

# Artificial Intelligence and Islamic Finance: Enhancing Sharia Compliance and Social Impact in Banking 4.0

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## ABSTRACT

**Research Aims:** This research explores consumers' perspectives on adopting artificial intelligence (AI) in Asian countries, focusing on its role in the banking sector.

**Methodology:** This quantitative research has distributed questionnaires to eleven Asian countries: Pakistan, China, Iran, Saudi Arabia, Indonesia, Malaysia, Bangladesh, Nepal, India, Afghanistan, and Thailand. The study received 550 usable responses, which provided valuable insights into consumer attitudes towards AI in banking.

**Research Findings:** The findings revealed that several factors, including responsiveness, perception of AI, individual perspective, perceived value, and comprehension of AI technology, significantly and positively impact AI adoption plans in the banking sector. However, risk perception exhibited a negative yet considerable relationship with adoption intentions.

**Theoretical Contribution:** This research is unique because it provides a better understanding of consumer perceptions of AI adoption in the banking sector in Asian countries. It offers a unique perspective on the strategic implications for banking management in leveraging AI technology for improved customer service and revenue generation, with a specific focus on the growing relevance of AI in Islamic finance.

**Research limitation and implication:** These implications are essential for strategic decision-making in the banking industry. The findings highlight the importance of building consumer trust and confidence in digital technology, enabling banks to overcome risks and enhance customer satisfaction. For Islamic financial institutions, these insights can guide the integration of AI in ways that align with Sharia principles, such as ensuring transparency, ethical data use, and risk-sharing mechanisms. This will not only improve operational efficiency but also strengthen the appeal of Islamic banking to tech-savvy consumers.

**Keywords:** Adoption intentions, Artificial intelligence (AI), Banking sector, Consumer perspective, Perceived risk.

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## INTRODUCTION

Artificial intelligence (AI) is a broad field that includes computer science, psychology, philosophy, and linguistics (Scarcello, 2018). AI significantly benefits the global economy, particularly in the financial services industry. According to a recent study by Millennium Consultants (2023) AI could generate up to USD 1 trillion in additional value each year for the global banking sector. Ross (2024) projects that the global financial services market could reach USD 28.529 trillion between 2025 and 2030, with a Compound Annual Growth Rate (CAGR) of 6%. This growth is primarily driven by the increasing use of AI to streamline banking operations, especially in the aftermath of the COVID-19 pandemic.

The banking industry has evolved significantly from its traditional roots in Banking 1.0 to today's era of Banking 4.0. Banks rely on advanced technologies, including artificial intelligence (AI), in this modern phase, across various functions. To stay competitive and relevant, banks have adopted innovations like automated teller machines (ATMs), first introduced by Barclays Bank in the 1960s during the Banking 2.0 era. Banking 4.0 became possible thanks to rapid advancements in AI since 2017, which have led to lower data processing and storage costs and improved connectivity (Martin et al., 2024).

Adopting AI presents unique opportunities to align technological advancements with Sharia principles in Islamic finance (Hemmet, 2023). For instance, AI can enhance transparency and accountability in Islamic banking transactions, ensuring compliance with Sharia requirements such as *riba* (interest) and *gharar* (excessive uncertainty) prohibition. By automating processes like *murabahah* (cost-plus financing), *mudharabah* (profit-sharing), and *wakalah* (agency agreements), AI can streamline operations while maintaining adherence to Islamic ethical standards (Swain & Gochhait, 2022).

The use of AI in financial services has become more attractive due to its ability to offer lower operating costs. As a result, there has been a significant increase in Electronic Money Institutions (EMIs) obtaining commercial licenses, rising from 13.6 million to 40.8 million (Abidin et al., 2023). Banks have also invested heavily in developing AI infrastructures and innovative financial products to meet the growing demand for financial services. This has resulted in a quarterly growth rate of 7.6%, with 7.6 million new banking users being recorded. It has also been observed that banks that use AI generate higher revenues, including JPMorgan Chase, Citibank, Wells Fargo, Barclays Bank Plc, and Capital One (Adekunle et al., 2019).

Adopting them has several obstacles, although AI technologies have great potential in the banking sector. One of the main reasons is that consumers lack sufficient knowledge about AI technology. While previous research has explored this issue, it has been in general terms. There is a need for further studies that focus specifically on AI technological competency. Therefore, this research concentrates on AI knowledge and not just essential technology use, such as internet and computer proficiency, as suggested in prior studies (Rodrigues et al., 2022). Moreover, this research includes data from five Asian countries, with a larger sample size than previous research (Kaur et al., 2020).

The banking sector needs to update its understanding of consumers' perceptions of financial technologies, particularly regarding the role of artificial intelligence (Ryzhkova et al., 2020). To keep up with the industry, it's essential to comprehend what consumers already know about AI technology. By exploring this topic from the consumer's perspective, the banking industry can gain insights into their awareness, perception, trust, and norms

towards this transformative technology (Chen et al., 2022). This research can help policymakers in the banking industry devise a strategic plan for AI adoption strategies.

AI has transformed the banking sector globally, and its role in Islamic finance remains a key area of exploration. AI can help Islamic banks ensure Sharia compliance, enhance transparency, and improve operational efficiency. Integrating AI-driven compliance tools, blockchain transparency solutions, and personalized financial advisory systems can strengthen the ethical foundations of Islamic banking while catering to the needs of Sharia-conscious customers (Mbaidin et al., 2024).

