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The role of AI integration and governance standards: Enhancing financial reporting quality in Islamic banking

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A B S T R A C T

The objective of this research is to investigate the impact of Artificial Intelligence (AI) on improving the quality of financial reporting in the Islamic banking industry. The study is conducted within the theoretical framework of the Unified Theory of Acceptance and Use of Technology (UTAUT). The study utilized Partial Least Squares Structural Equation Modelling (PLS-SEM) to examine the data collected from a sample of 364 professionals working in the field of Islamic banking. The results of our study suggest that Performance Expectancy, Effort Expectancy, and Social Influence are important factors in predicting individuals' Behavioural Intention to use Artificial Intelligence (AI). Additionally, the presence of Facilitating Conditions further enhances the impact of these factors on individuals' actual Use Behaviour. Significantly, it was shown that Use Behaviour played a significant role in determining the perceived quality of financial reporting. Nevertheless, the study did not find empirical evidence to demonstrate the direct influence of Behavioural Intention on Financial Reporting Quality. This implies that the actual implementation of Artificial Intelligence is required to fully realize its advantages. The use of artificial intelligence (AI) into governance frameworks presents a potentially advantageous pathway for Islamic banks to uphold Shariah principles, while concurrently bolstering accountability and fostering ethical banking practices.

1. Introduction

The global use of modern information and communication technologies such as artificial intelligence (AI), the Internet of Things (IoT), and blockchain technology is hastening the technological and industrial transformation (Salhab et al., 2023). Artificial intelligence has garnered significant attention from academics, commercial entities, and government bodies (Zhang & Lu, 2021). The Islamic banking sector, which is the primary element of the Islamic finance industry, has experienced significant growth since the inception of the first documented experiment in the Egyptian village of Mit Ghamr in 1963. Currently, there are around 300 Islamic finance institutions operating in 50 economies worldwide, including both Muslim and non-Muslim countries. These organisations collectively hold assets of approximately $1.9 trillion, as reported by the International Financial Services Board in 2016 and the World Bank in 2017. The Islamic banking sector has several obstacles, one of which is the imperative to use cutting-edge technology in response to the fiercely competitive business environment (Al-Fakeh et al., 2020). Artificial intelligence (AI) is a potent technology with the capacity to transform financial reporting practises. Artificial intelligence (AI) has the capability to automate processes, process large volumes of data, and detect patterns that may be overlooked by conventional methods (Y. Zhang et al., 2020). These functionalities

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can be employed to improve the precision, comprehensiveness, and promptness of financial reporting (Ahmad et al., 2024; Bora et al., 2021).

1.1 Research Problem

The rapid advancement of AI aids in our comprehension of human intelligence by constructing computer programmes capable of emulating intelligent human behaviour (Almaiah, et al., 2022; Alrfai et al., 2023; Alawadhi, et al., 2022; Foud et al., 2022; Hassan, et al., 2022). These programmes facilitate the electronic execution of procedures and provide rapid access to financial data and information for both internal and external users, assisting in decision-making (Almaiah, et al., 2022; Alqudah et al., 2023; Lutfi & Alqudah, 2023). Islamic banks, despite their unique and innovative offerings, are continuously working to protect their operations, interests, and domestic and international economic activities in line with the growth and ongoing advancement of information technologies and their legal obligations. This is accomplished by the implementation of legal measures, as well as adherence to rules and directives issued by relevant authorities or partnerships, all with the overarching objective of protecting their infrastructure (Savaş & Karataş, 2022).

1.2 Research Importance

1) The research helps to identify how AI can be used to promote ethical and responsible banking practices, ensuring transparency in decision-making and alignment with Shariah values.
2) The research helps to identify the challenges associated with adopting AI in financial reporting practices in Islamic banks.
3) The research can provide recommendations on how to use Artificial Intelligence when using governance standards within the Islamic Banking sector.
4) The research helps to raise awareness among banks on how to adopt financial reporting quality and accountability.
5) The research can provide strategies that can strengthen risk management and fraud detection using Artificial Intelligence.

1.3 Research Aim

1) To determine the extent of the impact of Artificial Intelligence as an independent factor on financial reporting quality and accountability in Islamic banking sector.
2) To identify the relationship between Artificial intelligence, Islamic banking, and the impact on financial reporting planning.
3) To measure the extent of using Artificial intelligence in Islamic banking sector and using governance standards.
4) To identify specific AI-powered solutions that can be implemented to address the unique challenges and opportunities of financial reporting in Islamic banking.
5) To examine the ethical considerations and regulatory implications of using artificial intelligence in financial reporting in Islamic banking.

2. Theoretical framework and Literature Review

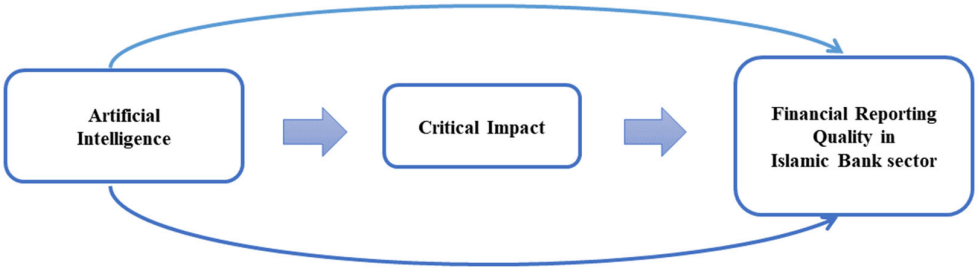

Fig. 1. Theoretical research framework

2.1Artificial Intelligence

2.1.1Brief History of Artificial Intelligence

Throughout several decades, the field of artificial intelligence (AI) has seen many significant progressions in technology, study, and development. Computer scientist John McCarthy first used the term "artificial intelligence" in 1956 at the Dartmouth Conference, marking the start of AI as a field of research (Haenlein & Kaplan, 2019). Despite initial excitement, many challenges had to be surmounted before AI research could progress throughout the 1960s and 1970s. The curtailed allocation of funds towards AI research led to a decline in the overall efforts in the field, sometimes referred to as the "AI winter" (Chandra & Hareendran, 2021; Haenlein & Kaplan, 2019). The development of expert systems in the 1980s led to a revival in AI research. These systems replicated human abilities in certain areas by using methods of knowledge representation and inference. Expert systems have shown to be valuable in several fields, such as finance and medicine.

