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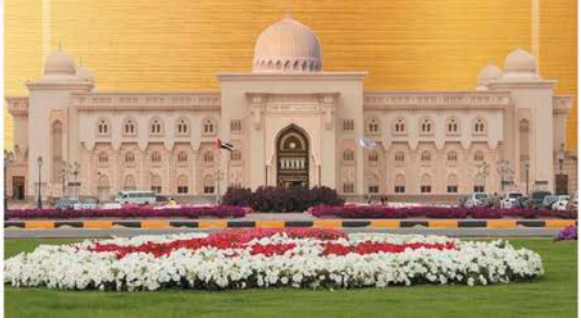

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اعتماد الذكاء الاصطناعي في الصيرفة الإسلامية في المغرب: التحديات والآفاق

AI ADOPTION IN ISLAMIC BANKING IN MOROCCO: CHALLENGES AND PROSPECTS[1]

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الملخص

يُقدّم التقارب بين التمويل الإسلامي والتحول الرقمي فرصًا وتحديات جديدة للقطاع المصرفي. تبحث هذه الدراسة في الوضع الراهن لتبني الذكاء الاصطناعي في البنوك الإسلامية المغربية، مُسلّطةً الضوء على كلٍّ من العقبات والآفاق المستقبلية. وباتباع نهج نوعي، يجمع البحث بين مراجعة الأدبيات الحالية ومقابلات شبه مُنظّمة أُجريت مع خبراء من البنوك الإسلامية والمؤسسات المالية وقطاع الذكاء الاصطناعي في المغرب. وتُظهر النتائج أن البنوك الإسلامية المغربية لم تُدمج الذكاء الاصطناعي في عملياتها بعد، مُعتمدةً

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بدلاً من ذلك على تطبيقات محدودة للتكنولوجيا المالية، مثل الخدمات المصرفية عبر الهاتف المحمول وكشف الاحتيال. ويُعزى هذا التبني البطيء في المقام الأول إلى عدم كفاية الجاهزية التنظيمية، وضعف البنية التحتية التقنية، ومستويات الاستثمار المتواضعة، ونقص الكفاءات المؤهّلة. ومع ذلك، تُسلّط الدراسة الضوء على الإمكانات الكبيرة للذكاء الاصطناعي في تعزيز كفاءة التكلفة، وتعزيز عملية صنع القرار، وتحسين كشف الاحتيال، وتوسيع الحصة السوقية للبنوك الإسلامية. ومن خلال معالجة العوائق الهيكلية وعوائق رأس المال البشري، يُمكن للبنوك الإسلامية المغربية الاستفادة من الذكاء الاصطناعي ليس فقط لتحديث خدماتها، ولكن أيضًا لتحسين قدرتها التنافسية في الأسواق الوطنية والدولية. يقدم هذا البحث أحد أوائل الرؤى التجريبية حول اعتماد الذكاء الاصطناعي في التمويل الإسلامي المغربي، ويوفر أساسًا لصناع السياسات والمختصين والعلماء الذين يسعون إلى مواءمة الابتكار مع مبادئ الشريعة الإسلامية.

Abstract

The convergence of Islamic finance and digital transformation presents new opportunities and challenges for the banking sector. This study examines the current state of Artificial Intelligence (AI) adoption in Moroccan Islamic banks, highlighting both obstacles and future prospects. Using a qualitative approach, the research combines a review of existing literature with semi-structured interviews conducted with experts from Islamic banks, financial institutions, and the AI sector in Morocco. Findings reveal that Moroccan Islamic banks have not yet integrated AI into their operations, relying instead on limited FinTech applications such as mobile banking and fraud detection. This slow adoption is primarily attributed to insufficient regulatory readiness, weak technological infrastructure, modest investment levels, and a shortage of skilled professionals. Nevertheless, the study underscores the significant potential of AI to enhance cost efficiency, strengthen decision-making, improve fraud detection, and expand the market share of Islamic banks. By addressing structural and human-capital barriers, Moroccan Islamic

banks could leverage AI not only to modernize their services but also to improve competitiveness within national and international markets. This research provides one of the first empirical insights into AI adoption in Moroccan Islamic finance, offering a foundation for policymakers, practitioners, and scholars seeking to align innovation with Shariah-compliant principles.