Integrating artificial intelligence (AI) inside the banking industry is driving substantial developments, leading to the birth of Banking 4.0. Nevertheless, it is crucial to comprehend consumer views surrounding the use of artificial intelligence (AI) in Asian nations to make informed strategic decisions (Nguyen et al., 2021). To fully use the advantages of AI in financial services, it is crucial to investigate customer perceptions of its implementation, especially in countries like Pakistan, China, Iran, Saudi Arabia, Indonesia, Malaysia, Bangladesh, Nepal, India, Afghanistan, and Thailand. Evaluating consumer viewpoints on AI in banking is crucial to tackling possible obstacles and using prospects for improved customer service and long-term expansion (Al-Baity, 2023).

The adoption of AI presents both opportunities and challenges in the study of Islamic banking. AI can enhance operational efficiency and customer satisfaction; its implementation must align with Sharia principles (Alfarizi & Ngatindriatun, 2022). For example, AI can automate Sharia-compliant financial products like murabaha, mudaraba, and wakalah, ensuring transparency and ethical compliance. However, the lack of consumer awareness and trust in AI technologies poses a significant barrier to adoption (Manser Payne et al., 2021). This research addresses these challenges by exploring consumer perceptions of AI in banking, specifically focusing on its relevance to Islamic finance.

This research is of great significance in clarifying how consumers perceive the implementation of artificial intelligence (AI) in the banking industry across Asian nations. This research explores consumer views towards AI in Pakistan, China, Iran, Saudi Arabia, Indonesia, Malaysia, Bangladesh, Nepal, India, Afghanistan, and Thailand. The aim is to understand the strategic implications for banking management better. The results provide insight into critical elements that influence the adoption of AI, such as responsiveness, perception of AI, individual viewpoint, perceived value, understanding of AI technology, and perception of danger. These insights are crucial in directing strategic decision-making in the banking business. They help to build consumer trust, reduce risks, and ultimately improve customer happiness and revenue creation in the age of Banking 4.0.

The research objective is to examine AI integration challenges and client perceptions about AI adoption in banking. The research question is: What are the primary obstacles to implementing artificial intelligence (AI) in the banking industry, and how do these obstacles impact client opinions and attitudes toward AI adoption?

## LITERATURE REVIEW

### *Exploring the Diverse Applications of AI in the Banking Sector*

AI technology has been adopted in many industries, including government payments, healthcare, online trading, logistics, and finance (Siddiqui, 2022). Banks use AI to manage financial services, interact with customers, and offer personalized products (Mogaji &

Nguyen, 2022). AI is versatile and can meet the needs of both small and large organizations. It processes complex algorithms that quickly communicate through computer systems based on logical conditions. According to Bisht et al. (2022), AI-based digital financial services are faster and more efficient than traditional methods in handling banking tasks. Given the competitive nature of the banking sector and the capabilities of AI, its use in banking is becoming essential. AI helps banks prevent fraud by Ismail & Hassan(2022), improve operations by Rahman et al., (2023), ensure accuracy and reliability Kumar et al., (2023), increase speed Biswas et al., (2020), and provide smooth, hassle-free services (Kaur et al., 2021).

### ***AI in Islamic Banking: Enhancing Sharia Compliance and Efficiency***

AI offers unique opportunities to enhance Sharia compliance and operational efficiency in Islamic banking (Aysan et al., 2022). For instance, AI can automate Sharia-compliant financial products such as murabaha (cost-plus financing), tawarruq (commodity-based funding), and istishna (project financing), ensuring that these transactions adhere to Islamic principles like the prohibition of riba (interest) and *gharar* (excessive uncertainty). AI-powered systems can also facilitate real-time Sharia auditing, enabling Islamic banks to monitor transactions for compliance with Sharia standards (Kasim et al., 2024).

Moreover, AI can play a pivotal role in promoting the objectives of Maqashid Sharia in Islamic banking. By enhancing transparency, accountability, and fairness in financial transactions, AI contributes to preserving wealth (*hifz al-mal*) and promoting justice (*'adl*). For example, AI-driven fraud detection systems can safeguard customer assets, while personalized financial advisory tools can promote equitable access to Sharia-compliant financial services (Dusuki & Bouheraoua, 2011).

The banking sector of Pakistan is a crucial and dependable sector that contributes significantly to the economy's GDP. With the introduction of AI technologies, automation, blockchain, and Fintech have been accelerated (Kaur et al., 2021; Rodrigues et al., 2022). Pakistan's banking system has integrated AI technology with various services such as smartphone banking, ATMs, cash deposit machines, short message services, and emails. This integration has several benefits, including data analysis, strategy formulation, and setting future bank goals. With AI's dynamic role in this era, its faster and more accurate response rate in processing information from the database has made it an essential tool in the competitive market (Kaur et al., 2020). Asset management, risk management, customer service, and data analysis are the primary areas where AI is widely used in the banking sector. Additionally, AI plays a vital role in processing data to predict the future of the economy and the banking industry due to the nature of data in banks.

