank personalization in the Philippines is promising and it is important for banks to embrace AI and focus on their customer needs.

AI Adoption

The adoption of Artificial Intelligence (AI) in the banking sector is posing notable risks and significant benefits. It has rapidly transformed the financial services of banks to which the technologies offered by AI enhanced their efficiency with regards to their operations, improvement to their risk management and personalization of their customer preferences.

According to Nawaz et al. (2024) AI technologies are becoming increasingly important in many fields, such as medicine, engineering, agriculture, management, tourism, finance, and transportation. They are now part of everyday life in both public and business settings. The rapid growth of AI is changing how people live and how companies communicate with their employees and customers. This shift is disrupting traditional organizations and workplaces. AI is altering who works, when, how, and where they work. Many industries are undergoing major changes as they begin to use AI more in decision-making. This transition is essential for companies to succeed and grow.

This discussion will delve more on the numerous benefits and significant risks present with regards to reshaping the financial services offered by banks.

iv.   Benefits

According to Narang et al. (2024), AI applications or technologies offer benefits that help banks manage large amounts of data, spot trends, and make better decisions that can satisfy their clients. The integration of AI technologies automates the bank's manual processes, reducing human error and minimizing processing times. AI systems also help to robust fraud prevention measures for banking institutions.

Chowdhury and Sadek (2012) also added that AI applications also mimic human intelligence to solve problems and help manage uncertainty and speed up bank's decision-making on different aspects of the business. In banking institutions where knowledge is tied to specific people, AI helps preserve that information and data. The knowledge stored in an AI system can remain useful as long as the related problems and decisions still matter.

Douglas, D. D. (2024) iterates that Artificial intelligence (AI) is quickly transforming the financial sector, revolutionizing traditional practices and opening up new possibilities. AI is allowing banks to tailor their services to individual customer preferences, resulting in a more personalized and engaging experience that can identify patterns and trends with regards on clients purchasing behavior, enabling banks to offer recommendations to them, for instance, if customer frequently shops on a particular retailer, the bank could provide a credit card or personalized discounts with collaboration to that store. AI-powered automation also helps banks to handle customer inquiries such as account balance checks and transaction disputes which can lead to higher satisfaction of customers.

According to EY (2024), banks like JPMorgan Chase have reported substantial cost savings and improved fraud detection capabilities through AI-powered automation, which has led to a 20% reduction in account validation rejection rates. Furthermore, AI's ability to analyze vast datasets allows for more accurate assessments of creditworthiness, potentially reducing loan defaults and enhancing profitability (VASS Company, 2023). The personalization of financial products through AI not only increases customer satisfaction but also drives revenue growth by identifying new business opportunities and optimizing marketing strategies (Software Mind, 2023).

The future of banking is driven by AI. By using AI technologies in a responsible and ethical way, banks can find new opportunities, improve customer experiences, and achieve steady growth in the digital age.

v.   Risks

Despite the advantages of Artificial Intelligence (AI), its integration in the banking sector posed various risks and challenges. Ethical concerns regarding algorithmic bias are paramount; if the data used to train AI systems is biased, it can lead to discriminatory practices in lending and service provision (Loeb, 2024). Additionally, the complexity of AI algorithms often results in a lack of transparency in decision-making processes, complicating efforts to identify and rectify errors or biases (Oliver Wyman, 2024). Data privacy and security are also critical issues, as the reliance on AI expands the attack surface for cyber threats. Malicious actors may exploit vulnerabilities in AI systems or manipulate training data, leading to severe security breaches (EY, 2024).

According to Ozili (2024) the implementation of artificial intelligence in banks offers a wide range of advantages, however it also brings with it a potential risk that must be carefully considered and mitigated to ensure the stability and integrity of the financial system. The risks include cybersecurity risk, challenges in decision making regarding AI-based policies, potential for biases in AI algorithms and banks using synthetic data to replicate real-world data that could result in false positives. The potential risks associated with AI systems in banks are substantial and significant, if these risks were materialized these could tarnish the reputation of banks.

Douglas, D. D. (2024) added that one of the challenges in AI adoption is ensuring that AI systems are developed and deployed responsibly. This involves ensuring that AI algorithms remain fair, transparent and accountable. Many banks also face a major challenge due to old technology systems, that limits the banks to adapt and innovate. These old systems are often complicated and costly and hard to integrate to new AI systems.

Dhashanamoorthi (2023) identified that financial institutions often face difficulties due to insufficient reliable data, which hinders their ability to train and implement advanced technological models effectively. To improve data quality, banks may need to explore external sources or collaborate with other organizations. However, managing sensitive customer information presents challenges related to privacy and security. For these institutions to embrace innovation, they must undergo significant transformations in their organizational structures, processes, and cultures. This includes investing in employee training, adopting agile methodologies, and managing change effectively.

