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Generative Artificial Intelligence and Shariah Governance in Islamic Banks: A Conceptual Framework for Responsible Adoption

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الذكاء الاصطناعي التوليدي؛ الصيرفة الإسلامية؛ الحوكمة الشرعية؛ مقاصد الشريعة؛ الذكاء الاصطناعي المسؤول؛ إطار عمل التكنولوجيا–التنظيم–البيئة

ABSTRACT

The generative artificial intelligence (GenAI) is entering the banking sector in a fast way, and the Islamic banks are not an exception from this trend. However, the Islamic banks face an additional requirement that the conventional banks do not face, which is the requirement of the Shariah compliance in every product, process, and communication. The objective of this paper is to develop a conceptual framework that explains how the Islamic banks can adopt the GenAI in a responsible way while protecting the Shariah governance. The paper follows a conceptual research design, and it is based on a structured integrative review of the literature on the AI in banking, the Shariah governance, the technology adoption, and the responsible AI. The framework integrates the Technology-Organization-Environment (TOE) framework with the Maqasid al-Shariah perspective, and it proposes six propositions. The propositions explain that the technological, organizational, and environmental readiness affect the GenAI adoption, and the GenAI adoption is expected to improve the Maqasid-oriented outcomes, where this relationship is moderated by the Shariah governance mechanisms and by the responsible AI principles. The paper contributes to the literature by moving the discussion from the general FinTech in the Islamic finance to the specific risks of the GenAI, such as the hallucination and the opacity of the model outputs. In addition, the paper provides practical guidance for the Shariah boards, the regulators, and the bank managers, and it suggests an agenda for the future empirical research.

الملخص

يشهد القطاع المصرفي دخولاً متسارعاً للذكاء الاصطناعي التوليدي، ولا تُعد المصارف الإسلامية استثناءً من هذا التوجه. ومع ذلك، تواجه المصارف الإسلامية متطلباً إضافياً لا يواجهه نظراؤها من المصارف التقليدية، ألا وهو ضرورة الالتزام بأحكام الشريعة الإسلامية في كل منتج وعملية وتواصل. تهدف هذه الورقة البحثية إلى تطوير إطار مفاهيمي يوضح كيفية تبني المصارف الإسلامية للذكاء الاصطناعي التوليدي بطريقة مسؤولة، مع الحفاظ في الوقت

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ذاته على منظومة الحوكمة الشرعية. تتبنى الورقة منهجية بحثية مفاهيمية، وتستند إلى مراجعة تكاملية منظمة للأدبيات المتعلقة بالذكاء الاصطناعي في القطاع المصرفي، والحوكمة الشرعية، وتبني التكنولوجيا، والذكاء الاصطناعي المسؤول. يدمج الإطار المقترح نموذج "التكنولوجيا–التنظيم–البيئة" مع منظور "مقاصد الشريعة"، ويطرح ست فرضيات؛ حيث توضح هذه الفرضيات أن الجاهزية التكنولوجية والتنظيمية والبيئية تؤثر على تبني الذاء الاصطناعي التوليدي، ومن المتوقع أن يسهم هذا التبني في تعزيز النتائج المتوافقة مع مقاصد الشريعة، مع خضوع هذه العلاقة لتأثير آليات الحوكمة الشرعية ومبادئ الذكاء الاصطناعي المسؤول. وتُسهم هذه الورقة في الأدبيات البحثية من خلال نقل النقاش من الإطار العام للتكنولوجيا المالية (FinTech) في التمويل الإسلامي إلى المخاطر المحددة المرتبطة بالذكاء الاصطناعي التوليدي، مثل ظاهرة "الهلوسة" (توليد معلومات غير دقيقة) وانعدام الشفافية في مخرجات النماذج. علاوة على ذلك، تقدم الورقة توجيهات عملية للهيئات الشرعية، والجهات التنظيمية، ومديري المصارف، كما تقترح أجندة للبحوث التجريبية المستقبلية.

JEL Classification: G21; G34; O33.

1. Introduction

The artificial intelligence (AI) has become one of the main forces that change the financial services industry, and the banks are now using the AI in the credit scoring, the fraud detection, the customer service, and the compliance monitoring (Königstorfer & Thalmann, 2020; Fares et al., 2023). Moreover, the arrival of the generative artificial intelligence (GenAI), which is the type of AI that can produce new text, code, and images based on the large language models, has added a new stage to this transformation. In other words, the AI is no longer used only to classify or to predict, but it is now used also to write the contracts summaries, to answer the customers questions, and to draft the internal reports (Dwivedi et al., 2023). Accordingly, the banks around the world started to test the GenAI applications in their daily operations, and the competition in this field is increasing in a fast way. Moreover, the qualitative study of Moharrak and Mogaji (2025) with the bank managers and the industry experts identified five critical factors that affect the adoption of the GenAI in the banking, which are the recognition, the requirement, the reliability, the regulatory, and the responsiveness factors, and this shows that the GenAI adoption in a regulated industry is a complex decision and not only a technical choice.