الكلمات الدالة: الذكاء الاصطناعي، الخدمات المصرفية الإسلامية، التقنية المالية، الامتثال للشريعة الإسلامية، المغرب.

Keywords: Artificial Intelligence, Islamic Banking, FinTech, Shariah compliance, Morocco.

1.0 Introduction

Artificial Intelligence (AI) is increasingly shaping the future of financial services, offering new possibilities for efficiency, accuracy, and customer engagement. In Islamic finance, however, the introduction of AI is still relatively recent. While the technology holds enormous potential to enhance financial performance and economic growth, its implementation must carefully consider Shariah compliance, ethics, and governance.

Globally, financial institutions are rapidly investing in AI despite challenges such as regulatory readiness and talent shortages. AI and, more recently, Generative AI are transforming both back-office operations and customer-facing services. Applications range from fraud detection, compliance automation, and risk management to chatbots and decision-support systems. In 2023 alone, financial institutions invested over $35 billion in AI, with projections estimating $97 billion by 2027 (Andrew Belelieu et al., 2025). Studies highlight significant gains, including reduced costs, faster service delivery, improved fraud detection, and enhanced customer experiences (KPMG, 2025; Marous, 2024). AI also contributes to sustainability goals by reducing resource use and optimizing efficiency (Malaquias & Silva, 2020; Azouaoui et al., 2023).

In Morocco, AI has begun to transform conventional banks, particularly through chatbots, fraud detection, and digital services. However, the Islamic banking sector, formally introduced in 2017 with the establishment of the first five participative banks and three participative windows (Bank Al-Maghrib, n.d.), remains at a very early stage of adoption. While AI promises to improve service quality, competitiveness, and financial inclusion, its integration faces significant obstacles, including the absence of a clear regulatory framework, weak technological infrastructure, limited investment, and a shortage of skilled professionals (Ouidani & Oulcaid, 2023; Bachir & Marzouki, 2023).

The intersection of Islamic finance and digital transformation in Morocco therefore presents an underexplored field of study. Despite a growing body of work on AI adoption in global and Gulf Islamic banks, there is a scarcity of research focusing on North Africa, and particularly on Moroccan Islamic banks. This gap limits both theoretical understanding and policy development at a time when these institutions must innovate to remain competitive.

This study addresses this gap by investigating the challenges and prospects of AI adoption in Moroccan Islamic banks. Specifically, it aims to:

1) Examine the current state of technology adoption in Moroccan Islamic banking.
2) Identify the challenges that hinder AI integration.
3) Explore future strategies and prospects for enhancing AI adoption within a Shariah-compliant framework.

The originality of this research lies in its focus on a sector that has yet to embrace AI, despite its potential to reshape Islamic banking operations in Morocco. By combining literature review and expert interviews, the study provides valuable insights for policymakers, practitioners, and scholars seeking to align technological innovation with the ethical and regulatory foundations of Islamic finance.

2.0 Literature Review

2.1 Evolution of AI in Banking

The integration of technology into the banking sector has evolved significantly over the past century. Early developments, such as the

introduction of automated teller machines (ATMs) in the 1960s, focused primarily on improving operational efficiency and reducing human error (Bátiz-Lazo, 2018). By the 1990s, internet banking allowed customers to manage accounts remotely, while the early 2000s marked the rise of mobile banking, which expanded financial access and transformed customer behavior (Brett King, 2018). More recently, blockchain and cryptocurrencies have reshaped payment systems and settlements. Against this backdrop, AI represents the next phase in digital transformation. Building on Alan Turing's foundational ideas about machine intelligence in the mid-20th century (Mijwil, 2015), AI has advanced into generative models and predictive algorithms capable of replicating aspects of human cognition. Today, AI is no longer an experimental technology but an essential driver of efficiency, innovation, and customer engagement in banking worldwide.