Resistance from employees is another obstacle, stemming from concerns about job displacement or a lack of necessary skills to work with new technologies. Additionally, the high initial costs of establishing infrastructure and recruiting skilled personnel pose significant financial burdens. These challenges are compounded by the need to comply with evolving regulatory standards.

Despite these hurdles, the potential for innovation and advancement remains substantial. To mitigate risks, financial institutions must adopt ethical practices and establish strong governance frameworks. By doing so, they can leverage the benefits of new technologies while safeguarding against potential drawbacks (Software Mind, 2023; VASS Company, 2023).

AI Implementation

The use of advanced technologies in banking has greatly improved how efficiently banks operate, while also meeting regulatory and ethical standards. As these technologies become more widespread, they create both challenges and opportunities for banks.

In their recent article, Lee et al. (2023) argued that new technologies are becoming popular in media, academia, and business. Several of these organizations are now using or planning to use some of them. In banking they are used to improve processes, provide better experiences and make better decisions by analyzing data. However, they also present challenges like data privacy and security, which banks must address to fully benefit from these advancements.

Implementing this technology requires a lot of money and involves some risks, so companies need to carefully consider the effects, results, and possible changes before adopting AI. Organizations should also learn from the experiences of others to understand the implications of putting AI into practice and what factors will influence its implementation.

This discussion will emphasize various regulatory and ethical compliances needed to facilitate the AI implementation in the banking sector.

vi. Regulatory Compliance

Technology is now essential in finance, and it will bring important changes for both consumers and financial institutions. Financial authorities support innovation and the usage of new technologies in this sector to reduce risks and to have effective regulations.

In the Philippines, it is important to comply with the regulatories mandated by the government. With the complex use of AI systems in the banking sector, various regulators are ensuring that banking sectors are making use of AI responsibly. It is important for banks to harness the power of AI by navigating safe, ethical and responsible use. Compliance with the key regulatory considerations constitutes maintaining public trust.

Haenlein, M., & Kaplan, A. (2019) studies show that instead of regulating AI technology directly, setting common standards for training and testing AI algorithms is a way better solution for the existing issues. This could work for consumer safety testing of products and provide a stable network for rapid changes in technology. Another concern is the company's accountability for mistakes made by its AI systems. However, regulations can't 100% prevent all misuse of AI since there are existing issues like hacking or scamming.

According to Yong, J., & Prenio, J. (2021), many industries, including banking institutions, have AI governance rules and guides on how to use artificial intelligence responsibly. The rules focus on key ideas like reliability, accountability, transparency, fairness, and ethics. With these key ideas, the AI models should have reliable and quality data, it should not cause harm like discrimination, the information should be shared openly for making decisions, and the AI should be broader than fairness, making sure that the data is not illegally obtained. The study also emphasizes the need for a regulatory framework that balances innovation with the accountability of financial sectors.

On the other hand, Mehdiabadi, A., Shahabi, V., Shamsinejad, S., Amiri, M., Spulbar, C., & Birau, R. (2022) emphasize that the shift to Industry 5.0 demands a heightened focus on regulatory compliance to ensure that all new initiatives align with existing laws and standards.

By implementing adaptable frameworks and encouraging collaboration among various stakeholders, financial institutions can effectively navigate the challenges posed by emerging technologies. This approach not only ensures compliance but also reinforces their commitment to regulatory integrity.

New technologies have the potential to transform the banking industry significantly; however, their implementation must be cautious and aligned with existing rules and regulations. Financial institutions should consider not only their operational efficiency and profitability but also the long-term interests of their customers. By proactively addressing compliance concerns, banks can align their innovative efforts with customer expectations.

In summary, prioritizing regulatory compliance is crucial for the banking sector to manage the complexities of modern technologies effectively, protect consumers, and build trust while pursuing innovation. By emphasizing compliance, banks can manage risks effectively and ensure sustainable growth.

vii.   Ethical Considerations

The use of advanced technologies in regulatory compliance offers significant benefits, but addressing ethical concerns is equally important. Financial institutions face challenges such as data privacy and inherent biases in algorithms, which can lead to unfair outcomes in areas like loan approvals and fraud detection (TechTarget, 2024). These biases often stem from flaws in training data, as highlighted by Bahoo et al. (2024), and can result in discriminatory practices. To address this, Adeyelu et al. (2024) emphasize the need to identify and mitigate biases within these systems to ensure fair treatment of all clients.