Machine-learning algorithms gained popularity in the 1990s, allowing AI systems to extract knowledge from data and gradually improve their performance (Ma & Sun, 2020). The resurgence of interest in neural networks has greatly propelled the advancement of artificial intelligence, since they mimic the intricate architecture of the human brain (Park, 2023). The proliferation of extensive datasets and computational power has fueled an increase in AI research and the use of AI in many fields over the 21st century (Liu et al., 2018). The breakthroughs in machine learning, particularly in deep learning techniques, have led to remarkable progress in several domains such as robotics, computer vision, and natural language processing. Artificial intelligence (AI) is widely used in several industries such as healthcare, finance, transportation, and entertainment (Chandra & Hareendran, 2021; Park, 2023).

2.1.2 The Artificial Intelligence Concept

Advances in AI have been very beneficial to society and the economy. In addition, it has brought about a new era and significantly accelerated societal progress (Hassan et al., 2022; Salhab et al., 2023). AI is a common abbreviation for the study of AI. According to Huang et al. (2019), artificial intelligence is the study of how computers can do tasks often associated with human intelligence. It facilitates the development of computer systems that can imitate human intelligence and carry out various activities including learning, discernment, and decision-making (Xu, Lu, & Li, 2021). According to Kaplan & Haenlein (2019), artificial intelligence is defined as the ability of a system to effectively comprehend external input, acquire knowledge from that information, and use that knowledge to adapt itself in a versatile manner to achieve certain tasks and objectives. (Dwivedi et al., 2021) provide a definition of artificial intelligence as the increasing capacity of computers to do certain tasks and responsibilities that are now fulfilled by humans in both professional and societal contexts. (Mikalef & Gupta, 2021) provide an alternative definition, asserting that AI refers to the capacity of a system to recognise, comprehend, deduce, and acquire knowledge from data in order to accomplish preset objectives for both organisations and society.

2.1.3 The Benefits of Artificial Intelligence

The integration of AI is essential for firms to accurately determine optimal options for implementing new processes. Enhancing comprehension of digital resilience facilitates the dissemination of novel ideas in markets and streamlines the attainment of digital innovation by fostering the development of pioneering goods (Zeng et al., 2022). The adoption of artificial intelligence (AI) refers to the use of AI capabilities and applications, such as computer vision and machine learning, to enhance competitive advantages and optimise operational performance (Chatterjee, 2020). The use of artificial intelligence accelerates innovation in corporate processes by facilitating the creation of new products and improving client services (Wuest et al., 2020). Moreover, via the utilisation of cutting-edge digital applications, organisations may generate innovative concepts that enhance the calibre of their goods and services, while also expediting their ability to adapt to market fluctuations (Javaid et al., 2022).

2.1.4 Functions of Aritificial Intelligence

In recent years, the widespread availability of large amounts of data, sophisticated methodologies, and infrastructure have elevated artificial intelligence (AI) to a prominent technological objective for several organisations (Davenport & Ronanki, 2018). AI encompasses a wide range of tasks such as automation, machine learning, natural language processing, computer vision, visual information interpretation, result prediction, autonomous operation, pattern recognition, personalised experiences, process optimisation, and even assistance in creative pursuits (Sarker, 2022). Essentially, it revolutionises several industries and everyday activities by empowering robots to do tasks, make decisions, and acquire knowledge in a manner comparable to people (Sarker, 2022).

2.1.5 Potential Applications of Artificial Intelligence

Technology is becoming more prevalent. It alters how people learn, think, and communicate, which has an impact on their lives (Mbaidin et al., 2024). AI is being developed and used in a variety of applications throughout the globe, owing to its symbolic reasoning, adaptability, and explanatory skills (Arrieta et al., 2020). AI has been used in a number of domains, including:

HealthCare: AI is transforming the healthcare business by accelerating drug development, enhancing diagnostics via medical imaging, and allowing patient-specific therapies (Jiang et al., 2017). It predicts epidemics, streamlines healthcare administration, and allows for remote patient care via virtual assistants and monitoring (Väänänen et al., 2021). AI aids robot-assisted surgery, improves data analysis in medical records, and has the potential to totally alter healthcare by improving patient outcomes, accuracy, and efficiency.

Transportation: The transportation industry is one of several organisations and businesses that stand to gain from the unprecedented opportunities given by rapid advances in artificial intelligence (AI) (Abduljabbar et al., 2019). AI is transforming transportation by enabling self-driving cars, controlling traffic, forecasting maintenance requirements, optimising supply chains, and increasing customer service (Abduljabbar et al., 2019; Iyer, 2021). Artificial intelligence increases safety, interacts with smart city infrastructure, and aids in environmental impact reduction (Singh et al., 2022). In general, AI will increase transportation safety, efficiency, and sustainability.

Law: New developments in AI and automation may shake up the foundations of the legal industry and the way services are provided (Atkinson et al., 2020). Legislators and lawyers alike are taking an interest in AI's potential legal applications, particularly in decision-support systems (AlLouzi & Alomari, 2023; Mowbray et al., 2020). New ways of creating, delivering, and capturing value from business operations are being driven by artificial intelligence, machine learning, and automation in law firms. According to Brooks et al. (2020), "AI and law" is incorporating mathematical and computer-based technologies into the legal system with the purpose of making it easier to understand, administer, assist, access, or anticipate.

Education: The rise of online education has revolutionised teaching methods and opened up new avenues for student learning (Jawabreh et al., 2023; Nawaiseh, et al, 2021; Wei et al., 2022). The areas of education administration, teaching, and learning, as well as the education sector as individual educational institutions, have all been profoundly affected by AI (Chen, Chen, & Lin, 2020). Better or more comprehensive education is the outcome of teachers' increased efficacy and efficiency made possible by AI platforms and technologies (Alomari, 2023). The capacity of AI to tailor and personalise educational resources to each student's unique strengths, weaknesses, interests, and learning style has led to enhanced educational opportunities for pupils (Chen, Chen, & Lin, 2020). One of the best options so far has been online education (Mbaidin, 2024).

Financial institutions: AI is laying a solid foundation for future technological advancement. According to Bredt (2019) and Brynjolfsson and McAfee (2017), AI has the potential to completely transform the financial industry. It will bring about more personalised and top-notch services, as well as cheaper options and new ways of doing business. There is a growing variety of AI uses in the banking industry. Financial institutions, insurance companies, and capital markets are using AI for a variety of new business model creation purposes, including automation, analysis, and decision-making. Banks will rely heavily on AI technologies for consumer interactions in the future (Murugesan & Manohar, 2019; Ryll et al., 2020).