The Islamic banks are part of this global movement, and they are expected to adopt the same technologies of the conventional banks in order to remain competitive. However, it should be noted that the Islamic banks have a distinctive identity, where every product and every process must comply with the rules and the principles of the Shariah (El-Gamal, 2006; Kamali, 2008). Therefore, the Islamic banks have a special governance layer, which is the Shariah governance, and the Shariah governance includes the Shariah board, the Shariah review, and the Shariah audit functions (Grais & Pellegrini, 2006; Hasan, 2011). In this context, any new technology that touches the products, the contracts, or the communication with the customers must be evaluated also from the Shariah perspective, and not only from the technical or the financial perspective.

The GenAI creates a specific challenge for the Shariah governance, and this challenge is different from the challenge of the previous FinTech applications. The GenAI models can produce outputs that look correct and convincing, but these outputs may contain wrong information, which is known in the literature as the hallucination (Ji et al., 2023). Furthermore, the GenAI models are often described as opaque, where the reasons behind a specific output cannot be explained easily (Barredo Arrieta et al., 2020; Bender et al., 2021). As for the Islamic banks, a chatbot that gives a wrong explanation about a Murabaha contract, or a model that drafts a product document with a non-compliant clause, can create a Shariah non-compliance risk, and this risk can damage the reputation and the legitimacy of the bank in front of its customers. Hence, the question is not only whether the Islamic banks should adopt the GenAI, but also how the Islamic banks can adopt the GenAI while protecting the integrity of the Shariah governance.

Previous studies discussed the FinTech in the Islamic finance in a general way (Alam et al., 2019; Ali et al., 2019; Hassan et al., 2020), and other studies discussed the AI in the conventional banking (Königstorfer & Thalmann, 2020; Fares et al., 2023). Moreover, a separate stream of studies discussed the Shariah governance practices and their effect on the performance of the Islamic banks (Hasan, 2011; Mollah & Zaman, 2015). More recently, several studies of 2025 and 2026 started to discuss the AI in the Islamic finance more directly, such as the systematic review of Manneh et al. (2025) on the AI and the Sharia compliance, the conceptual model of Wahab and Mahdiya (2025) for the digital Shariah governance, the study of Bin Abdul Rahim (2025) on the Shariah Secretariat function in Malaysia, and the study of Uddin and Rosman (2026) on the AI and the risk management in the Islamic banking. However, these studies discussed the AI in general, and there is still a lack of studies that connect these streams together with a focus on the GenAI, and especially there is a lack of a conceptual framework that explains the adoption of the GenAI in the Islamic banks with consideration to the Shariah governance and the Maqasid al-Shariah. In other words, the literature did not answer yet the question of what are the factors that drive the GenAI adoption in the Islamic banks, and what are the governance mechanisms that make this adoption consistent with the objectives of the Shariah.

Based on the above, the objective of this paper is to develop a conceptual framework for the responsible adoption of the GenAI in the Islamic banks. More specifically, the paper aims to answer the following research questions: (1) What are the technological, organizational, and environmental factors that are expected to affect the GenAI adoption in the Islamic banks? (2) How is the GenAI adoption expected to affect the Maqasid-oriented outcomes of the Islamic banks? (3) What is the role of the Shariah governance mechanisms and the responsible AI principles in shaping this relationship? To answer these questions, the paper integrates the Technology-Organization-Environment (TOE) framework (Tornatzky & Fleischer, 1990) with the Maqasid al-Shariah perspective (Chapra, 2008; Auda, 2008), and it develops six propositions that can be tested in the future empirical studies.

The paper contributes to the literature in three ways. First, the paper moves the discussion from the general FinTech to the specific characteristics of the GenAI, and it explains why the GenAI requires a different governance approach in the Islamic banks. Second, the paper introduces the Shariah governance as a moderating mechanism in the relationship between the AI adoption and the outcomes of the bank, and this is a new position for the Shariah governance in the technology adoption literature. Third, the paper provides a practical guidance for the Shariah boards, the regulators, and the managers of the Islamic banks. The rest of the paper is organized as follows. Section 2 reviews the relevant literature, including the recent studies of 2025 and 2026, Section 3 explains the methodology, Section 4 presents the proposed framework and the propositions, Section 5 discusses the implications, and Section 6 concludes the paper.

2. Literature Review

2.1 Artificial Intelligence and Generative AI in Banking

The use of the AI in the banking sector is not a new phenomenon, and the banks used the machine learning models for many years in the areas of the credit risk, the fraud detection, and the anti-money laundering (Königstorfer & Thalmann, 2020). According to the Financial Stability Board (2017), the AI and the machine learning applications in the financial services can improve the efficiency and the risk management, but these applications also create new risks related to the concentration, the interconnectedness, and the lack of the interpretability. Moreover, the systematic review of Fares et al. (2023) showed that the AI in the banking sector is used mainly in the front office for the customer interaction, in the middle office for the risk management, and in the back office for the operations, and the review showed also that the research in this field is growing in a rapid way. The GenAI is different from the traditional AI in the type of the output that it produces. The traditional AI models produce a prediction or a classification, while the GenAI models produce a new content, such as a text or a summary, based on the patterns that the model learned from a very large data (Bommasani et al., 2021). Accordingly, the GenAI opened new uses in the banking sector, such

as the conversational assistants for the customers, the automatic drafting of the reports, the summarizing of the regulatory documents, and the support of the employees in the internal knowledge search (Dwivedi et al., 2023). In addition, the GenAI can help the employees to work faster, and it can reduce the cost of some routine tasks, which is consistent with the idea that the AI can augment the work of the humans and not only replace it (Raisch & Krakowski, 2021). On the other hand, the GenAI brings specific risks that the banks must manage. The first risk is the hallucination, where the model generates an information that is not correct but it looks correct (Ji et al., 2023). The second risk is the opacity, where the user cannot know exactly why the model produced a specific answer (Barredo Arrieta et al., 2020). The third risk is related to the data, where the training data may include biases, and the use of the customers data may create privacy issues (Bender et al., 2021). It is worth mentioning that these risks are more serious in a regulated sector such as the banking, because a wrong answer to a customer can be considered as a misleading advice, and it may create a legal and a reputational consequence for the bank.