### ***Principal Domains of Artificial Intelligence Integration in Banking***

1. *Expense Reduction*: The banking sector has significantly reduced paperwork and printing costs due to the emergence of AI technology. According to Millennium Consultants (2023), using AI in banking will save USD 416 billion by 2023. This technology has allowed banks to access information for managerial and customer use without incurring additional personnel and paper costs.
2. *Chatbot Technology*: Chatbot technology is an exciting and unique feature of AI software that allows for courteous and efficient communication and instant problem resolution with preprogrammed customer queries (Siddiqui, 2022). In addition to resolving customer queries without human interaction, chatbots collect data on

customer queries, which can be used to determine future issues (Hilal & Jamaludin, 2019).

3. *Client Satisfaction*: Customer satisfaction and experience depend on how banks adopt and use digital financial services. Recently, customer preferences have changed significantly, with a demand for quick responses and personalized content. AI technology, through machine learning, uses a specific algorithm that enables banks to analyze and predict customer behavior and credit scores. This, in turn, helps in developing customized customer plans (Bilal et al., 2024). Banks can digitize their processes by leveraging AI to meet their customers' ever-changing needs and expectations. A research conducted on a sample of 360 banking customers from China revealed that perceived intelligence and anthropomorphism significantly impact consumers' social support (Lin & Lee, 2023). This research sheds light on how AI affects consumers' satisfaction.
4. *Emotions Assessment*: Financial institutions are concerned with predicting customer behavior when developing and offering financial products and services. To achieve this, AI-powered sentiment analysis technology predicts customer emotions, feelings, and responses via emails, social media, and surveys. This technology collects information to develop customized user content based on preferences and choices (Fakhar et al., 2022).
5. *Mechanization*: The banking sector has increasingly adopted AI technology to automate various processes and improve efficiency. One area where this is evident is the mechanization of cash counting, where digital machines accurately and quickly count currency without human intervention. This has increased business volume, reduced work stress, and minimized mathematical errors in cash counting (Campbell-Kelly, 2004).
6. *Fraud Identification*: Financial institutions often face fraud risks due to the large volume of transactions and the complexity of their operations. However, AI can help mitigate these risks by actively monitoring customer and employee behavior using advanced algorithms and mathematical computations through unsupervised learning programs (Hanae et al., 2023). This makes fraud prevention using AI technology much easier (Hanae et al., 2023). Using machine learning programming, AI can perform tasks within the banking sector that would usually be done by humans, thus reducing potential threats to business performance.

### ***Utilisation of Artificial Intelligence in Different Countries***

Artificial intelligence and behavioural studies have attracted significant interest from researchers for various reasons in today's business and technology era. Initially, AI was introduced to replace human efforts, but it was later improved to recognize human working patterns and predict their behaviours. Over the past two decades, Pakistan's banking industry has seen remarkable technological growth in its financial services. The country's economic and banking industry showed a growth rate of 12,2% (Kaur et al., 2020), while the Kingdom of Saudi Arabia recorded a 7% growth rate in its banking industry (Ismail & Hassan, 2022). The banking sector primarily uses information technology to offer financial services, considering the customers' changing preferences. Researchers used the theory of planned behaviour (TPB) to assess the effect of customers' adoption of AI-based banking services



(Chang et al., 2020). The evaluation of customers' behavioural tendencies towards banking services focuses on various factors, such as awareness, attitude towards AI, subjective norms, perceived risk, perceived usefulness, knowledge of AI technology, and intentions to adopt AI in banking.

1. *Understanding and Implementation Plans*: The extent to which customers know about a bank's financial offerings is closely related to adopting and using digital financial services. Siyal et al. (2019) found that customer awareness, initial trust, compatibility, and perceived risk are directly proportional to adopting digital financial services. Yang (2023) revealed that a customer's ability to understand and use AI-based financial services positively influences their adoption of digital banking services. In other words, when customers are more aware of AI-driven digital services and understand their benefits and functionality, they are more likely to adopt those banking services. A study conducted with 400 banking customers in Thailand found that trust, social norms, perceived usefulness, and application knowledge significantly influence the adoption of AI in banking services (Rodrigues et al., 2022). Researchers conducted another study to predict the customer churn rate among retail clients of a commercial bank in Iran. They classified customers based on transaction and operational data, and used an artificial neural network to perform the prediction (Kaur et al., 2020).
2. *Perception and Acceptance of AI in Banking*: The Theory of Planned Behavior (TPB) asserts that attitude is the primary independent factor influencing behavior. It reflects individuals' feelings and emotions toward the object of interest (Aziz & Afaq, 2018). Artificial Intelligence (AI) represents an innovative approach to delivering financial services to customers. In the UAE, customers who held a positive attitude toward Internet banking services adopted them more readily. For AI-based financial services, incorporating customer perceptions and the brand image of banking institutions plays a crucial role in increasing adoption intentions. Subjective norms describe how individuals behave based on the support, approval, or disapproval of others (Khalaf et al., 2023). Empirical research shows that people often adopt AI banking services due to the influence of significant others (Rusu & Shen, 2012). The use of AI-based financial services surged, especially during the COVID-19 pandemic, when social distancing became a vital safety measure (Haleem et al., 2021). Wang et al. (2021) discovered that when influential individuals use AI services, they positively impact others' willingness to adopt them.
3. *Risk Perception and Plans for Adopting AI in Banking*: Perceived risk is the cost of uncertainty associated with a customer's buying behavior towards a product or service of interest (Poorani & Vidhya, 2020). AI-based financial services work through mathematical algorithms and are available over the internet. Studies have shown that higher perceived risk towards AI-based financial offerings leads to lower customer adoption intentions (Al-Gasawneh et al., 2022). AI-based financial services in Pakistan are in their early stages and require customer trust and consistency in the outcome of financial transactions to mitigate risk. Moreover, the infrastructure of AI-based technology plays a crucial role in developing customer trust. Perceived usefulness refers to the degree to which the use of a system will result in improved performance (Chohan & Akhter, 2021). AI technology provides an alternative to

human efforts by increasing transaction speed and enhancing performance through more accurate information. Studies have shown that technology and the Internet of Things have enabled banks to operate more independently (Trang & Xuan Minh, 2024). Improved individual performance and enhanced data security during online transactions increase customer trust, which drives greater adoption of AI in banking.