2.2 Concept of Standards in the Islamic banking sector within Artificial Intelligence

Information and communication technology have also facilitated the promotion of governance and facilitated administrative reform (Mbaidin, 2021). Furthermore, it is widely recognised that providing exceptional e-government services fosters transparency and facilitates public access to government information and services. These elements enhance public confidence in the government and reinforce the public sector's involvement in the pursuit of sustainable development (Isaac et al., 2017). Due to advancements in technology, government and organisational leaders are contemplating the adoption of secure and user-friendly technology to ensure accountability (Alqaraleh, et al, 2022; Hayek, et al, 2023; Nawaiseh, et al, 2021). The enhancement of global logistics is an ongoing endeavour, with participation from both public and commercial entities (Mbaidin et al., 2023). AI governance standards in Islamic banking are derived from many core concepts (Almeida et al., 2021), which encompass: At first, strict obedience to Islamic law. In order for Islamic finance to adhere to ethical and religious principles, AI applications must align with Sharia laws. Avoidance of riba, which refers to interest-based transactions, and other practises that are forbidden by Islamic law is imperative (KILIÇ, 2023; Rabbani, Khan, & Atif, 2023). The second principle is centred on accountability and openness. Governance standards prioritise openness in AI algorithms and decision-making processes to ensure stakeholders have a clear understanding of how AI models operate and make decisions (Felzmann et al., 2020). Establishing mechanisms for accountability is crucial in ensuring the ethical use of AI in Islamic finance (Rabbani et al., 2021). The final classification pertains to Ethical AI. Islamic banking promotes the encouragement of AI systems that prioritise social responsibility, justice, and ethical challenges. This encompasses artificial intelligence models that promote fair lending practises, ethical investing strategies, and the involvement of all individuals in the financial system (Mhlanga, 2020). Another crucial factor is Human Oversight and competence, since governance norms highlight the significance of human supervision and competence in the implementation of Islamic banking. While AI has the capability to automate processes, the role of human judgement, knowledge, and ethical reasoning remains crucial, particularly in the application of Sharia rules (Shamdi et al., 2022). Regulatory compliance ranks sixth in importance. Artificial Intelligence endeavours in Islamic banking must conform to suitable regulatory frameworks and regulations. Regulators are necessary to ensure that AI applications adhere to both ordinary business rules and the requirements of Islamic finance. Ultimately, continuous evaluation and surveillance. AI systems need ongoing monitoring and assessment to ascertain their efficacy, influence, and adherence to Sharia law (KILIÇ, 2023). This enables the development and maturation of AI applications throughout time. These rules ensure that AI applications adhere to the principles of Islamic banking, while promoting the ethical and responsible use of technology in the financial sector.

2.3 The critical impact of Artificial intelligence (AI) when using governance standards to adopt financial reporting quality and accountability within the Islamic bank sector in the UAE

The integration of Artificial Intelligence (AI) into the governance requirements of financial reporting may significantly enhance the quality and accountability of reporting in the Islamic banking industry. Firstly, enhanced efficiency and precision. AI-driven automation enhances precision and reduces mistakes in financial reporting processes (Abhishek et al., 2023; Ahmad et al., 2024). This efficacy guarantees precise and prompt financial statements by reducing reporting delays (Al-Hosaini et al., 2023; Ali, Ali, & Fatima, 2023; Saleh[1] et al., 2023). Another significant effect of artificial intelligence (AI) is its ability to facilitate thorough monitoring and auditing of financial transactions. This promotes transparency in operations, thereby enhancing the level of accountability within Islamic banking and contributing to a more efficient economy (Al-Baity, 2023; Jan et al., 2023). One significant effect is the enforcement of adherence to Islamic financial

norms by using AI algorithms (Chong, 2021). These algorithms have the capability to examine transactions, contracts, and financial data in order to identify any possible concerns about Shariah compliance (Ahmet, 2023). Furthermore, AI-driven systems have the capability to incorporate Shariah-compliant offerings into various financial services and products, resulting in increased client happiness, loyalty, and profitability (Elaprolu et al., 2024; Rabbani et al., 2020). In order to properly harness AI, it is crucial to establish collaboration between technical innovation and respect to Islamic governance requirements (Rabbani, 2023). Implementing regulatory frameworks to oversee IT practises in the banking sector encourages adherence to compliance standards and ethical conduct (Alrabei, Al-Othman, Al-Dalabih, Taber, & Ali, 2022; Binsaddig, Ali, Al-Alkawi, & Ali, 2023). The use of artificial intelligence into financial reporting criteria in the Islamic banking sector in the UAE has great potential. In order to attain effective integration and sustained expansion, it is imperative to establish a harmonious equilibrium between technology progress and compliance with Islamic ethical and governance principles.

2.4 UTAUT Constructs

Examining the four parts of UTAUT—Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions—is the main goal of this study. The goal is to study how Financial Reporting Quality (FRQ) is affected by the adoption and use of Artificial Intelligence (AI) within the Islamic banking industry. If we want to know how to improve Islamic financial reporting using artificial intelligence, we need this framework. There are a lot of things that influence how well AI is received and used. In an effort to grasp the intricacies of technology adoption, this study seeks to examine these notions. It sheds light on how Shariah-compliant Islamic financial institutions may make effective use of AI to address operational and compliance requirements.

2.4.1 Performance Expectancy (PE)

The comprehension AI deployment in the banking sector is heavily reliant on the concept of Performance Expectancy. This is the extent to which individuals feel that AI will improve their job performance (Venkatesh et al., 2003). There is a strong belief that AI may greatly improve Islamic banking's financial reporting in terms of accuracy and efficiency (Liu et al., 2021). When precision and scrupulous attention to Shariah compliance are paramount, Performance Expectancy becomes crucial. Artificial intelligence (AI) is expected to enhance financial reporting in many ways, and banking professionals are increasingly inclined to use these technologies (Al Tarawneh, et al., 2023; Shan et al., 2022; Shniekat, et al., 2022; Thuneibat, et al., 2022). Artificial intelligence (AI) is seen as a useful tool within Islamic financial companies due to its potential to enhance the quality and dependability of financial processes.