2.2 FinTech and Digitalization in Islamic Finance

The Islamic finance industry has shown a growing interest in the FinTech during the last decade. Alam et al. (2019) explained that the digitalization can help the Islamic finance to reach new customers, to reduce the cost of the operations, and to develop new Shariah-compliant products. Furthermore, Ali et al. (2019) discussed the potential impact of the FinTech on the Islamic banking in Brunei Darussalam and Malaysia, and the study showed that the FinTech can be an opportunity for the Islamic banks if the Islamic banks adapt to the new technologies. In the same direction, Hassan et al. (2020) argued that the FinTech can support the Islamic banks in facing the challenges of the post COVID-19 period, especially in the areas of the digital payments and the financial inclusion. However, the previous studies on the FinTech in the Islamic finance focused mainly on the general digitalization, the digital payments, the crowdfunding, and the blockchain, and the previous studies gave less attention to the AI, and even less attention to the GenAI. In other words, the literature discussed the question of whether the FinTech is compatible with the Shariah in a general level, but the literature did not discuss in details the governance of the AI outputs that affect the Shariah compliance. This gap is important because the GenAI is not only a channel to deliver the service, but it is also a producer of the content, and this content may include a religious or a contractual meaning that must be checked by the Shariah experts. In the wider FinTech literature, Arner et al. (2016) explained that the FinTech developed in several stages, and the latest stage is characterized by the entry of the new technology companies into the financial services. Moreover, Gomber et al. (2018) discussed the forces of the innovation and the disruption in the financial services, and the study showed that the FinTech changes the business models of the banks and the relationship between the banks and the customers. Accordingly, the Islamic banks are facing the same forces of the disruption, and the Islamic banks need to find a way to adopt the new technologies while keeping their Islamic identity.

2.3 Shariah Governance in Islamic Banks

The Shariah governance is the set of the institutional and the organizational arrangements that ensure the compliance of the Islamic financial institution with the Shariah rules and principles (Islamic Financial Services Board [IFSB], 2009). According to Grais and Pellegrini (2006), the Shariah governance includes the Shariah supervisory board, the internal Shariah review, and the external Shariah audit, and the effectiveness of these mechanisms depends on their independence, their competence, and their transparency. Moreover, Hasan (2011) conducted a survey on the Shariah governance practices in Malaysia, the GCC countries, and the United Kingdom, and the study found that there are significant differences between the countries in the regulatory framework and in the practices of the Shariah boards. In Malaysia, the Shariah governance is regulated by the Shariah Governance Policy Document of Bank Negara Malaysia (2019), which defines the roles and the responsibilities of the board of directors, the Shariah committee, and the control functions, including the Shariah risk management, the Shariah review, and the Shariah audit. In addition, the empirical studies showed that the Shariah supervision has an effect on the performance of the Islamic banks. For example, Mollah and Zaman (2015) found that the Shariah supervisory boards have a

positive effect on the performance of the Islamic banks when these boards perform a supervisory role. Hence, the Shariah governance is not only a religious requirement, but it is also a mechanism that affects the trust of the stakeholders and the performance of the bank. It should be noted that the current Shariah governance frameworks were designed for a world where the products and the documents are prepared by the humans and reviewed by the humans. With the arrival of the GenAI, a part of the content may be produced by a machine, and this content may be produced in a large volume and in a real time, such as the answers of a chatbot to thousands of the customers in the same day. Therefore, the traditional approach of the Shariah review, which depends on reviewing the documents before the approval, may not be sufficient for the GenAI applications. In this context, the Shariah governance needs to develop new mechanisms, such as the review of the model design, the testing of the outputs before the launching, and the continuous monitoring of the outputs after the launching.

2.4 Maqasid al-Shariah as an Evaluation Lens

The Maqasid al-Shariah refers to the higher objectives of the Islamic law, which are related to the protection of the religion, the life, the intellect, the progeny, and the wealth (Chapra, 2008; Kamali, 2008). Auda (2008) proposed a systems approach to the Maqasid, where the Maqasid is considered as a framework to evaluate the rules and the practices according to their purposes, and not only according to their forms. Moreover, Dusuki and Abdullah (2007) used the Maqasid al-Shariah and the concept of the Maslahah to explain the social responsibility of the Islamic institutions, and Laldin and Furqani (2013) argued that the development of the Islamic finance must be guided by the Maqasid as the ends, and by the suitable instruments as the means. The Maqasid perspective is useful for the evaluation of the GenAI in the Islamic banks for two reasons. First, the Maqasid perspective allows the researchers to evaluate the GenAI not only by the efficiency and the profit, but also by the effect of the GenAI on the protection of the wealth of the customers, the fairness in the transactions, and the truthfulness of the information. Second, the Maqasid perspective is consistent with the discussion of the form versus the substance in the Islamic banking (Khan, 2010), where the critics argued that some Islamic products comply with the Shariah in the form but not in the substance. Accordingly, the GenAI may increase this problem if the GenAI is used only to produce the compliant documents in the form, and it may reduce this problem if the GenAI is governed in a way that supports the substance of the Shariah objectives.