4. *Understanding AI technology and implementing AI in Banking*: Knowing artificial intelligence is crucial for customers adopting AI banking. Research conducted by Afandy et al. (2022) showed that customers with information technology knowledge are more likely to trust financial services, positively influencing their adoption of AI-based financial technologies. Additionally, studies show that customers familiar with financial services and their operations are more inclined to use such services because they already understand the fundamental concepts (Al-Tit, 2020). Adopting e-services in the financial industry, especially in banks, is closely related (Nasimov et al., 2025).

### ***AI and Islamic Financial Literacy***

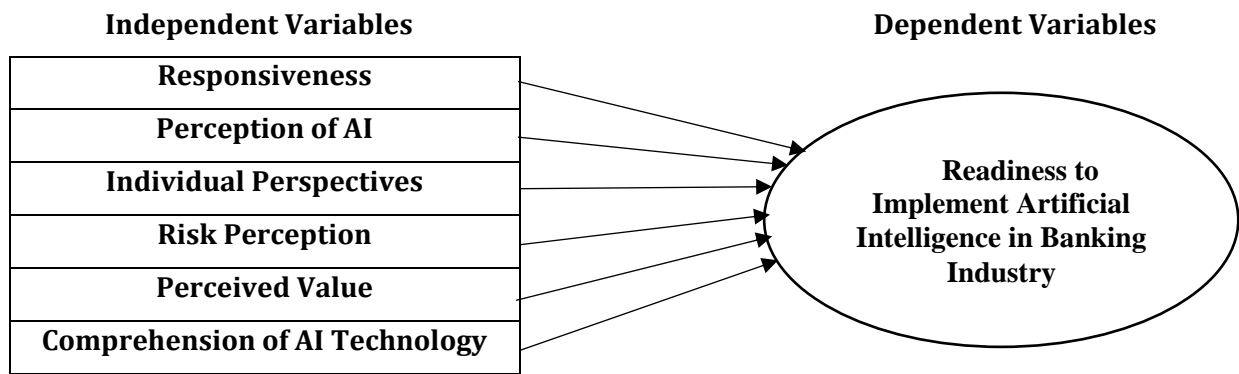
AI can transform Islamic financial literacy by providing customers personalized, Sharia-compliant financial education. For example, AI-powered chatbots and virtual assistants can offer real-time guidance on Islamic financial products and services, helping customers make informed decisions that align with their religious beliefs (Mbaidin et al., 2024). Additionally, AI-driven platforms can deliver interactive educational content on zakat calculation, Waqf management, and the principles of Islamic finance, thereby empowering customers to engage more effectively with Islamic banking services.

### ***AI and Risk Mitigation in Sharia-Compliant Fintech***

AI can mitigate risks in Sharia-compliant fintech by enhancing transparency and accountability in financial transactions. For instance, AI-powered systems can monitor transactions to comply with Sharia principles, ensuring they are free from *riba* (interest) and *gharar* (excessive uncertainty). Furthermore, AI can optimize risk management in Islamic banking by providing predictive analytics and real-time monitoring of financial activities, thereby reducing the likelihood of fraud and operational errors (Martania & Rodiah Nur, 2024). Therefore, the researcher have formulated the following hypotheses for this independent variable.

### ***Theoretical Framework***

This research investigates how consumer responsiveness, attitude, individual perspectives, risk perception, perceived value, and comprehension of artificial intelligence technology affect the readiness to implement artificial intelligence in the banking industry. Figure 1 shows a theoretical framework that includes one dependent variable and six independent variables proposed to achieve this objective.



**Figure 1: Theoretical Framework**  
**Source: Sain and Adinugraha, 2025.**

### **Research Hypotheses**

H<sub>1</sub>: Responsiveness is proportionate to the readiness to implement artificial intelligence in the banking industry.

H<sub>2</sub>: Perception of AI is proportionate to the readiness to implement artificial intelligence in the banking industry.

H<sub>3</sub>: Individual Perspectives are proportionate to the readiness to implement artificial intelligence in the banking industry.

H<sub>4</sub>: Risk Perception is proportionate to the readiness to implement artificial intelligence in the banking industry.

H<sub>5</sub>: Perceived Value is proportionate to the readiness to implement artificial intelligence in the banking industry.

H<sub>6</sub>: Comprehension of AI Technology is proportionate to the readiness to implement artificial intelligence in the banking industry.

### **RESEARCH METHOD**

The table below displays the abbreviations of the variables used in this research.