2.4.2 Effort Expectancy (EE)

Effort Expectancy, which refers to the perceived ease of using AI systems, plays a vital role in the acceptance of technology in the Islamic banking industry (Venkatesh et al., 2003). The extent to which artificial intelligence (AI) is incorporated into existing financial reporting processes inside banks may significantly affect the acceptance and use of these technologies. The usability of artificial intelligence (AI) systems is very crucial in the Islamic banking industry, since financial transactions often include intricate processes that must comply with Shariah norms. Research conducted by Fedorko et al. (2021) indicates that user-friendly technologies are more likely to be adopted and integrated into the regular operations of the banking sector. Therefore, the perceived degree of exertion necessary for using AI systems is a critical factor in deciding their adoption in the context of Islamic banking operations.

2.4.3 Social Influence (SI)

The role of social influence on technology adoption is well recognised, particularly in professional situations such as Islamic banking (Venkatesh et al., 2003). This notation indicates how much people believe their use of AI in financial reporting is impacted by the thoughts and opinions of their colleagues and industry leaders. The backing and acceptance of artificial intelligence (AI) technologies by respected persons in the Islamic banking business has the ability to dramatically influence banking professionals' perceptions and adoption of these technologies. According to Cugurullo and Acheampong (2023), the adoption of new technologies, such as artificial intelligence (AI), in the area of financial reporting is heavily impacted by social factors, such as the viewpoints of colleagues and prevalent business trends.

2.4.4 Facilitating Conditions (FC)

Facilitating Conditions refer to the degree to which persons believe that there is a well-established organisational and technological structure in place to support the use of AI systems (Venkatesh et al., 2003). The effective integration of artificial intelligence (AI) in financial reporting in the Islamic banking industry is highly dependent on the existence of a dependable IT infrastructure, comprehensive technical support, and specialised training resources. The existence of these criteria is vital for the successful adoption and effective utilisation of artificial intelligence (AI), especially in activities that must comply with Shariah principles. Lee and Chen (2022) have shown via academic research that the presence of enabling infrastructure and resources is crucial for successfully incorporating technology in many sectors, including the banking industry. Therefore, the presence of enough facilitating factors is essential for the successful integration of artificial intelligence (AI) in the context of Islamic banking.

2.4.5 Behavioural Intention (BI)

Islamic banking behavioural Intention (BI) in the realm of technology adoption, particularly in the field of Islamic banking, pertains to the propensity of banking professionals to use artificial intelligence (AI) in their financial reporting duties. The cited construct is a crucial component of the Unified Theory of Acceptance and Use of Technology (UTAUT) framework, since it incorporates the influential factors that affect an individual's decision to accept a technology (Venkatesh et al., 2003). In the field of Islamic banking, the combination of business intelligence (BI) and artificial intelligence (AI) is influenced by professionals' opinions on the usefulness and ease of use of AI, as well as the level of support they receive from society and their organisation (Venkatesh & Bala, 2008). The use of AI technology is very important in the context of Islamic banking, since it is necessary to guarantee compliance with Shariah rules and has the ability to improve accuracy and efficiency in financial reporting. Prior studies have shown that a strong propensity for using artificial intelligence (AI) may lead to the effective adoption and successful use of AI in enhancing financial reporting processes (Saxena, 2022).

2.4.6 Use Behaviour (UB)

When it comes to applying AI to the banking sector, the idea of Use Behaviour (UB) is fundamental to the UTAUT paradigm. This concept goes beyond mere intent and includes the practical use of AI technology to financial reporting processes (Venkatesh et al., 2003). Utilising UB highlights the proactive and effective integration of AI into routine financial operations, going beyond just contemplation or planning.

AI is being used by Islamic banks to do financial analyses, assess risks, and report on compliance, all in accordance with Shariah law. This is proof that the industry has done a masterful job of incorporating this new technology. A crucial step in moving from theoretical acceptance of AI to practical and value-enhancing actions is the shift from Behavioural Intention (BI) to Use Behaviour (UB).

Many major elements must be considered for the use of AI to Islamic financial reporting to be a success. Among them, one may find user-centric AI technologies' usability, institutional endorsement, and supplementary resources, in addition to an individual's natural tendency (Saxena, 2022). This emphasises the need of making sure AI technologies are available and customised to suit the unique requirements of Islamic financial reporting. Ethical frameworks, internal control systems, and the influence on financial performance are just a few of the variables that must be carefully considered when using AI for financial reporting (Al-Dmour et al., 2018). It is crucial to highlight the significance of AI systems' usability in financial reporting since it impacts users' decision-making and the technology's overall efficacy (Talamo et al., 2021). Furthermore, while using AI, a customised strategy is required due to the specific circumstances surrounding Islamic financial reporting. According to Mukhlisin (2021), this strategy has to take Islamic finance's unique standards and principles into account.

2.5 Research Hypothesis and Model Development

A modified version of the UTAUT paradigm is used in this study in order to explore the ways in which Islamic banks are using AI and the ways in which it is impacting financial reporting quality (FRQ). When it comes to gaining a knowledge of the behaviours that are associated with the adoption of technology, the UTAUT model offers an outstanding theoretical framework that has been validated in a number of different fields. This work makes a significant contribution to the improvement of the current model by taking into account the complexities of Islamic banking operations.

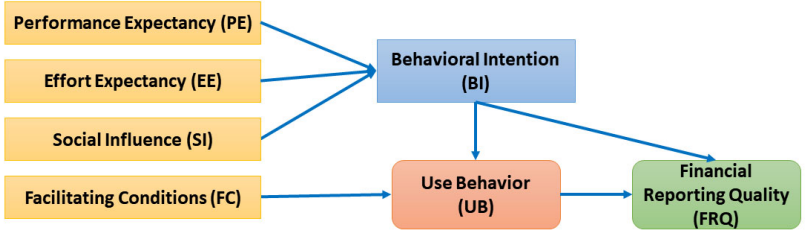

Fig. 2. Model of Study

The following hypotheses are developed from the Unified Theory of Acceptance and Use of Technology (UTAUT) constructs:

- **H_1:** *There is a positive association between PE and BI.*
- **H_2:** *There is a positive association between EE and BI.*
- **H_3:** *There is a positive link between SI and BI.*
- **H_4:** *There is a positive association between FC and UB.*
- **H_5:** *There is a positive association between BI and UB.*
- **H_6:** *The usage of artificial intelligence (AI) behaviour has a good relationship with financial reporting quality (FRQ).*
- **H_7:** *There is a favourable association between Behavioural Intention (BI) to employ Artificial Intelligence (AI) and Financial Reporting Quality (FRQ).*

3. Methodology

This section presents a comprehensive elucidation of the research methodology employed to examine the effects of Artificial Intelligence (AI) implementation on the financial reporting of Islamic banking institutions. Utilising a quantitative research methodology, this study analyses the collected data through the implementation of a PLS-SEM technique, made possible by the SmartPLS programme.