2.5 Technology Adoption and Responsible AI

The technology adoption literature offers several theories to explain why the organizations adopt the new technologies. At the individual level, the Technology Acceptance Model (Davis, 1989) and the Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003) explain the adoption based on the perceptions of the users, such as the perceived usefulness and the performance expectancy. At the organizational level, the TOE framework of Tornatzky and Fleischer (1990) explains the adoption based on three contexts, which are the technological context, the organizational context, and the environmental context. Since the adoption of the GenAI in the bank is an organizational decision, the TOE framework is more suitable for the current paper, and it was used widely in the previous studies of the AI adoption in the organizations (Dwivedi et al., 2021).

In addition to the adoption, the literature discussed the responsible use of the AI. Jobin et al. (2019) reviewed the global AI ethics guidelines, and the study found that there is a convergence around several principles, such as the transparency, the justice and fairness, the non-maleficence, the responsibility, and the privacy. Furthermore, Floridi et al. (2018) proposed an ethical framework for the AI based on the principles of the beneficence, the non-maleficence, the autonomy, the justice, and the explicability. In the regulatory side, the National Institute of Standards and Technology (2023) published the AI Risk Management Framework, and the European Union adopted the Artificial Intelligence Act (Regulation (EU) 2024/1689), which classifies the AI systems according to their risks. As for Malaysia, the Risk Management in Technology policy of Bank Negara Malaysia (2020) sets the requirements for the technology risk management in the financial institutions. It is worth mentioning that there is a clear similarity between the

principles of the responsible AI and the values of the Islamic finance. For example, the principle of the transparency is related to the prohibition of the Gharar, which means the excessive uncertainty in the contracts, and the principle of the fairness is related to the prohibition of the injustice (Zulm) in the transactions (El-Gamal, 2006). Moreover, the principle of the accountability is related to the concept of the trust (Amanah), where the institution is responsible in front of the customers and in front of Allah for its actions. Hence, the responsible AI principles can be considered as a common ground between the global AI governance and the Shariah governance.

2.6 Recent Studies on AI in Islamic Finance

The literature of 2025 and 2026 showed a growing interest in the AI in the Islamic finance specifically. Manneh et al. (2025) conducted a PRISMA-guided systematic review on the AI in the Islamic finance and the Sharia compliance, and the review included 26 peer-reviewed publications from 2020 to 2025. The review found that the AI can improve the efficiency, the transparency, the financial inclusion, and the Sharia auditing, but it found also several challenges, such as the cost of the implementation, the skills gaps, the cybersecurity risk, and the algorithmic bias, and it identified the regulatory gaps and the expanded responsibilities of the Sharia boards (Manneh et al., 2025). Moreover, Wahab and Mahdiya (2025) proposed a conceptual model of the AI-based digital Shariah governance, which combines the Technology Acceptance Model, the Institutional Theory, and the Maqasid al-Shariah, and the authors recommended the testing of the model by using the SEM or the PLS. In the context of Malaysia, Bin Abdul Rahim (2025) examined how the AI can improve the work of the Shariah Secretariat in the Islamic banks, and the study identified the unclear accountability and liability for the autonomous AI and the gaps in the Malaysian legal framework as the main challenges. In addition, Uddin and Rosman (2026) examined the use of the AI in the Islamic banking for the risk determination, the payment fraud, the AML and KYC screening, and the Shariah compliance, and they concluded that the effective integration of the AI requires the analysis of the technological, the legal, and the ethical factors, including the data security, the privacy, and the regulatory compliance. As for the banking sector in general, Moharrak and Mogaji (2025) found that the GenAI adoption in the banks depends on five factors, which are the recognition, the requirement, the reliability, the regulatory, and the responsiveness.

It should be noted that these recent studies support the direction of the current paper, but they leave an important space for it. Most of these studies discussed the AI in a general way, and they did not focus on the specific risks of the GenAI, such as the hallucination and the opacity of the generated content. Moreover, the model of Wahab and Mahdiya (2025) depends on the individual acceptance through the TAM, while the current paper considers the adoption as an organizational decision through the TOE framework, and it introduces the Shariah governance mechanisms and the responsible AI principles as the moderators of the relationship between the adoption and the outcomes. Hence, the current paper builds on these recent studies and extends them.

2.7 Research Gap

Based on the reviewed literature, three gaps can be identified. The first gap is that the studies on the FinTech and the AI in the Islamic finance, including the recent studies (Manneh et al., 2025; Wahab & Mahdiya, 2025; Uddin & Rosman, 2026), did not focus on the GenAI, and the specific risks of the GenAI, such as the hallucination and the opacity, were not discussed from the Shariah perspective. The second gap is that the studies on the Shariah governance did not consider the AI as a source of the content that needs a Shariah review, and accordingly there is no clear framework for the Shariah review of the AI outputs. The third gap is that the studies on the technology adoption did not include the religious and the ethical governance as a factor that shapes the outcomes of the adoption. Table 1 summarizes the main streams of the literature and the gaps that the current paper aims to address.