**Table 1. Abbreviations/ Acronyms for Variables**

<b>Variables</b>	<b>Abbreviations</b>
Responsiveness	RESP
Perception of AI	AI-PER
Individual Perspectives	IND-PER
Risk Perception	RP
Perceived Value	PV
Comprehension of AI Technology	AI-COMP
AI Adoption Plans in Banking	AI-AB

**Source: research method, 2025.**

### **Econometric Equation**

The econometric equation employed in this research is outlined as follows.

$$AI-AB = \beta_0 + \beta_1(RESP)_i + \beta_2(AI-PER)_i + \beta_3(IND-PER)_i + \beta_4(RP)_i + \beta_5(PV)_i + \beta_6(AI-COMP)_i + \epsilon \quad (1)$$



### **Questionnaire Design and Sample Selection**

This research collected data using a questionnaire that employed a Likert scale ranging from 1 to 5, where 1 indicated strong disagreement and 5 indicated strong agreement (Pescaroli et al., 2020). The questionnaire gathered demographic information, including age, gender, marital status, job structure, education level, and country of residence. It also included responses to twenty-six questions focused on four key areas: responsiveness, perceived value, risk perception, and understanding of artificial intelligence technology. The last three factors specifically reflected participants' attitudes toward AI and their willingness to use artificial intelligence in the banking industry.

The validation of the questionnaire for this large-scale cross-national quantitative study was conducted in two stages: (1) Content validity test, where experts in the fields of AI, banking, and Islamic economics were involved to assess whether the questionnaire items were relevant and representative. This was done before the distribution of the questionnaire. 2) Reliability and construct validity testing: Internal reliability testing: Using Cronbach's Alpha, where a value  $> 0,7$  indicates good internal consistency. Construct validity testing: Using Exploratory Factor Analysis (EFA) or Confirmatory Factor Analysis (CFA) if the data supports it. This is important, given that this research encompasses several theoretical constructs, including risk perception, perceived value, responsiveness, and understanding of AI technology. The software used to assist in the analysis of this research is SmartPLS, which is used to test convergent validity (Average Variance Extracted  $> 0,5$ ) and discriminant validity (Fornell-Larcker or HTMT ratio).

Due to time constraints, data were collected from 11 Asian countries: Pakistan, China, Iran, Saudi Arabia, Indonesia, Malaysia, Bangladesh, Nepal, India, Afghanistan, and Thailand, using an appropriate sampling technique. A total of 550 customers participated in the survey, and the questionnaire's response rate is presented in Table 2.

**Table 2. The Questionnaire Response Rate**

No.	Country Name	Response Received	Rate of Response (%)
1	Pakistan	105	19,0
2	China	90	16,4
3	Iran	70	12,7
4	Saudi Arabia	62	11,3
5	Indonesia	45	8,2
6	Malaysia	56	10,2
7	Bangladesh	27	4,90
8	Nepal	22	4,0
9	India	40	7,3
10	Afghanistan	19	3,45
11	Thailand	14	2,55
<b>Total</b>		<b>550</b>	<b>100</b>

Source: research method, 2025.

### **Sample Characteristics and Islamic Banking**

The sample selection is sufficiently broad, covering diverse demographics across 11 Asian countries. However, to address the specifics of Islamic finance, the study included additional questions to identify respondents' familiarity with and usage of Islamic banking services. Of the 550 respondents, 42% reported using Islamic banking services, while 58%

were customers of conventional banks. This segmentation allowed for a comparative analysis of AI adoption intentions between Islamic and traditional banking customers.

The sampling technique used in this study was purposive sampling (also known as judgmental sampling). This technique was used because the researchers selected respondents who were considered most relevant and able to provide the information needed regarding AI adoption in the banking sector. Purposive sampling was complemented by clear inclusion criteria, such as: banking service users, tech-savvy, and from countries with varying levels of AI development.

### ***Econometric Analysis and Islamic Finance Link***

The econometric analysis is robust, employing a multiple regression model to examine the relationship between independent variables (responsiveness, perception of AI, individual perspective, risk perception, perceived value, and comprehension of AI technology) and the dependent variable (AI adoption plans in banking). A sub-model was developed to analyze the data from respondents who use Islamic banking services, addressing the link to Islamic finance. This sub-model incorporated an additional variable, "Sharia Compliance Perception (SCP)," to assess how adherence to Islamic principles influences AI adoption intentions. The results revealed that SCP had a significant impact on AI adoption among Islamic banking customers, highlighting the importance of aligning AI technologies with Sharia principles.

Based on the theoretical model and hypotheses (H<sub>1</sub>–H<sub>6</sub>) in this study, the ideal approach for analyzing the relationship between several independent variables and one dependent variable is Multiple Regression Analysis (MRA) because MRA is suitable for testing the direct linear effect of several independent variables on AI Adoption Plans.

## **RESULTS AND DISCUSSIONS**

### ***Results***

To conduct an analysis, we collected 550 responses from various countries, including Pakistan, China, Iran, Saudi Arabia, Indonesia, Malaysia, Bangladesh, Nepal, India, Afghanistan, and Thailand. The data consists of seven elements, six of which are independent variables and one of which is a dependent variable.

### ***Characteristics Overview***

The researchers analyzed the sample population based on seven demographic factors: age, gender, country, marital status, educational level, and work structure. Table 3 presents a comprehensive overview of these demographic characteristics.