The adoption of advanced technologies has transformed banking operations, enhancing efficiency, personalization, and risk management. However, the rapid evolution of these tools has raised ethical concerns. For example, while they improve fraud prevention and compliance efforts, they also pose risks related to transparency, accountability, and data security. Azzabi & Lahrichi (2023) and Velev & Zahariev (2022) discuss the importance of safeguarding customer privacy against unauthorized access or breaches.

Regulatory Technology (RegTech) solutions powered by these innovations have streamlined compliance processes by automating tasks like transaction monitoring and regulatory reporting (DataSnipper, 2024). These systems reduce manual workloads, improve accuracy, and provide real-time updates to meet evolving legal standards (BizTech Magazine, 2024). Additionally, they enhance risk assessment by analyzing large datasets to identify potential compliance risks that traditional methods might overlook (Nearform, 2024).

To build trust among customers and regulators, financial institutions must ensure transparency in decision-making processes. Adeyelu et al. (2024) stress the importance of making these processes understandable to all stakeholders. Similarly, Manta et al. (2024) highlight the need for accountability in how algorithms reach conclusions to prevent unintended consequences.

Ethical challenges surrounding errors or adverse outcomes from automated decision-making remain a critical concern. Adeyelu et al. (2024) and Velev & Zahariev (2022) explore the legal and ethical implications of such scenarios, emphasizing the need for clear accountability frameworks.

Despite these challenges, advanced technologies remain essential for modern banking operations. By addressing ethical concerns responsibly and prioritizing governance and transparency, financial institutions can harness these tools' potential while ensuring sustainable growth and customer trust.

III. RESEARCH METHODOLOGY

Research Design

The researchers of this study had used the mixed-method research design by employing both the quantitative and qualitative approach. The qualitative approach of this study will focus on the determination whether the employees in the banking sector have positive or negative perception in relation to the adoption of AI. The views of the employees are very important as it will provide a clear understanding with regards to the overall impact of AI in both the daily routine of the employees and the overall effect of it in the banking sector. The quantitative approach on the other hand focuses on the assessment of the customers or end users of the banking sector. The quantitative approach will provide accurate data whether the customers are benefited overall or not.

According to Creswell (1994), a qualitative approach is the type of method which can provide a deep understanding of different views, insights and opinions of individuals or groups of people. Qualitative research is an approach that collects data in the participant's real-life settings and analyzes the data by starting with specific details and then identifying broader themes. The researcher also interprets what the data means.

As noted by Babbie (2010), quantitative methods emphasize objective measurements and the statistical, mathematical, or numerical analysis of data collected through various means, such as polls, questionnaires, and surveys. This approach is particularly effective for testing hypotheses and establishing patterns or correlations among variables. This approach will measure the overall impact of AI with a primary goal to quantify AI as a "friend" by assessing its operations and customer experiences with its potential risks in association to AI adoption.

Respondents of the Study: Population and Sample Size

The respondents of the study will focus on the banking sector customers and employees. These are the individuals and the group of people who are directly affected by the adoption of AI in the banking sector. In order to identify whether AI in the banking sector is a friend or a foe, the researchers will employ an in-depth interview to a minimum of Ten (10) and maximum of Fifteen (15) bank employees which will use the qualitative approach. On the other hand, the quantitative approach will employ One hundred fifty-one (151) bank customers to assess the views and insights of the end users. With the use of both approaches, the researchers of this study can provide an accurate assessment whether the AI adoption in the banking sector is helpful or not.

The Sample Size for the bank customers is determined by using the Cochran's formula by using a precision level of 8%, confidence level of 95% and Estimated Proportion of 0.5. Thus, the sample size given from the specified combination of precision, confidence and variability is 151.

Research Instrument

The researchers of this study will use a questionnaire for both approaches. The qualitative approach to be used for the bank employees have a total of 10 questions while the quantitative approach to be used for the bank customers have 40 statements which will be assessed based on the provided likert scale of the researchers.

Data Gathering Procedure

The researchers will employ a mixed-method approach for this study. Qualitative approach will focus on the views and insights of the bank employees while the Quantitative approach will focus on the assessment of the bank customers with regards to the use of AI in the banking sector.

The researchers will provide questionnaires for both approaches to their respective respondents and the data collected from the data gathering will be used in this study to interpret and analyze whether the adoption of the AI is beneficial or not.

Formulation and Pre-Testing of the Research

The Pre-Testing of this research study used the responses from 22 people which is the combination of both the bank customers and bank employees. The researchers of this study had employed the interviews either in person or through online google forms.