TABLE 1. SUMMARY OF THE MAIN LITERATURE STREAMS AND THE IDENTIFIED GAPS

Literature stream	Main focus of the previous studies	Representative sources	Gap addressed by this paper

AI and GenAI in banking	Applications and risks of the AI in the conventional banks	Königstorfer & Thalmann (2020); Fares et al. (2023); Moharrak & Mogaji (2025)	The religious compliance dimension is absent
FinTech in Islamic finance	General digitalization, payments, and inclusion	Alam et al. (2019); Ali et al. (2019); Hassan et al. (2020)	The GenAI and its specific risks are not discussed
AI in Islamic finance (2025–2026)	AI supports Sharia compliance and risk management, but creates accountability and skills gaps	Manneh et al. (2025); Wahab & Mahdiya (2025); Bin Abdul Rahim (2025); Uddin & Rosman (2026)	General AI focus; governance not modelled as a moderator
Shariah governance	Structure and effect of the Shariah boards	Grais & Pellegrini (2006); Hasan (2011); Mollah & Zaman (2015)	The machine-generated content is not covered
Technology adoption	TOE, TAM, and UTAUT antecedents	Davis (1989); Tornatzky & Fleischer (1990); Venkatesh et al. (2003)	The governance is not modelled as a moderator
Responsible AI	Ethical principles and regulation	Floridi et al. (2018); Jobin et al. (2019); NIST (2023)	No link with the Maqasid al-Shariah

3. Methodology

This paper follows a conceptual research design. According to Gilson and Goldberg (2015), the conceptual paper does not use the empirical data, but it builds a new argument by integrating the existing theories and the existing evidence, and it proposes the relationships between the constructs. Moreover, Jaakkola (2020) explained that the conceptual papers can follow different approaches, such as the theory synthesis, the theory adaptation, the typology, and the model building. The current paper follows the model building approach, where the aim is to build a framework that explains the relationships between the constructs and to develop the testable propositions (Jaakkola, 2020; MacInnis, 2011). To support the development of the framework, a structured integrative review of the literature was conducted. The integrative review is a type of the literature review that aims to assess, to critique, and to synthesize the literature on a topic in a way that allows the generation of new frameworks and new perspectives (Torraco, 2005; Snyder, 2019). The integrative review was considered more suitable for the current paper than the systematic review, because the topic of the GenAI in the Islamic banks is new, and the direct studies on this topic are limited, and therefore the paper needs to combine the evidence from several streams of the literature that are different from each other.

The literature was identified from the main academic databases, which are Scopus, Web of Science, and Google Scholar, and it was complemented by the regulatory and the policy documents issued by the standard-setting bodies and the central banks, such as the Islamic Financial Services Board, Bank Negara Malaysia, the Financial Stability Board, and the National Institute of Standards and Technology. The search used combinations of keywords such as "artificial intelligence", "generative AI", "large language models", "Islamic banking", "Shariah governance", "Maqasid al-Shariah", "FinTech", and "technology adoption". The search covered the publications until 2026, and a special attention was given to the studies published in 2025 and 2026, because the topic of the AI in the Islamic finance is developing in a fast way. The sources were selected based on their relevance to the research questions, their theoretical contribution, and their recognition in the field, and the priority was given to the peer-reviewed journal articles and to the official regulatory documents.

The analysis of the literature was conducted in three steps. In the first step, the main constructs were identified from each stream of the literature, such as the readiness factors from the TOE literature, the governance mechanisms from the Shariah governance literature, and the principles from the responsible AI literature. In the second step, the constructs were compared and mapped against each other in order to find the overlaps and the gaps. In the third step, the relationships between the constructs were derived through

the logical reasoning and the support of the previous evidence, and these relationships were formulated as the propositions. It should be noted that the propositions of the current paper are not empirical findings, but they are theoretical statements that need to be tested in the future studies.

4. Results

4.1 Overview of the Framework

The result of the integrative review is the proposed conceptual framework, which is presented in Figure 1. The framework consists from four groups of the constructs. The first group is the antecedents of the GenAI adoption, which are organized according to the TOE framework into the technological readiness, the organizational readiness, and the environmental pressure. The second group is the GenAI adoption in the Islamic banking operations, which is the central construct of the framework. The third group is the Maqasid-oriented outcomes, which include the Shariah compliance, the operational efficiency, and the trust of the stakeholders. The fourth group is the moderating mechanisms, which are the Shariah governance mechanisms and the responsible AI principles, and these mechanisms are expected to shape the relationship between the GenAI adoption and the Maqasid-oriented outcomes.