2.2 The Application of AI in Conventional Banking

AI has become integral to many conventional banking operations. Fraud detection is one of the most prominent applications, with machine learning algorithms analyzing large datasets in real time to identify suspicious activity more effectively than manual systems (Rahman et al., 2021). Document processing has also been revolutionized, as AI systems can review thousands of legal and financial records in seconds, reducing costs and human error (KPMG, 2025).

Customer interaction is another key area. Banks increasingly deploy AI-powered chatbots, such as Bank of America's "Erica," to provide 24/7 assistance, resolve queries, and improve customer satisfaction (Rahman et al., 2021). Similarly, AI enhances marketing efficiency by enabling personalized services, targeted campaigns, and product recommendations. Loan underwriting has also been transformed through AI-driven models that evaluate credit histories, income flows, and risk factors, significantly reducing processing time (KPMG, 2025).

Overall, the literature highlights that AI supports both operational efficiency and customer-centric innovations. However,

challenges remain in ensuring data privacy, algorithmic transparency, and regulatory compliance.

2.3 AI in Islamic Banking Worldwide

AI has also begun to reshape Islamic banking, though adoption is uneven across regions. Case studies from the Gulf Cooperation Council (GCC) countries highlight the transformative potential of AI. For example, Kuwait Finance House (KFH) has pioneered digital banking through its KFHonline platform, which integrates AI and FinTech tools. The platform processed more than 135 million online transactions in the first half of 2023 alone, reflecting a 40% increase compared to the previous year (KFH, 2023). KFH has also collaborated with Microsoft to launch chatbot services, enhancing customer engagement while ensuring compliance with Shariah principles.

Similarly, Dubai Islamic Bank (DIB) introduced its "Banking in Minutes" initiative, which uses AI to streamline the entire credit card issuance process, from application to activation, within minutes via its mobile app (DIB, 2019). Bahrain Islamic Bank (BisB) launched "Dana," its first virtual AI-based employee, designed to improve customer interactions and promote digital financial literacy (BisB, 2019).

These examples illustrate that Islamic banks can successfully integrate AI while maintaining Shariah compliance. They also demonstrate that AI can strengthen competitiveness, expand customer access, and reduce operational costs. However, the literature also warns of challenges such as aligning AI-driven automation with Islamic ethical standards, particularly regarding transparency and fairness in decision-making (Aziz & Dowling, 2018).

2.4 Islamic Banking in Morocco

The roots of Islamic banking in Morocco can be traced to the 1980s, but it was not until 2017 that the sector was formally established with the approval of the first five participative banks and three participative windows by Bank Al-Maghrib (Rhanoui & Belkhoutout, 2017; Bank Al-Maghrib, n.d.). Since then, Moroccan Islamic banks including Umnia Bank, Bank Assafa, BTI Bank, Bank Al Yousr, and Al Akhdar Bank have gradually expanded their services.

Despite steady growth, Islamic banking in Morocco remains small, representing only 1.9% of total banking assets as of Q3 2024, although it has recorded a notable compound annual growth rate of 27.6% in the past five years (IFSB, 2025). Studies highlight several systemic challenges, including limited public awareness, insufficient expertise, and competition from well-established conventional banks (Chihab et al., 2019).

In terms of digitalization, Moroccan conventional banks have embraced AI tools such as chatbots (Attijariwafa Bank, Bank of Africa) and fraud detection systems (Salafin), but participative banks have yet to adopt AI in any structured way (Ouidani & Oulcaid, 2023). Scholars argue that this gap is due to weak regulatory frameworks, limited IT infrastructure, and inadequate investment in innovation (Ait et al., 2020; Bachir & Marzouki, 2023).