To check the internal consistency of the research instrument, a reliability test using Cronbach's alpha was performed using data collected from a pilot test involving 22 participants. The collected responses were analyzed using IBM SPSS Statistics Version 26 which generated the Scale and Reliability Statistics (see Table 1). The results are shown below.

Table 1

Reliability Analysis of Research Instrument

Domain	No. of Components	Mean	SD	Cronbach's alpha	Reliability Level
Customer Satisfaction with AI-Driven Services	10	29.14	5.48	0.925	Excellent
Customer Loyalty with AI-Driven Services	10	28.25	6.12	0.963	Excellent
Level of Effectiveness of AI in Accuracy of Fraud Detection	10	28.85	6.48	0.965	Excellent
Perceived Risk of AI Adoption	10	26.91	6.09	0.947	Excellent

Reliability Level: Unacceptable (0 - 0.49), Poor (0.50 - 0.59), Questionable (0.60 - 0.69), Acceptable (0.70 - 0.79), Good (0.80 - 0.89), Excellent (0.90 - 1.00)

Table 1 summarizes the results of the reliability test performed using Cronbach's Alpha on the research instrument. Excellent levels of reliability were established for Customer Satisfaction ($\alpha = .925$), Customer Loyalty ($\alpha = .963$), Effectiveness in Fraud Detection ($\alpha = .965$), and Perceived Risk of Adoption ($\alpha = .947$). Overall, the instrument is considered to have excellent reliability and, therefore, superficial to no changes were made.

Statistical treatment of formula

Sample size for this study is determined by utilizing the Cochran's formula. This is appropriate for cases wherein the population size is unknown. The formula is as follows:

$$n_0 = \frac{z^2 \cdot p \cdot (1 - p)}{e^2}$$

Where:
n = sample size

z = Z-score corresponding to the desired confidence level

p = population size

e = margin of error

This study determined the assessment of reliability analysis of the survey instrument by using Cronbach's alpha. It was calculated based on a pilot test involving 22 (twenty-two) participants. The formula for Cronbach alpha is:

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N - 1) \cdot \bar{c}}$$

Where:

N = number of items

c̄ = average covariance between item pairs

v̄ = average variance of each item

Data Analysis Plan

This data analysis strategy of this study will utilize a mixed-methods approach in order to analyze the impact of AI adoption in the banking sector. The strategy will consist of various steps in order to determine the impact of AI. The data acquired from the bank employee interviews and bank customer surveys will be used in order to implement the following procedures:

- Summarizing the Data: The Numerical data from the customer surveys will be summarized by tallying the customer respondents for each question or item and grouping the customers based on the demographic data. The data gathered from the bank employee's interview will be organized based on thematic categories.

- Statistical Interpretation: The summarized data will be interpreted by using the following methods - Frequency and Percentage Distribution, Mean and Weighted Mean

- Verbal Interpretation: The outcome from the statistical interpretation and thematic analysis will be analyzed to have a verbal interpretation in order to draw conclusions aligning to the research questions of the study. This interpretation involves the assessment of overall interpretation of AI adoption in the banking sector whether it is a friend or a foe.

IV. PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

The researchers of this study prepared a questionnaire for bank customers and bank employees. The focus of this study is to determine whether the perception of AI adoption in the banking industry is a friend or a foe. The results and interpretation of the data gathered for both qualitative and quantitative methods are as follows:

Table 1. Demographic Profiles among the Respondents_Survey

Demographic	Descriptive	f	%
Age Group	Below 18 years old	7	4.64%
	18 to 24 years old	17	11.26%
	25 to 34 years old	88	58.28%
	35 to 44 years old	21	13.91%
	45 to 54 years old	6	3.97%
	55 to 64 years old	6	3.97%
	65 years old and above	6	3.97%
Gender	Man	51	33.77%
	Woman	77	50.99%
	Non-binary/Third gender	6	3.97%
	Prefer not to say	17	11.26%
Length of Time as a Bank Customer	Less than 1 year	18	11.92%
	1 - 3 years	10	6.62%
	4 - 6 years	19	12.58%
	More than 6 years	104	68.87%

Table 2. Demographic Profiles of Bank Employees_Interview

Demographic	Descriptive	f	%
Age	25 to 34 years old	5	50.00%
	35 to 44 years old	3	1.86%
	45 to 54 years old	1	0.62%
	55 to 64 years old	1	0.62%
Gender	Man	2	20.00%
	Woman	4	40.00%
	Non-binary/Third gender	3	30.00%
	Prefer not to say	1	10.00%
Bank Affiliation	BDO	4	40.00%
	BPI	2	20.00%
	Security Bank	3	30.00%
	Unionbank	1	10.00%
Length of Time as a Bank Employee	1-3 years	1	10.00%
	4-5 years	5	50.00%
	6 years and above	4	40.00%

Table 1 and 2 presents the demographic profiles of the respondents (bank customers) and bank employees.