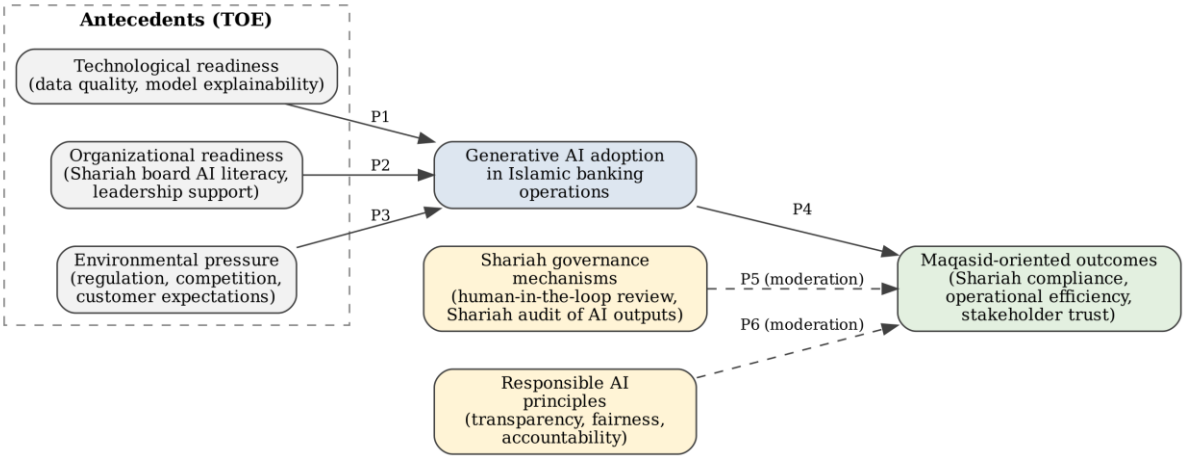


Figure 1. *The proposed conceptual framework*

4.2 Technological Readiness and GenAI Adoption

The technological readiness refers to the degree to which the bank has the technical infrastructure, the data quality, and the tools that are needed to use the GenAI in a safe way. The GenAI applications depend on the quality of the data that is used to feed the models, and the GenAI applications depend also on the ability of the bank to integrate the models with its core systems (Dwivedi et al., 2021). Moreover, in the case of the Islamic banks, the technological readiness includes a specific element, which is the availability of a reliable knowledge base of the Shariah resolutions, the product manuals, and the approved contract

templates, because the GenAI models need this knowledge base to produce the answers that are consistent with the decisions of the Shariah board. In addition, the explainability tools are important, because the Shariah board needs to understand the source of the answer before approving the use of the model (Barredo Arrieta et al., 2020). Accordingly, the following proposition is suggested:

> **Proposition 1 (P1):** *The technological readiness of the Islamic bank, including the data quality, the availability of a curated Shariah knowledge base, and the explainability of the models, is positively associated with the adoption of the GenAI in the Islamic banking operations.*

4.3 Organizational Readiness and GenAI Adoption

The organizational readiness refers to the internal capabilities and the support of the leadership for the adoption of the new technology. According to the TOE framework, the size of the organization, the support of the top management, and the skills of the employees are important factors for the adoption (Tornatzky & Fleischer, 1990). As for the Islamic banks, the organizational readiness has an additional dimension, which is the AI literacy of the Shariah board members and the Shariah officers. If the Shariah board does not understand how the GenAI works, the Shariah board may refuse the adoption because of the uncertainty, or it may approve the adoption without a sufficient control, and both cases are not desirable. Furthermore, the literature on the human trust in the AI showed that the trust depends on the understanding of the capabilities and the limitations of the AI (Glikson & Woolley, 2020). This argument is supported by the recent literature, where Manneh et al. (2025) found that the AI expands the responsibilities of the Sharia boards, and the skills gaps were identified among the main challenges of the AI adoption in the Islamic finance. Hence, the following proposition is suggested:

> **Proposition 2 (P2):** *The organizational readiness of the Islamic bank, including the support of the top management and the AI literacy of the Shariah board and the Shariah officers, is positively associated with the adoption of the GenAI in the Islamic banking operations.*

4.4 Environmental Pressure and GenAI Adoption

The environmental pressure refers to the external factors that push the bank to adopt the new technology, such as the competition, the expectations of the customers, and the regulation. The Islamic banks are competing not only with the other Islamic banks, but also with the conventional banks and with the digital banks and the FinTech companies (Gomber et al., 2018; Hassan et al., 2020). Therefore, if the competitors offer the GenAI services, such as the instant customer assistance, the Islamic banks may feel a pressure to offer the same services. On the other hand, the regulation may play a double role, where a clear regulation can encourage the adoption by reducing the uncertainty, while a strict or an unclear regulation can slow the adoption (Bank Negara Malaysia, 2020; Regulation (EU) 2024/1689). Moreover, Bin Abdul Rahim (2025) showed that the unclear accountability and the gaps in the legal framework in Malaysia are among the main challenges for the use of the AI in the Shariah functions, and the study recommended to make the national guidelines on the AI governance and ethics binding, and this indicates that the regulatory clarity is an important environmental factor. Based on the above, the following proposition is suggested:

> **Proposition 3 (P3):** *The environmental pressure, including the competitive pressure, the expectations of the customers, and the clarity of the regulatory guidance on the AI, is positively associated with the adoption of the GenAI in the Islamic banking operations.*