3.1 Design of Research

Utilising a questionnaire with cross-sectional and quantitative research methodologies, the study collects information from individuals who are knowledgeable about Islamic banking. The purpose of the survey is to gather information regarding the perspectives and lives of respondents regarding artificial intelligence as it pertains to financial reporting.

3.2 Instrument for Survey

The survey tool is composed of the following two elements:

a) Demographic Information: Respondents are kindly requested to provide demographic information which includes the following: Gender, Age, Years of Professional Experience in the Banking Industry, Educational Attainment, and Job Title within the Bank.

UTAUT Constructs

The Each UTAUT component is measured using four questions, which make up the majority of the survey. Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), Behavioural Intention (BI), Use Behaviour (UB), and Financial Reporting Quality (FRQ) are the components studied in this research. The data gathering procedure includes the use of a 5-point Likert scale, with answers ranging from one (strongly disagree) to Five (Strongly Agree).

3.3 Sample and Sampling Procedure

The sample of the study includes 364 professionals working in the Islamic banking sector who engage with artificial intelligence systems for the purpose of financial reporting. The decision to employ convenience sampling was made to streamline the process of gathering data from readily available participants within the desired group. Table 1 shows that demographics analysis.

Table 1
Demographics Analysis

Demographic	Elements	Frequency	%
Gender	Male	223	61.3
	Female	141	38.7
Age	Under 25	13	3.6
	25-34	136	37.4
	35-44	158	43.4
	45-54	44	12.1
	55- and above	13	3.6
Educational	Bachelor's Degree	281	77.2
	Master's Degree	59	16.2
	Doctorate (Ph.D.)	24	6.6
Experience	Less than 1 year	13	3.6
	1-3 years	119	32.7
	4-6 years	62	17.0
	7-10 years	118	32.4
	11-15 years	33	9.1
	16-20 years	17	4.7
	More than 20 years	2	0.5
Position	Junior Staff	3	0.8
	Middle Management	9	2.5
	Senior Management	35	9.6
	Executive Level	47	12.9
	Sharia Compliance Officer/Advisor	110	30.2
	IT and Technology-related Role	73	20.1
	Customer Service and Frontline Staff	87	23.9
	Total	**364**	**100%**

3.4 Ethical Considerations

The participants were provided with a guarantee about the confidentiality and anonymity of their comments. Prior to their involvement in the study, the researchers acquired informed consent from the participants.

4. Analysis of data

The process of data analysis encompasses a series of processes that are executed with (PLS-SEM) within the SmartPLS software.

Table 2
PLS-Sem Analysis's

Constructs	Observed	Loadings	VIF	C alpha	rho_a	rho_c	AVE	R^2	R^2 adjusted
Performance Expectancy (PE)	PE1	0.859	2.232	0.878	0.893	0.916	0.731		
	PE2	0.829	2.103						
	PE3	0.876	2.181						
	PE4	0.854	2.242						
Effort Expectancy (EE)	EE1	0.872	2.521	0.892	0.899	0.925	0.754		
	EE2	0.858	2.386						
	EE3	0.864	2.293						
	EE4	0.880	2.355						
Social Influence (SI)	SI1	0.856	2.291	0.890	0.891	0.924	0.752		
	SI2	0.869	2.393						
	SI3	0.872	2.447						
	SI4	0.872	2.364						
Facilitating Conditions (FC)	FC1	0.857	2.307	0.882	0.884	0.919	0.739		
	FC2	0.847	2.049						
	FC3	0.864	2.330						
	FC4	0.871	2.342						
Behavioral Intention (BI)	BI1	0.768	1.551	0.799	0.801	0.869	0.625	0.869	0.868
	BI2	0.784	1.678						
	BI3	0.844	1.956						
	BI4	0.763	1.478						
Use Behavior (UB)	UB1	0.830	2.024	0.885	0.889	0.921	0.744	0.871	0.871
	UB2	0.903	2.974						
	UB3	0.880	2.599						
	UB4	0.835	2.042						
Financial Reporting Quality (FRQ)	FRQ1	0.857	1.791	0.781	0.787	0.859	0.604	0.822	0.821
	FRQ2	0.847	1.580						
	FRQ3	0.864	1.495						
	FRQ4	0.871	1.414						

4.1 Measurement and Structural Model Evaluation

4.1.1 Outer Loadings

The outer loadings represent the strength of the relationship between each indication (survey question) and the underlying idea being assessed. Each construct is represented by four indicators in this research, in line with the accepted techniques of analysis utilising Partial Least Squares Structural Equation Modelling (PLS-SEM). All items within the constructs of Behavioural Intention (BI), Effort Expectancy (EE), Facilitating Conditions (FC), Financial Reporting Quality (FRQ), Performance Expectancy (PE), Social Influence (SI), and Use Behaviour (UB) demonstrate robust and statistically significant loadings.

Table 2 presents the range of values for each item within the constructs of Behavioral Intention (BI1-BI4), Effort Expectancy (EE1-EE4), Facilitating Conditions (FC1-FC4), Financial Reporting Quality (FRQ1-FRQ4), Performance Expectancy (PE1-PE4), Social Influence (SI1-SI4), and Use Behavior (UB1-UB4). The values range from 0.763 to 0.844 for Behavioral Intention, 0.858 to 0.880 for Effort Expectancy, 0.847 to 0.871 for Facilitating Conditions, 0.728 to 0.835 for Financial Reporting Quality, 0.829 to 0.876 for Performance Expectancy, 0.856 to 0.872 for Social Influence, and 0.830 to 0.903 for Use Behavior. These loadings indicate satisfactory results and provide justification for including all items in subsequent analyses.