As seen in the Table 1, the majority of respondents were between 25 and 34 years old (58.28%), followed by those aged 35 to 44 years (13.91%), while the remaining respondents were below 18 years old (4.64%), 18 to 24 years old (11.26%), 45 to 54 years old (3.97%), 55 to 64 years old (3.97%), and 65 years old and above (3.97%). In terms of gender, women (50.99%) had a larger representation compared to men (33.77%); other respondents identified as non-binary or third gender (3.97%), while the remaining respondents did not disclose their gender (11.26%). Lastly, the majority had been customers for more than six years (68.87%), while (11.92%) had been customers for less than a year, (6.62%) for one to three years, and (11.28%) for four to six years.

On the other hand, Table 2 shows that majority of the bank employees who were interviewed were 25 to 34 years old comprising (50%), followed by 35 to 44 years old (1.86%) and the remaining respondents for 45 to 54 years old and 55 to 64 years old at (0.62%). For the gender, the majority of bank employees interviewed were Woman (40%) followed by Non-binary/Third Gender (30%), while the remaining employees were Man (20%) and those who did not disclose (10%). In terms of their bank affiliations, the majority of interviewed bank employees are from BDO (40%) followed by Security Bank (30%) then BPI (20%) and last one is Unionbank (10%). For the tenure period of the bank employees, the majority were 4 to 5 years (50%), while the remaining employees were 6 years and above (40%) and 1 to 3 years (10%).

Quantitative Research Questions:

Research Question #1: To what extent has AI adoption improved customer satisfaction and loyalty in the banking sector?

Table 3. Customer Satisfaction with AI-Driven Services among Respondents

Statements		Weighted Mean	Verbal Interpretation
1.1	AI has improved the speed and efficiency of my banking transactions.	3.11	Agree
1.2	I feel more in control of my finances due to the use of AI	2.98	Agree
1.3	AI has helped me to make more informed financial decisions.	2.96	Agree
1.4	I find the AI-powered features of the bank's services easy to use	2.96	Agree
1.5	I appreciate the personalized service I receive from the bank's AI-powered tools	2.97	Agree

1.6	I feel confident that my personal information is safe and secure when using AI-powered services.	2.68	Agree
1.7	I believe AI has helped the bank to reduce errors and improve accuracy.	2.78	Agree
1.8	I am satisfied with the overall quality of AI-powered customer service.	2.91	Agree
1.9	I am willing to use more AI-powered features in the future	2.99	Agree
1.10	AI has made banking more convenient for me.	3.00	Agree
Overall Mean Score		**2.93**	**Agree**

Table 3 presents the respondents' customer satisfaction with AI-driven services in banking. The weighted mean scores indicate that respondents agreed that AI has improved the speed and efficiency of their banking transactions (M = 3.11), made banking more convenient (M = 3.00), and increased their willingness to use more AI-powered features in the future (M = 2.99). Additionally, they agreed that AI made them feel more in control of their finances (M = 2.98) and provided personalized services (M = 2.97). Respondents also expressed agreement that AI helped them make more informed financial decisions (M = 2.96), and that AI-powered features were easy to use (M = 2.96). Furthermore, they agreed that AI enhanced customer service quality (M = 2.91) and improved accuracy by reducing errors (M = 2.78). While respondents agreed that AI ensured the safety and security of personal information (M = 2.68), this aspect received the lowest mean score. An overall mean score of 2.93 suggests that respondents were generally satisfied with AI-driven services, highlighting the positive impact of AI on their banking experience.

Research Question #2: What is the level of effectiveness of AI in terms of the accuracy of fraud detection systems?

Table 4. Level of Effectiveness of AI in Accuracy of Fraud Detection as Perceived by the Respondents

Statements		Weighted Mean	Verbal Interpretation
2.1	The bank's AI-powered systems detect fraudulent transactions.	2.49	Disagree
2.2	The bank's AI systems prevent unauthorized access to my accounts.	2.53	Agree
2.3	The bank's AI systems detect and prevent money laundering activities.	2.45	Disagree
2.4	The bank's AI systems identify and block suspicious activity on my accounts	2.46	Disagree
2.5	The bank's AI systems protect my personal information from fraudsters.	2.47	Disagree
2.6	The bank's AI systems respond to and resolve fraud incidents.	2.48	Disagree
2.7	The bank's AI systems provide timely alerts about potentially fraudulent activity.	2.50	Agree
2.8	The bank's AI systems accurately identify and prevent emerging fraud threats.	2.50	Agree
2.9	The bank's AI systems detect and prevent fraud related to online banking and mobile banking.	2.50	Agree
2.10	The bank's AI systems protect me from phishing scams and other social engineering attacks	2.42	Disagree
Overall Mean Score		**2.48**	**Disagree**