4.5 GenAI Adoption and Maqasid-Oriented Outcomes

The GenAI adoption is expected to affect the outcomes of the Islamic banks in several ways. Regarding the operational efficiency, the GenAI can reduce the time that is needed to answer the customers, to prepare

the reports, and to search in the internal documents (Dwivedi et al., 2023; Raisch & Krakowski, 2021). Regarding the Shariah compliance, the GenAI can support the Shariah officers by screening the large volume of the documents and by highlighting the clauses that may need a review, which is consistent with the use of the AI in the compliance monitoring in the conventional banks (Königstorfer & Thalmann, 2020). Regarding the trust of the stakeholders, the GenAI can improve the access of the customers to a clear explanation of the Islamic products in their own language, which can support the protection of the wealth and the intellect of the customers in the sense of the Maqasid (Chapra, 2008). In addition, the recent studies on the Islamic banking showed that the AI can support the risk determination, the detection of the payment fraud, the AML and KYC screening, and the Shariah compliance (Uddin & Rosman, 2026), and the systematic review of Manneh et al. (2025) found that the AI can improve the efficiency, the transparency, the financial inclusion, and the Sharia auditing in a way that is aligned with the Maqasid. Accordingly, the following proposition is suggested:

> **Proposition 4 (P4):** *The adoption of the GenAI in the Islamic banking operations is positively associated with the Maqasid-oriented outcomes, namely the Shariah compliance, the operational efficiency, and the trust of the stakeholders.*

4.6 The Moderating Role of the Shariah Governance Mechanisms

It should be noted that the positive effect of the GenAI adoption on the outcomes is not automatic. As discussed in Section 2.1, the GenAI may produce wrong or misleading outputs, and in the Islamic banks these outputs may create a Shariah non-compliance risk (Ji et al., 2023). Therefore, the current paper argues that the Shariah governance mechanisms play a moderating role in the relationship between the GenAI adoption and the outcomes. The Shariah governance mechanisms in the context of the GenAI include the approval of the use cases by the Shariah committee before the launching, the human-in-the-loop review of the outputs that have a Shariah meaning, the Shariah audit of the AI systems as a part of the internal audit plan, and the clear reporting lines between the technology function and the Shariah function (IFSB, 2009; Bank Negara Malaysia, 2019). In this regard, Bin Abdul Rahim (2025) explained that the AI can improve the work of the Shariah Secretariat through the automation of the processes, the management of the documents, and the regulatory reporting, but the study warned from the unclear accountability and liability when the AI acts in an autonomous way. When these mechanisms are strong, the bank is expected to benefit from the GenAI while controlling its risks, and when these mechanisms are weak, the GenAI may increase the Shariah non-compliance risk and reduce the trust of the customers. Hence, the following proposition is suggested:

> **Proposition 5 (P5):** *The Shariah governance mechanisms moderate the relationship between the GenAI adoption and the Maqasid-oriented outcomes, such that the relationship is stronger when the Shariah governance mechanisms adapted to the AI are more developed.*

4.7 The Moderating Role of the Responsible AI Principles

In addition to the Shariah governance, the responsible AI principles are expected to moderate the same relationship. The transparency principle requires the bank to inform the customers when the customers are interacting with the AI, and to explain the limits of the AI answers, which is consistent with the avoidance of the Gharar in the information (El-Gamal, 2006; Jobin et al., 2019). The fairness principle requires the bank to test the models for the biases, and this is important for the protection of the justice in the transactions. The accountability principle requires the bank to define who is responsible for the outputs of the AI, and this is consistent with the concept of the Amanah (Floridi et al., 2018; National Institute of Standards and Technology, 2023). Moreover, the literature on the algorithm aversion showed that the people may lose the trust in the algorithms quickly after seeing them make an error (Dietvorst et al., 2015), and therefore the

responsible AI practices are needed to protect the trust of the customers. Based on the above, the following proposition is suggested:

> **Proposition 6 (P6):** *The application of the responsible AI principles, namely the transparency, the fairness, and the accountability, moderates the relationship between the GenAI adoption and the Maqasid-oriented outcomes, such that the relationship is stronger when these principles are applied in a systematic way.*

Table 2 summarizes the six propositions, and it suggests possible measures that can be used to test the propositions in the future empirical studies.

TABLE 2. SUMMARY OF THE PROPOSITIONS AND THE SUGGESTED MEASURES FOR THE FUTURE TESTING

Proposition	Relationship	Suggested measures	Suggested method
P1	Technological readiness → GenAI adoption	Data quality index; existence of a curated Shariah knowledge base; explainability tools	Survey of the IT and the Shariah managers
P2	Organizational readiness → GenAI adoption	Top management support scale; AI literacy of the Shariah board	Survey; interviews with the Shariah committees
P3	Environmental pressure → GenAI adoption	Competitive pressure scale; perceived regulatory clarity	Survey; document analysis
P4	GenAI adoption → Maqasid-oriented outcomes	Number and depth of the GenAI use cases; Shariah non-compliance incidents; efficiency ratios; customer trust scale	Panel data; survey
P5	Shariah governance × GenAI adoption → Outcomes	Existence of AI-specific Shariah review and audit procedures	Moderation analysis (e.g., PLS-SEM)
P6	Responsible AI × GenAI adoption → Outcomes	Responsible AI practices index (transparency, fairness, accountability)	Moderation analysis; case studies

5. Discussion

5.1 Theoretical Implications

The proposed framework has several theoretical implications. First, the framework extends the TOE framework to the context of the Islamic banks by adding the specific elements of the Islamic identity to each context. In the technological context, the framework adds the curated Shariah knowledge base, and in the organizational context, the framework adds the AI literacy of the Shariah board. This extension responds to the recommendation of Wahab and Mahdiya (2025) and Manneh et al. (2025) for more models that can be tested empirically, and it is consistent also with the call of Dwivedi et al. (2021) for the research that considers the specific context of the AI adoption, and it shows that the general adoption models need to be adapted when the organization is governed by a religious set of rules.