**Table 3. Characteristics Overview**

No.	Characteristics	Classes	Frequency	Percentage (%)
1	Age	18-25	216	39
		26-35	186	34
		36-45	88	16
		46-55	36	7
		56-above	24	4
2	Gender	Male	426	77
		Female	124	23
3	Country	Pakistan	226	41,09
		China	78	14,18
		Iran	46	8,36
		Saudi Arabia	25	4,55

No.	Characteristics	Classes	Frequency	Percentage (%)
		Indonesia	62	11,27
		Malaysia	55	10
		Bangladesh	8	1,45
		Nepal	11	2
		India	25	4,55
		Afghanistan	9	1,64
		Thailand	5	0,91
4	Marital Status	Single	336	6,09
		Married	214	38,91
5	Educational Level	Bachelors	240	43,64
		Masters	158	28,73
		MS/M.Phil.	72	13,09
		PhD.	38	6,90
		Postgraduate Diploma (PGD)	42	7,64
6	Work Structure	Full-time	80	14,55
		Part-time	55	10
		Unemployed	120	21,82
		Self-employed	45	8,18
		Student	190	34,55
		Retired	60	10,90

Source: Quantitative data processing results, 2025.

A total of 550 respondents from eleven Asian nations, namely Pakistan, China, Iran, Saudi Arabia, Indonesia, Malaysia, Bangladesh, Nepal, India, Afghanistan, and Thailand, participated in the survey. Of them, 77% were male and 23% were female. Among the responses, 39% were from individuals aged between 18 and 25, indicating that the surveyed individuals had limited experience with the financial system due to their age. Most individuals in this age group were either students or in the early stages of their careers. Similarly, 14,55% of the survey participants were employed in full-time paid positions. Regarding educational qualifications, 28,73% held a master's degree in diverse subjects. The survey on the use of artificial intelligence in the banking industry included highly educated and established individuals from eleven Asian nations, as indicated by the demographic data.

### ***Descriptive Statistics***

To accurately present the data, this study conducts a descriptive analysis of each variable included in the research. Descriptive statistics highlight the differences between individual values and their corresponding averages. Table 4 presents the descriptive statistics for all independent and dependent variables. The variables show minimal variations and dispersion, with most values being close to their mean.

**Table 4. Statistical Summary**

No.	Variables	Mean	Median	SD	Minimum	Maximum
1	Responsiveness	2,315	2,134	1,220	0,336	4.401
2	perceived Value	2,621	2,482	1,346	0,566	5
3	Risk Perception	2,434	2,243	1,250	0,496	5
4	Individual Perspective	2,421	2,243	1,267	0,447	5
5	Perception of AI	2,491	2,482	1,346	0,566	5
6	Comprehension of AI Technology	2,483	2,482	1,346	0,557	5
7	AI Adoption Plan in Banking Sector	2,459	2,243	1,250	0,569	5

Source: Quantitative data processing results, 2025.

### Correlation Analysis

Correlation analysis is a statistical method to evaluate the relationship between two variables. The correlation coefficient, which ranges from +1 to -1, indicates this relationship's strength and direction. A positive coefficient shows a direct, positive relationship, whereas a negative coefficient reveals an inverse, negative one. Coefficients close to +1 reflect a strong positive correlation, while those near -1 indicate a strong negative correlation. Researchers typically focus on understanding the correlation between independent and dependent variables. This research reveals that AI adoption plans in the banking sector have a substantial link with perceived value and Perception of AI, as well as a somewhat strong correlation with Responsiveness, Individual Perspective, and Comprehension of AI Technology. In contrast, AI adoption plans in the banking sector have a low connection with Risk perception. Furthermore, it is shown that all variables have substantial and positive relationships.

### Discussion

Based on the results of the descriptive analysis, the majority of respondents fell within the young age range (18–25 years old), had a high level of education (holding bachelor's and master's degrees), and were either students or full-time workers. This suggests that respondents have relatively good technological literacy, but their understanding of AI as a new technology still varies. The average values of the variables studied ranged from 2,3 to 2,6, indicating that attitudes toward AI in the banking sector are still at a moderate stage.

**Table 5: Mean and Standard Deviation of Research Variables**

No.	Variables	Mean	SD
1	Responsiveness	2,315	1,220
2	perceived Value	2621	1,346
3	Risk Perception	2,434	1,250
4	Individual Perspective	2,421	1,267
5	Perception of AI	2,491	1,346
6	Comprehension of AI Technology	2,483	1,346
7	AI Adoption Plan in Banking Sector	2,459	1,250

The interpretation of the results shows that perceptions of value and understanding of AI have the strongest correlation with the intention to adopt AI. Meanwhile, risk perception shows a negative relationship, although it remains significant. This illustrates that the higher the understanding and perception of value towards AI, the greater the likelihood of someone accepting its use in banking services. Conversely, concerns about risks, whether related to data security or Sharia compliance, can hinder adoption intentions. This finding is highly relevant in Islamic banking research. Perceptions of AI are influenced not only by its economic benefits but also by the extent to which this technology aligns with Islamic principles such as fairness, transparency, and social responsibility. AI technology can be an effective tool for strengthening Sharia compliance through automated audit systems, algorithm-based transaction tracking, and the provision of Sharia-based financial consulting services.

Elaboration of the results using the Theory of Planned Behavior (TPB) reveals that the three main components of TPB attitude, subjective norms, and perceived behavioral control contribute significantly to the intention to adopt AI (Aziz & Afaq, 2018). Attitudes toward AI are influenced by perceived value and comprehension, while subjective norms are reflected in social influence and societal perceptions of AI as a Sharia-friendly solution.