4.1.2 Reliability

Table 2 demonstrates that all constructions have Cronbach's alpha values greater than 0.7, indicating high levels of internal consistency. As an example, the construct of Behavioural Intention (BI) has a Cronbach's alpha value of 0.799, suggesting that the questions used to test BI have a high degree of internal consistency. All constructs' composite reliability scores (rho_a and rho_c) exceed the required threshold of 0.7, suggesting that the constructs are very reliable. The construct of Effort Expectancy (EE) has a high composite reliability, as shown by a rho_a of 0.899 and a rho_c of 0.925. These data imply that this construct's measurement is exact.

4.1.3 Validity

All constructs have Average Variance Extracted (AVE) values that are above the criterion of 0.5, thereby demonstrating convergent validity. For instance, the mean explained variance (AVE) for Social Influence (SI) is 0.752, suggesting that, on average, the construct explains 75.2% of the observed variation in its indicators. The observed level of convergent

validity suggests a robust association between the items and their corresponding constructs. This finding provides confirmation that the items categorized inside each construct are effectively assessing the identical underlying notion.

4.1.4 Collinearity Statistics (VIF)

The evaluation of multicollinearity holds significant importance within the context of PLS-SEM analysis. This practice assures that the indicator variables incorporated in the model exhibit minimal correlation, hence safeguarding the integrity of the research outcomes. The Variance Inflation Factor (VIF) is a commonly employed metric for assessing the presence of multicollinearity in statistical models. According to (Hair et al., 2017), VIF values that surpass 5 indicate the possibility of encountering a multicollinearity issue.

The VIF values for all variables in this dataset are significantly lower than the frequently accepted threshold of 5, suggesting that multicollinearity is not a significant issue. The maximum observed VIF value is 2.974 (for UB2), which is far below the threshold, indicating that the indicators in the model exhibit a rather high level of independence. The measurement model demonstrates the absence of collinearity concerns, as seen by the lowest VIF score of 1.414 (for FRQ4).

4.1.5 R-square Values

The suggested model accurately explains a significant portion of the variation seen in the three internal constructs, namely BI, UB, and FRQ. Specifically:

The R-squared score of 0.869 indicates that about 86.9% of the variation in Behavioural Intention (BI) can be explained by the components of Perceived Ease of Use (PE), Perceived Enjoyment (EE), and Social Influence (SI). The significant size of this number suggests that the factors contributing to business intelligence are well-represented in the model. The declaration emphasises the notable influence of performance expectations, effort beliefs, and societal pressures on the desire to use artificial intelligence (AI) for financial reporting in the specific context of Islamic banking. The R-squared score of 0.869 indicates that about 86.9% of the variation in Behavioural Intention (BI) can be explained by the components of Perceived Enjoyment (PE), Perceived Ease of Use (EE), and Social Influence (SI). The significant size of this number suggests that the factors contributing to business intelligence are appropriately included in the model. This statement emphasises the considerable influence of performance expectations, effort perceptions, and societal pressures on the desire to use artificial intelligence (AI) for financial reporting in the specific context of Islamic banking.

The R-squared value of 0.871 indicates that 87.1% of the variation in Use Behaviour (UB) can be accounted for by the combined impact of Business Intelligence (BI) and Financial Control (FC). This discovery emphasises the importance of both the desire to use artificial intelligence (AI) and the variables that facilitate such use, as they greatly reflect the future behaviour of using AI. This research investigates the extent to which professionals in the Islamic banking industry successfully use artificial intelligence (AI) technology, depending on favourable conditions.

The R-squared value of 0.822 achieved for Financial Reporting Quality (FRQ) indicates that the model adequately captures a substantial percentage (82.2%) of the observed variation in FRQ. This indicates that the perception or experience of the quality of financial reporting by experts in Islamic banking is greatly affected by their use of AI technologies.

4.2 Hypotheses Testing

Table 3 and Fig. 3 shows that a Test the proposed hypotheses by analyzing the path coefficients and corresponding p-values from the bootstrap results.

Table 3
Hypotheses Testing

H	Path	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Decision
H1	(PE) → (BI)	0.374	0.374	0.026	14.588	0.000	Accepted
H2	(EE) → (BI)	0.501	0.501	0.026	19.656	0.000	Accepted
H3	(SI) → (BI)	0.759	0.758	0.025	30.821	0.000	Accepted
H4	(FC) → (UB)	0.458	0.458	0.024	18.851	0.000	Accepted
H5	(BI) → (UB)	0.767	0.767	0.021	35.963	0.000	Accepted
H6	(UB) → (FRQ)	0.937	0.938	0.033	28.429	0.000	Accepted
H7	(BI) → (FRQ)	-0.038	-0.039	0.039	0.960	0.337	Not Accepted

The results obtained from the PLS-SEM analysis have provided valuable insights on the acceptability and impact of Artificial Intelligence (AI) in the Islamic banking sector, as suggested by the Unified Theory of acceptability and Use of Technology (UTAUT) framework. The study results provide empirical evidence supporting the notion that there is a significant correlation between Performance Expectancy (PE) and Behavioural Intention (BI). Professionals are more likely to indicate their desire to use Artificial Intelligence (AI) when they believe it will enhance their work performance. The perceived amount of ease involved with using artificial intelligence (AI), known as Effort Expectancy (EE), has been identified as a crucial factor influencing the tendency to adopt it, as measured by Behavioural Intention (BI). Social

Influence (SI) plays a key role in the beneficial impacts seen in Behavioural Intention (BI), highlighting the importance of social factors and peer influence in the decision-making process related to the adoption of Artificial Intelligence (AI). The research found that the existence of Facilitating Conditions (FC) positively influences Use Behaviour (UB), suggesting that the provision of necessary resources and infrastructure greatly improves the utilisation of artificial intelligence (AI). Therefore, the concept of behavioural intention (BI) is a reliable predictor of ultimate behaviour (UB), confirming that the professed desire to use artificial intelligence (AI) indicates future involvement in actual use activities. An important discovery is the presence of a strong and reliable positive correlation between Use Behaviour (UB) and Financial Reporting Quality (FRQ). This suggests that the efficient application of artificial intelligence (AI) is widely recognised as a significant factor in enhancing the overall standard of financial reporting. However, the lack of empirical data establishing a clear connection between business intelligence (BI) and the quality of financial reporting (FRQ) suggests that just intending to use artificial intelligence (AI) is not enough to improve FRQ. Conversely, the practical use of AI acts as an intermediary in attaining enhanced FRQ. The findings confirm that the UTAUT model is suitable for understanding the elements that impact the use of artificial intelligence (AI) in Islamic banking. Furthermore, they highlight the vital importance of real-world use behaviour in attaining the benefits of AI in improving the quality of financial reporting.