Table 4 presents the respondents' perception of the effectiveness of AI in ensuring accuracy in fraud detection. The weighted mean scores indicate that respondents agreed that the bank's AI systems prevent unauthorized access to their accounts (M = 2.53) and provide timely alerts about potentially

fraudulent activity (M = 2.50). They also agreed that AI systems accurately identify and prevent emerging fraud threats (M = 2.50) and detect fraud related to online and mobile banking (M = 2.50). However, respondents disagreed that AI-powered systems effectively detect fraudulent transactions (M = 2.49), prevent money laundering activities (M = 2.45), identify and block suspicious account activity (M = 2.46), and protect personal information from fraudsters (M = 2.47). Additionally, respondents disagreed that AI systems respond to and resolve fraud incidents (M = 2.48) and protect them from phishing scams and other social engineering attacks (M = 2.42), with the latter receiving the lowest mean score. An overall mean score of 2.48 suggests that respondents generally perceived AI-driven fraud detection as ineffective, highlighting the need for further enhancements to strengthen AI's role in safeguarding customers from fraudulent activities.

Research Question #3: What is the perceived level of risk associated with AI adoption among customers?

Table 5. Customer Satisfaction with AI-Driven Services among Respondents

Statements		Weighted Mean	Verbal Interpretation
3.1	AI has increased my overall trust and confidence in the banking industry.	2.86	Agree
3.2	I am more likely to choose banks that utilize AI technology.	2.93	Agree
3.3	I believe the use of AI in banking benefits customers like me.	2.94	Agree
3.4	I am more likely to recommend banks that use AI to my friends and family.	2.92	Agree
3.5	I am more confident in the future of banking due to the advancements in AI.	2.95	Agree
3.6	AI has improved my overall perception of the banking industry.	2.87	Agree
3.7	I believe AI can help banks better serve their customers.	2.93	Agree
3.8	I am more likely to support banks that invest in AI innovation.	2.93	Agree
3.9	I am optimistic about the role of AI in improving the banking experience.	2.97	Agree
3.10	I believe AI will make the banking industry more competitive and customer-centric.	3.01	Agree
Overall Mean Score		2.93	Agree

Table 5 presents the respondents' perception of the effectiveness of AI in ensuring accuracy in fraud detection. The weighted mean scores indicate that respondents agreed that the bank's AI systems prevent unauthorized access to their accounts (M = 2.53) and provide timely alerts about potentially fraudulent activity (M = 2.50). They also agreed that AI systems accurately identify and prevent emerging fraud threats (M = 2.50) and detect fraud related to online and mobile banking (M = 2.50). However, respondents disagreed that AI-powered systems effectively detect fraudulent transactions (M = 2.49), prevent money laundering activities (M = 2.45), identify and block suspicious account activity (M = 2.46), and protect personal information from fraudsters (M = 2.47). Additionally, respondents disagreed that AI systems respond to and resolve fraud incidents (M = 2.48) and protect them from phishing scams and other social engineering attacks (M = 2.42), with the latter receiving the lowest mean score. An overall mean score of 2.48 suggests that respondents generally perceived AI-driven fraud detection as ineffective, highlighting the need for further enhancements to strengthen AI's role in safeguarding customers from fraudulent activities.

Qualitative Research Questions:

Research Question #1: How do bank employees perceive the impact of AI on their roles and job satisfaction?

Table 6. Perception of Bank Employees with regards to impact of AI on their roles & job satisfaction

Interview Questions		Interview Answers	Verbal Interpretation
4.1	**How has AI changed your daily banking tasks?**	AI has a positive impact as it automates their routine work, increases efficiency and allows customer relationships. Some answered no change indicating that it varies based on their role/job type.	Agree
4.2	**Do you think AI has made banking operations more efficient? Please give an example.**	AI has made their operations more efficient and some scenarios or examples they gave are personalized recommendations, enhanced security and accelerated customer service.	Agree
4.3	**How has AI changed the way you interact with customers and the services you provide?**	AI has transformed the customer relationship and interactions with bank employees. It has reduced the queuing time, provides 24/7 services, improves security and improves inquiry resolution. Although some experienced no change indicating varying impacts.	Agree
4.4	**Do you think AI has reduced errors in banking operations? Why or why not?**	AI had reduced most of the bank errors with the help of its automation process and enhanced accuracy. However, there are employees who have emphasized that AI must have regular updates and informed about AI's limitations.	Disagree
4.5	**How do you think AI will affect your job security in the banking industry?**	According to the employees, AI will not threaten their jobs but will enhance it.	Agree
4.6	**Do you think AI is a friend or foe to people working in banking? Why?**	According to the employees, AI is a friend to them because it helps them with their overall bank tasks which makes everything easier and more efficient.	Agree
Overall Bank Employees' Rating			**Agree**