Perceived behavioral control relates to the extent to which individuals feel capable of using AI safely, as per Sharia, which is greatly influenced by their technological understanding and knowledge of Islamic finance.

Artificial intelligence has become significant in several aspects of modern life (Hamirul et al., 2023). Developed and developing nations are actively seeking to integrate artificial intelligence into various areas of their economies. Out of them, banking is a crucial industry for every country. Artificial intelligence is of utmost importance in the banking industry because it detects fraud and facilitates fast transactions, which is essential in today's technologically advanced world (Yadav, 2021). This research focuses on eleven Asian countries: Pakistan, China, Iran, Saudi Arabia, Indonesia, Malaysia, Bangladesh, Nepal, India, Afghanistan, and Thailand. It aims to determine people's intentions regarding the adoption of artificial intelligence in the banking sector. The research examines various factors, including responsiveness, perception of AI, individual perspective, risk perception, perceived value, and comprehension of AI technology.

Typically, it is also noted that individuals are reluctant to take risks, particularly in financial matters. Moreover, there is a disparity in the perception of danger between men and women, with women exhibiting a greater inclination to avoid risk compared to men. Furthermore, it is noteworthy that males show greater engagement in financial affairs. Artificial intelligence is a relatively new technology that remains unfamiliar to a significant number of individuals in developing nations (Spreitzenbarth et al., 2024). Consequently, many are reluctant to embrace artificial intelligence. However, the potential for increased adoption of artificial intelligence is promising, as the reluctance to embrace it will diminish as knowledge about its use is disseminated.

Customers residing in Pakistan, China, Iran, Saudi Arabia, Indonesia, Malaysia, Bangladesh, Nepal, India, Afghanistan, and Thailand have varying preferences regarding the use of artificial intelligence (AI) in the banking industry. The disparity in the rate of economic expansion among various Asian nations is the underlying cause. Pakistan is a developing nation with limited resources to invest in technological advancements and educate clients about the benefits of digital financial services. China, Iran, Saudi Arabia, Indonesia, Malaysia, Bangladesh, Nepal, India, Afghanistan, and Thailand, in contrast to Pakistan, are more developed and use artificial intelligence in their banking industry before Pakistan. Similarly, the variation in educational attainment also correlates with the disparity in the inclination to embrace artificial intelligence in the banking sector, highlighting the role of education in technology adoption. Highly educated individuals are more inclined to adopt AI in their banking activities than those with lower education levels.

The findings reveal that perceived risk, individual perspective, and value influence AI adoption in banking. These findings have specific implications for the Islamic banking industry. For instance, perceived risk is critical, as Islamic banking customers often prioritize Sharia compliance and ethical considerations. AI can mitigate operational risks in Islamic banking by enhancing transparency and ensuring compliance with Sharia principles through the use of automated monitoring systems. Additionally, AI-driven automation can improve Islamic financial literacy by providing personalized, Sharia-compliant financial advice and educational tools to customers (Mohamed & Sari, 2020).

Previous research supports these findings. Chen et al. (2022) state that perceptions of AI are significantly influenced by personal values and cultural norms, which, in the context

of Islam, involve the principles of *maqashid syariah*. Meanwhile, [Swain and Gochhait \(2022\)](#) emphasize that the integration of AI in Islamic banking must take into account aspects of compliance with *riba*, *gharar*, and *maysir*. This indicates that the adoption of AI in this sector is not only a technical issue, but also a theological and social one. Studies by [Afandy et al. \(2022\)](#) and [Mohamed and Sari \(2020\)](#) reinforce the relevance of sharia-based technology education as a means of risk mitigation. In this context, Halal AI is a crucial concept that Islamic financial institutions must develop to ensure that all technological elements align with Islamic ethical principles. AI that supports zakat, waqf, and microfinance services can expand financial inclusion while strengthening the social impact of Islamic banking.

The research highlights that individual perspective and perceived value are crucial in AI adoption. In Islamic banking, this suggests that customers are more likely to adopt AI technologies if they perceive them as aligning with Islamic values, such as fairness, transparency, and risk-sharing ([Saifuzzaman, 2023](#)). For example, AI-powered chatbots can be programmed to provide Sharia-compliant financial guidance, thereby enhancing customer trust and satisfaction. The findings underscore the importance of addressing risk perception in the adoption of AI. Islamic banks can leverage AI to develop robust risk management frameworks that align with Sharia principles, such as avoiding excessive uncertainty (*gharar*) and speculative behaviour (*maysir*). By doing so, Islamic banks can enhance operational efficiency and strengthen their appeal to tech-savvy consumers who value ethical and transparent financial services.