4.3 Indirect Effects Path

Table 4 presents the unique indirect effects within the PLS-SEM model, focusing on the UTAUT-based framework. It includes the mean values, min, max, standard deviations, T value, and P values associated with each path.

Table 4
Particular Indirect Effects

No.	Path	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
1	(SI) → (BI) → (UB) → (FRQ)	0.546	0.545	0.028	19.495	0.000
2	(PE) → (BI) → (FRQ)	-0.014	-0.015	0.015	0.953	0.341
3	(PE) → (BI) → (UB) → (FRQ)	0.269	0.269	0.021	12.721	0.000
4	(EE) → (BI) → (UB)	0.385	0.384	0.021	18.487	0.000
5	(BI) → (UB) → (FRQ)	0.718	0.719	0.031	23.378	0.000
6	(SI) → (BI) → (FRQ)	-0.029	-0.030	0.030	0.958	0.338
7	(EE) → (BI) → (UB) → (FRQ)	0.360	0.360	0.023	15.624	0.000
8	(FC) → (UB) → (FRQ)	0.429	0.429	0.026	16.208	0.000
9	(PE) → (BI) → (UB)	0.287	0.286	0.021	13.924	0.000
10	(SI) → (BI) → (UB)	0.582	0.581	0.023	25.333	0.000
11	(EE) → (BI) → (FRQ)	-0.019	-0.020	0.020	0.955	0.340

1. The findings indicate a statistically significant positive indirect effect (0.546, $p < 0.001$) between social influences on behavioural intention (BI) and the utilization of artificial intelligence (AI) in Islamic banking. This relationship finally leads to the enhancement of financial risk management (FRQ) in this context.
2. The results indicate that there is a non-significant negative indirect effect (-0.014, $p = 0.341$), suggesting that the influence of PE on FRQ is not solely mediated by BI, but rather requires the mediation of actual use behaviour.
3. The findings a significant positive indirect effect (0.269, $p < 0.001$) of perceived effectiveness (PE) on behavioural intention (BI), which then influences user behaviour (UB) and ultimately leads to enhanced frequency of use (FRQ).
4. The observed pathway demonstrates a statistically significant and substantial positive indirect effect (0.385, $p < 0.001$), demonstrating that the variable of EE has a considerable impact on BI, which in turn considerably influences the use of AI.
5. The results indicate a significant and strong positive indirect effect (0.718, $p < 0.001$) of BI on UB, which in turn has a considerable influence on FRQ.
6. The observed effect size is -0.029, indicating a negative relationship between the variables. However, the statistical analysis reveals that this relationship is not statistically significant, as evidenced by a p-value of 0.338. These findings suggest that the influence of SI on FRQ is not direct and cannot be exclusively attributed to BI.
7. The findings of this study reveal a noteworthy positive indirect impact (0.360) ($p < 0.001$), suggesting that the influence of EE on BI not only results in increased UB but also contributes positively to FRQ.
8. The pathway exhibits a significant positive indirect effect (0.429) that is statistically significant ($p < 0.001$), emphasizing the significance of FC in facilitating the adoption of AI, hence improving FRQ.
9. The presence of a statistically significant positive indirect effect (0.287, $p < 0.001$) suggests that there is a relationship between perceived enjoyment (PE) and behavioural intention (BI), where the influence of PE on BI ultimately results in an increase in user behaviour (UB).
10. The results indicate a significant and positive indirect effect (0.582, $p < 0.001$) of SI on BI, which subsequently influences UB.
11. The observed path exhibits a statistically non-significant negative indirect effect (-0.019, $p = 0.340$), indicating that the influence of EE on FRQ through BI is not significant.

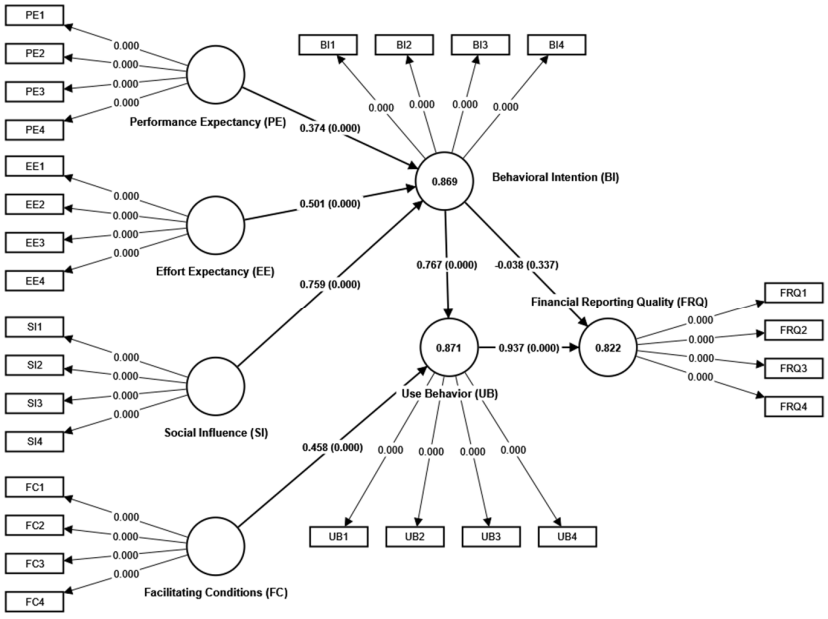

Fig. 3. Bootstrapping Analysis

5. Discussions and results

5.1 Results

The utilization of the UTAUT framework in the context of the Islamic banking industry for evaluating the implementation and consequences of Artificial Intelligence (AI) on Financial Reporting Quality (FRQ) has yielded noteworthy outcomes. The investigation using Partial Least Squares Structural Equation Modelling (PLS-SEM) provided support for most of the hypothesized correlations.

The study revealed that (PE), (EE), and (SI) exhibited significant and favourable impacts on Behavioural Intention (BI) towards the utilization of Artificial Intelligence (AI). There exists a correlation between the construct of perceived effectiveness (PE) and a moderately favourable influence on behavioural intention (BI). This suggests that individuals who hold the belief that artificial intelligence (AI) will improve their job performance are more inclined to express an intention to utilize it. The findings of the study indicate that the perceived ease of using AI systems has a significant impact on the intention to utilize these technologies, with EE demonstrating a more pronounced influence. Social influence (SI) emerged as the most influential factor in predicting behavioural intention (BI), highlighting the significant impact of social variables and peer influence on individuals' intents to adopt artificial intelligence (AI).