Table 6 shows the interview questions and answers from the ten (10) bank employees. Overall, Bank employees generally perceive AI as a supportive tool that enhances their roles rather than a threat to their job security. They perceived AI as a tool to help with their daily tasks in the bank although there may be some problems with bank errors. AI had reduced most of their challenges with bank operations and had helped with the automation process. Bank employees support AI as a friend to them.

With the posed interview questions to the bank employees with regards to their overall perception with the use of AI in the banking sector, the researchers are able to get useful information from them. The overall usefulness of AI in the banking sector is largely seen as a 'friend' because it helps with their daily transactions which makes their work more accurate and easier, enabling them to lessen manual tasks. Given this efficiency, the employees perceived AI as a crucial help with their job security. AI is seen as an essential tool rather than a replacement for them.

Research Question #2: What are the ethical concerns that arise from the use of AI in banking, particularly in decision-making processes?

Table 7. Ethical Concerns of Bank Employees with the use of AI in banking

Interview Questions		Interview Answers	Verbal Interpretation
5.1	**What are your concerns about data privacy with AI in banking?**	According to the employees, their primary concern is the security and the protection of customer information due to data leaks that often happen. They reiterated that AI must have an aggressive approach with regards to safeguarding this information as this is very crucial to the overall customer satisfaction.	Continuing Concern
Overall Bank Employees' Rating			-

Table 7 shows the feedback of bank employees with regards to ethical concerns that arise from the use of AI in banking. Majority of their concerns revolve with the security and protection of customer information. These ethical concerns which surround the use of AI in the banking sector can be a potential for biased decision-making. Employees have expressed significant concerns for potential misuse of AI which can contribute to possible data breach and fraud within the banking sector. They worry that AI systems can make biased or unfair decisions especially for loan approvals and risk assessments.

Research Question #3: How can banks ensure transparency and accountability in their AI systems?

Table 8. Bank Employees feedback on how to ensure transparency and accountability in their AI systems

Interview Questions		Interview Answers	Verbal Interpretation
6.1	**What are your concerns about data privacy with AI in banking?**	According to the employees, banks can be able to ensure transparency and accountability by establishing audit trails for AI processes and regularly monitoring their AI systems to avoid biased outputs.	Continuing Concern
Overall Bank Employees' Rating			-

Table 8 shows the employee feedback on how to ensure transparency and accountability in their AI systems. This is a continuing concern of the bankers with regards to the use of AI but they insisted that banks will establish regular monitoring in order to ensure that they can be able to check for the AI performance on bias and errors. They reiterated that they are ensuring that the customers have a proper channel to report their concerns on AI systems.

Research Question #4: What are the specific challenges faced by banks in implementing AI technologies, and how are they addressing them?

Table 9. Feedback of Bank Employees on Challenges faced in implementing AI technologies

Interview Questions		Interview Answers	Verbal Interpretation
7.1	**Have you received enough training to use AI systems? If not, what support do you need?**	The feedback of bank employees with regards to training is mixed. Some are with proper training but some do not undergo training. Overall, most of them are willing to undergo hands-on training especially for those related to customer service and sales.	Mixed Feedback
7.2	**Have you faced any challenges when using AI tools? If so, how did you solve them?**	Experiences on bank employees are mixed, but discussed that they often experience challenges and they address it by manual verifications and providing personalized intervention.	Mixed Feedback
7.3	**How do customers usually react to banking services that use AI?**	According to the bank employees, there is mixed feedback from the customers. Some are satisfied and some are not. Most customers are primarily concerned with data privacy and still value human interaction rather than shifting all online.	Mixed Feedback
Overall Bank Employees' Rating			**Mixed Feedback**

Table 9 shows the feedback of bank employees with regards to the challenges they are facing in implementing AI technologies. Overall, the feedback of the employees are mixed. With this, it is crucial for banks to focus on employee training with regards to the use of AI technologies especially those which pertains to the customer service and sales. This is important so that the employees can be able to utilize this and they can fully understand the AI systems and impart this to the bank customers.

Banks are facing various challenges with the implementation of AI technologies. There are often challenges with the use of AI tools due to its complexity. Employees report issues with regards to this and start addressing it through manual verification and personalized intervention.