This research has significant implications for Islamic finance, particularly in aligning the adoption of AI with Sharia principles. AI can play a transformative role in enhancing Sharia compliance in Islamic banking by ensuring transparency, ethical data usage, and adherence to Islamic financial principles such as the prohibition of *riba* (interest) and *gharar* (excessive uncertainty). For instance, AI-powered systems can automate Sharia-compliant financial products, such as *murabahah* (cost-plus financing), *mudarabah* (profit-sharing), and *wakalah* (agency agreements), ensuring that these transactions are conducted efficiently and in full compliance with Islamic law. AI can facilitate the integration of Zakat—and Waqf-linked banking services, enhancing transparency and accountability in these socially impactful financial instruments ([Agaileh, 2024](#)). By leveraging AI, Islamic banks can develop robust systems for Zakat collection, distribution, and reporting, ensuring that funds are allocated to eligible beneficiaries in a timely and efficient manner. Similarly, AI can optimize the management of Waqf assets by providing real-time monitoring and predictive analytics, thereby maximizing their social and economic impact ([Ibrahim et al., 2021](#)). From a *Maqashid Sharia* perspective, AI adoption in Islamic banking can contribute to the preservation of wealth (*hifz al-mal*), promotion of justice (*'adl*), and enhancement of public welfare (*maslahah*). For example, AI-driven fraud detection systems can safeguard customer assets, while personalized financial advisory tools can promote equitable access to Sharia-compliant financial services. By integrating AI into their operations, Islamic banks can improve operational efficiency and strengthen their commitment to ethical and socially responsible banking.

The results of this study indicate that the tendency to adopt artificial intelligence (AI) technology in the Asian banking sector is influenced by six primary factors: responsiveness, perception of AI, individual perspective, risk perception, value perception, and understanding of AI technology. The study involved 550 respondents from eleven Asian



countries: Pakistan, China, Iran, Saudi Arabia, Indonesia, Malaysia, Bangladesh, Nepal, India, Afghanistan, and Thailand. The data reflects a broad representation of various demographic backgrounds, including education level, occupation, and involvement with Islamic banking services.

The implications of this study are significant for Islamic banking institutions. First, banks need to enhance customer understanding of the benefits and functions of AI by promoting digital literacy that aligns with Islamic values. Second, it is necessary to develop an AI system that supports transparency and transaction monitoring, as well as providing automated Sharia consulting services. Third, banks must establish communication systems that address customer concerns about technological risks, particularly regarding data privacy protection and Islamic compliance. This study contributes both theoretically and practically to addressing the challenges of integrating AI into Islamic finance by examining the dynamics of responsiveness, risk perception, and the perceived value of AI technology, and linking these to Islamic perspectives through the Theory of Planned Behavior (TPB) theory. This study also emphasizes the importance of synergy between technology, Islamic financial literacy, and consumer preferences in driving the transition toward fair, inclusive, and sustainable digital-based Islamic banking.

## **CONCLUSION AND RECOMMENDATION**

The metamorphosis of the financial industry did not occur suddenly or quickly. The banking sector has undergone a significant transformation from conventional banking to AI-based banking. This movement will impact the banking industry's core banking, operational performance, and customer service. This research aims to understand the challenges of integrating artificial intelligence (AI) and the customers' attitudes towards adopting AI in the banking sector. This research employed an exploratory approach and utilised a quantitative research design to investigate the correlation between various independent variables (Responsiveness, Perception of AI, Individual Perspective, Risk Perception, Perceived Value, and Comprehension of AI Technology) and the dependent variable of AI Adoption Plans in the Banking Sector. Moreover, the investigation has revealed significant disparities in the implementation of artificial intelligence (AI) within the banking industry, particularly in terms of the nation of operation and the educational background of consumers. This research, by gathering data from eleven Asian countries, including Pakistan, China, Iran, Saudi Arabia, Indonesia, Malaysia, Bangladesh, Nepal, India, Afghanistan, and Thailand, has enriched the current body of knowledge on artificial intelligence. The report provides a comprehensive analysis of AI developments in the banking industry across these nations. The findings not only provide valuable insights for banking management to develop future strategies, such as using AI algorithms, but also shed light on the potential of AI to streamline the process of monitoring financial goals and expenses for consumers.

This report presents the research findings and provides practical implications and suggestions for bank management, politicians, government officials, and technology regulatory authorities. The research findings can assist bank management in enhancing and modifying their marketing strategy to establish or improve consumer trust, thereby mitigating the risks associated with digital technology in transactional processes. The research also suggests that bank executives and technological regulatory bodies should take necessary steps to enhance security and protection protocols, ensuring enhanced customer

service and bolstering the trustworthiness and attractiveness of AI in banking services. For Islamic banks, the research recommends developing AI systems specifically designed to address the unique requirements of Sharia-compliant financial services. This includes creating AI-powered tools for Sharia auditing, real-time transaction monitoring, and customer education on Islamic finance principles. Additionally, policymakers and regulators should collaborate with Islamic financial institutions to establish guidelines for the ethical use of AI in Islamic banking, ensuring that technological advancements align with the objectives of Maqashid Sharia. While certain aspects of this research require further investigation, the scope of this research was limited to eleven Asian nations.

Additional research may be conducted to examine consumers' perspectives on artificial intelligence in Asian and European countries, enabling a comparative analysis of the findings. Exclusively, the banking industry was the focus of this investigation. In further research, more financial sectors will be examined. This research employs a survey as its methodological approach to gather self-reported data. This data may need more accuracy. To enhance precision in the future, researchers are advised to increase the sample size and employ additional data-gathering approaches, such as conducting field studies. Due to time limitations, this research did not include mediation and moderation. However, by upgrading the model, future research will focus on these factors, which significantly influence AI. As AI technology becomes more widely used in the business world, the results of this research may change over time. Hence, more investigation is necessary to ascertain the variations in customer inclination between early adopters and late adopters of artificial intelligence in the banking sector.

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