Second, the framework gives a new position for the Shariah governance in the technology adoption literature. In the previous studies, the Shariah governance was studied mainly as a factor that affects the performance of the Islamic banks (Mollah & Zaman, 2015), or as a structure that needs to be described and compared between the countries (Hasan, 2011). However, the current framework considers the Shariah governance as a moderating mechanism that determines whether the technology creates a value or creates a risk. In other words, the Shariah governance is considered here as a part of the AI governance in the Islamic banks, and not as a separate function.

Third, the framework connects the responsible AI literature with the Maqasid al-Shariah literature. As explained in Section 2.5, there is a clear similarity between the principles of the responsible AI, such as the transparency and the fairness, and the Islamic values, such as the avoidance of the Gharar and the Zulm.

This connection is important because it allows the Islamic banks to use the global AI governance standards, such as the NIST framework, without losing their Islamic identity, and it allows the Shariah scholars to participate in the global discussion on the AI ethics with a clear contribution. Moreover, the use of the Maqasid as the outcome variable responds to the critique of Khan (2010) regarding the focus on the form instead of the substance, because the Maqasid-oriented outcomes evaluate the GenAI by its real effect on the customers and not only by the compliance of the documents.

5.2 Practical Implications

The framework provides several practical implications for the Shariah boards, the managers, and the regulators. For the Shariah boards, the framework suggests that the Shariah board should be involved from the beginning of the GenAI project, and not only at the end. In addition, the Shariah board should develop a specific procedure for the approval of the GenAI use cases, where the use cases are classified according to their Shariah sensitivity. For example, a GenAI tool that summarizes the internal meeting minutes has a low Shariah sensitivity, while a chatbot that explains the profit rates of the Islamic financing products to the customers has a high Shariah sensitivity, and therefore it needs a stronger human review.

For the managers of the Islamic banks, the framework suggests that the investment in the GenAI should be accompanied by an investment in the Shariah knowledge base and in the training of the Shariah officers on the AI. Furthermore, the managers should include the GenAI systems in the scope of the Shariah audit, and they should define the clear responsibilities for the outputs of the AI. It is worth mentioning that the managers should avoid the full automation of the Shariah-sensitive tasks, and they should keep the human in the loop, which is consistent with the augmentation approach to the AI in the management (Raisch & Krakowski, 2021).

For the regulators and the standard-setting bodies, such as Bank Negara Malaysia, the IFSB, and the AAOIFI, the framework suggests that there is a need for a guidance that connects the technology risk management with the Shariah governance. Currently, the technology risk and the Shariah risk are regulated in separate documents (Bank Negara Malaysia, 2019, 2020), and Bin Abdul Rahim (2025) also highlighted the gaps in the legal framework regarding the accountability of the AI in the Shariah functions, and the GenAI makes the connection between these two risks more important. Therefore, the regulators may consider issuing a guidance on the Shariah governance of the AI systems, which includes the minimum requirements for the Shariah review of the AI outputs and for the disclosure to the customers.

5.3 Research Agenda

The propositions of the current paper open several directions for the future research. The future studies can test the propositions P1 to P3 by using a survey of the Islamic banks in different countries, such as Malaysia, the GCC countries, and Jordan, and the future studies can use the structural equation modelling to test the effects of the TOE factors on the GenAI adoption. Moreover, the moderating propositions P5 and P6 can be tested by using the moderation analysis, and the future studies can compare between the banks that have an AI-specific Shariah review procedure and the banks that do not have such a procedure. In addition, the qualitative studies, such as the case studies and the interviews with the Shariah scholars, are needed to understand how the Shariah boards evaluate the GenAI use cases in the practice, and what are the Fiqh issues that arise from the use of the GenAI in the contracts and in the customer communication.

6. Conclusion

This paper aimed to develop a conceptual framework for the responsible adoption of the GenAI in the Islamic banks. Based on a structured integrative review of the literature, the paper integrated the TOE framework with the Maqasid al-Shariah perspective, and it proposed six propositions. The propositions suggest that the technological readiness, the organizational readiness, and the environmental pressure are

positively associated with the GenAI adoption, and the GenAI adoption is positively associated with the Maqasid-oriented outcomes, where this relationship is moderated by the Shariah governance mechanisms and by the responsible AI principles. In other words, the paper argues that the value of the GenAI for the Islamic banks depends not only on the technology itself, but also on the quality of the governance that surrounds the technology. The paper has some limitations that should be mentioned. First, the paper is conceptual, and the propositions were not tested empirically, and therefore the propositions should be considered as the theoretical expectations that need the empirical validation. Second, the literature on the GenAI is developing in a very fast way, and some of the risks and the solutions that were discussed in the paper may change with the development of the new models. Third, the paper focused mainly on the Islamic banks, and the framework may need some adaptation to be applied on the Takaful operators or on the Islamic capital market institutions. Despite these limitations, the paper provides a starting point for the researchers and the practitioners who are interested in the GenAI in the Islamic finance, and it is hoped that the framework will encourage the empirical studies that test the role of the Shariah governance in the era of the artificial intelligence.

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