The presence of facilitating conditions (FC) was found to have a positive association with use behaviour (UB), indicating that the availability of essential resources, infrastructure, and support increases the chance of practical adoption of artificial intelligence (AI). The study revealed that UB has a substantial positive influence on FRQ, suggesting that the implementation of AI in Islamic banking is believed to greatly improve the standard of financial reporting.

Based on the R-square interpretations, it may be concluded that the structural model exhibits robustness and signifies significant associations between the hypothesized predictors and the outcomes. High R-squared values suggest that the model effectively captures the fundamental elements of the constructions it intends to assess. The utilization of the UTAUT model in the context of AI implementation in Islamic banking for financial reporting indicates that it offers a full comprehension of the determinants that influence the acceptance and proficient utilization of AI, resulting in improved quality of financial reporting.

Nevertheless, there was no evidence to support the direct impact of BI on FRQ. The outcome suggests that although the goal to utilize artificial intelligence (AI) holds significance, its mere presence does not automatically result in perceived enhancements in the quality of financial reporting until it is actively employed.

5.2 Discussions

The assumptions that have received support provide confirmation of the UTAUT model's resilience as a theoretical framework for comprehending the adoption and utilization of technology. The findings are consistent with previous studies that suggest that perceived ease of use (PE), perceived usefulness (EE), and social influence (SI) play significant roles in

influencing individuals' acceptance of technology. The observation that social influence (SI) exerts a significant impact on behavioural intention (BI) may be attributed to cultural or organizational attributes unique to the Islamic banking industry, which places great importance on community perspectives and collaborative decision-making. The robust correlation between UB (University of Berkeley) and FRQ (Frequentist Regression Quantification) highlights the tangible ramifications of artificial intelligence (AI) utilization. The proposition posits that the advantages of artificial intelligence (AI) are most perceptible when these technologies are actively included into routine financial reporting processes, as opposed to being merely accessible as an alternative. This emphasizes the significance of engaging in direct interaction with technology to fully harness its potential for improving the quality of reporting. The absence of a straightforward correlation between Business Intelligence (BI) and Free Response Question (FRQ) points highlights the intricate nature of transforming intentions into results. This implies that there may be additional variables, such as the way the technology is implemented or the user's level of expertise with artificial intelligence, that could influence the extent to which enhanced reporting quality is achieved. This discovery presents novel opportunities for further investigation into the obstacles that may impede the translation of intentions into successful utilization.

The findings of the investigation provide empirical evidence supporting the notion that use behaviour plays a crucial intermediary role in the relationship between behavioural intention and the quality of financial reporting. Although behavioural intention is a crucial factor preceding use behaviour, it does not autonomously enhance financial reporting quality without the practical implementation of AI technologies. The utilization of the UTAUT model confirms the theoretical premises that behavioural intention is substantially influenced by social impact and effort expectancy, hence predicting use behaviour. Nevertheless, the direct influence of performance expectancy on the quality of financial reporting just through behavioural intention is not substantiated, suggesting that the actual utilization of artificial intelligence is crucial for reaping its advantages. The presence of facilitating conditions is a crucial factor in facilitating the utilization of artificial intelligence (AI), hence resulting in enhanced quality of financial reporting. The findings underscore the intricate relationship between behavioural, social, and enabling elements in the implementation and proficient utilization of artificial intelligence (AI) within the context of Islamic banking. This underscores the significance of practical implementation in attaining the intended results.

6. Conclusion

The incorporation of Artificial Intelligence (AI) in the Islamic banking industry has presented significant ramifications for the integrity of financial reporting and control. The UTAUT model has played a crucial role in assessing the factors that influence the acceptance and efficient utilization of artificial intelligence. The results of the study, as determined using PLS-SEM, provide support for the effectiveness of the model in accurately representing the complexities associated with the adoption and utilization of technology. These insights hold significant importance for professionals and decision-makers in the field of Islamic banking, offering a detailed comprehension of the primary factors that contribute to the effective integration of artificial intelligence. The confluence of artificial intelligence (AI) with governance norms holds significant revolutionary potential for the Islamic banking sector. According to Khan (2019), the utilization of artificial intelligence (AI) plays a crucial role in improving the precision, comprehensiveness, and punctuality of financial reporting. This is achieved through the facilitation of automated processes for intricate activities, the provision of advanced data analytics capabilities, and the support for adherence to Shariah principles. In addition to enhancing the quality of reporting, the utilization of artificial intelligence (AI) in real-time monitoring and risk management corresponds to the stringent requirements of Shariah compliance and ethical banking (Rahim et al., 2018). Nevertheless, the research could not find evidence to establish the direct correlation between Behavioural Intention and Financial Reporting Quality. This suggests a more complex mechanism in which the actual behaviour of using a product or service plays a crucial role in mediating the relationship between intention and improved reporting results. This implies that the mere intention to utilize artificial intelligence (AI) is insufficient for enhancing quality; rather, it is the practical implementation and integration of AI into everyday operations that result in measurable advancements. Essentially, the UTAUT model states that practical use, which is affected by behavioural intentions and made easier by favourable conditions, is what really matters when it comes to artificial intelligence (AI) advantages. Since AI has the ability to improve governance norms, it might have significant benefits for Islamic institutions. But it's critical to make sure that Islamic ethics and governance systems don't clash with technological advancements. The use of artificial intelligence (AI) by Islamic banks might lead to more openness, responsibility, and moral business dealings. Because of this, confidence and trust may grow among different parties involved. A balanced approach that recognises the importance of technological advancements while maintaining the core principles of Islamic finance is necessary for the successful integration of AI into the framework of financial reporting and governance within the Islamic banking sector.

7. Future Directions

For this research, it is necessary to examine the mechanisms that facilitate the conversion of intents into effective utilisation of AI. Additional research is required to ascertain the potential obstacles and advantages linked to the use of AI technology in an Islamic banking context. Further investigation is required to examine the potential connections between the governance criteria of Islamic financial institutions and the integration of artificial intelligence (AI). This investigation aims to improve both the financial reporting quality and the overall governance framework of these organisations.

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