Customers have mixed emotions with regards to AI implementation according to the interviewed bank employees as some say the AI are user friendly and some disagree. The reactions from the customers vary specifically on their bank experiences. The customers are more curious but cautious with the use of AI in the banking sector.

V. CONCLUSION AND RECOMMENDATION

Conclusion

The integration of the quantitative and qualitative data signifies a multi-faceted perspective on artificial intelligence's influence on the banking domain. A piece reports qualitative insights from bank employees that suggest a largely favorable perspective around the introduction of AI, revealing how it can help streamline work, improve efficiency, as well as enhance service to customers. AI is viewed by employees as a helpful facilitator of efforts to automate everyday processes, reduce human error, and enable deeper engagement with customers. This aligns with broader expectations of AI's role in modernizing the banking sector, improving both internal processes and external customer interactions. Additionally, employees highlight the potential for AI to free up valuable time, allowing them to focus on more complex and customer-centric tasks, thus contributing to overall job satisfaction and productivity.

The outcome as provided in the qualitative data shows that the bank customers generally agree employing a total weighted mean of 2.93. This only means that upon the implementation of AI in the banking sector, the satisfaction and loyalty of the customers had really increased. The AI Adoption in the banking sector had provided the customers with a positive perspective of the technological innovations brought by AI. The adoption of AI has provided them countless services which they can access 24/7 and also for the personalized recommendations they can do. However, the customers had a significant shift due to the fraud detection in the banking sector which only implies that there is a possible data breach and their data is not secured in the bank's hands. There is a significant figure of disagreement from the customers employing a 2.48 weighted mean among the respondents. This only shows that even though there are some customers who are deemed loyal and satisfied with the use of AI, various concerns persist among the bank customers surrounding the ability of this technological innovation to protect their data.

The views and insights provided by the bank employees in their in-depth interviews shows their concerns on the data privacy of the bank customers which had provided a hint with regards to the discontentment of the bank customers with regards to the data breaches happening in the banking sector. This can potentially raise the fears and weaken both the satisfaction and loyalty of the customers to the AI adoption in their respective banks. The survey results from the customers had shown an agreement among them employing a 2.93 weighted mean which is related to the risks tied to the use of AI in the banks. This potential downside of AI shows that the customers appreciate the benefits provided by AI in the services offered by the bank but are really concerned and cautious with the widespread challenges on its data and privacy.

Overall, this research study has shown that the adoption of AI in the banking sector has a positive effect on the bank employees and bank customers. It had generally increased their satisfaction, loyalty and effectiveness in case of fraud detection. However, the trust of the customers is continually shaken by the perceived risks associated with its adoption. The banks need to thoroughly check the operations even though they have their AI. They also need to strengthen their data security in order to avoid any data breaches in the future. For the banks, it is important to focus on the problems and challenges aligned with the AI adoption in order to provide an excellent service to their customers. It will not only generate income but also increase the positive outcomes to their end-users.

Recommendation

The researchers of this study had assessed a positive outcome showing that the respondents treated AI more as a friend than a foe. The surveys and interviews with the respondents had provided a much clearer understanding to the aspects affecting the adoption of AI in the banking sector. It may be evident that AI has more benefits than the risks, however, it is important that the risks are slowly minimized and weakened as this risk is causing fear to both the employees and the customers.

The banks must use more advanced technology to strengthen their AI algorithm and to have a more secure banking system. With this the system can be able to immediately identify fraudulent activities and improve the services provided to the customers. The banks must also enhance its transparency with regards to their AI systems to better provide their functions. The improvement from banks employing these can be able to make their customers be more satisfied and avoid being scared whether their money is gone. It is also important to have an open communication with the customers concerning their individual accounts and provide them with the improved data policies. By establishing trust and transparency to the customers, the banks cannot only satisfy their current customers but can also encourage other people to use their services thus adding more customers in the future.

Suggestions for further research

As the researchers of this study note, future research should also focus on comparing the use of Artificial Intelligence (AI) in other industries since, currently, not only banks but also other sectors, such as manufacturing and education, use them. From this, other researchers can be able to determine the present trends in relation to the adoption of AI. Other studies can also be directed at determining the time frame of customer trust in AI by examining its indicators and any possible moderators.

Conflict of Interest/Competing Interest Statement

We, the authors, want to let you know that we have no financial interests or personal relationships that could influence the work we've reported in this paper. This research didn't receive any specific grant from funding agencies, whether they're public, commercial, or non-profit. We assure you that our findings about the role of AI in banking are purely based on academic research and publicly available information, with no ties to any specific AI technologies or banking institutions.

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