2.5 Research Gap

The global literature demonstrates that AI adoption in banking can reduce costs, improve risk management, and enhance customer experiences, while case studies in the GCC show that Islamic banks can successfully integrate AI within a Shariah-compliant framework. In Morocco, however, Islamic banks remain at a very early stage of adoption, with little evidence of practical AI applications beyond basic FinTech services. Moreover, there is a scarcity of academic studies examining AI adoption in Moroccan Islamic banks.

This gap is significant given the sector's potential to expand financial inclusion, modernize banking services, and compete with conventional banks. By investigating the challenges and prospects of AI adoption in Moroccan Islamic banks, this study contributes original empirical insights and provides a foundation for policymakers, practitioners, and scholars seeking to align technological innovation with Islamic finance principles.

3.0 Methodology

3.1 Research Design

This study adopts a qualitative research design to explore the current state, challenges, and future prospects of AI adoption in Moroccan

Islamic banks. A qualitative approach is appropriate given the exploratory nature of the topic and the limited existing research in this field. By drawing on both primary and secondary data, the study provides a contextualized understanding of how AI could be integrated into Islamic banking while respecting Shariah principles.

3.2 Data Collection

Two main sources of data were used:

- **Secondary data:** A comprehensive review of existing literature was conducted, drawing from academic databases such as Google Scholar, Scopus, Web of Science, and ResearchGate. This review provided theoretical grounding and insights into global experiences of AI in both conventional and Islamic banking systems.
- **Primary data:** Semi-structured interviews were conducted with ten experts drawn from Islamic banks, Islamic finance consulting institutions, and the AI/FinTech sector in Morocco. Interview questions were designed to address the study's three core objectives: (1) assessing the current state of AI adoption in Moroccan Islamic banking, (2) identifying barriers to implementation, and (3) exploring prospects and strategies for integration. Interviews were conducted online via Zoom or WhatsApp, lasting between 40 and 75 minutes. Two participants opted to submit audio-recorded responses due to scheduling constraints.

3.3 Sampling Strategy

Purposive sampling was employed to select participants with relevant expertise in Islamic finance and AI technologies. The sample was deliberately homogeneous in geographical scope (Morocco) but diverse in professional roles, including bank managers, consultants, and AI specialists. This diversity ensured a range of perspectives while maintaining focus on the intersection of Islamic banking and technology. Potential participants were identified via professional networks and LinkedIn, and participation was voluntary.

3.4 Data Analysis

Interview data were transcribed and analyzed thematically using the inductive approach of Braun and Clarke (2006). This involved six steps: familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final analysis. Themes were developed to reflect recurring patterns in the experts' narratives, including regulatory, infrastructural, investment-related, and human-capital challenges, as well as perceived opportunities for AI adoption. Findings from the literature review were triangulated with interview data to enhance reliability.

3.5 Ethical Considerations

Ethical principles guided all stages of the research. Participants were informed about the study's purpose and scope, and verbal consent was obtained prior to each interview. Anonymity was maintained by using codes (e.g., E1, E2) instead of names when citing responses. Data were collected and stored securely, with WhatsApp and Zoom recordings transcribed and deleted after analysis. The study also respected cultural sensitivities by situating the discussion within the framework of Shariah-compliant finance.

4.0 Results and Analysis of the Qualitative Data

This section presents the analysis and findings from the qualitative interviews conducted with Moroccan experts in technology, Islamic banking, and finance. The purpose of the analysis is to assess the current state of FinTech and AI adoption in Moroccan Islamic banks, identify the key challenges hindering their integration, and explore potential strategies and prospects for future adoption.

The section is organized into two sub-sections. The first outlines the professional profiles of the interviewees, providing context for their perspectives and expertise. The second sub-section analyzes the experts' insights, highlighting recurring themes and patterns that emerged from the qualitative data. Together, these findings provide a comprehensive overview of the opportunities and constraints shaping the trajectory of AI integration within Morocco's Islamic banking sector.

4.1 Profile of the Experts

Table 1 summarizes the professional backgrounds of the interviewees, who are referred to as E1 through E10 to preserve anonymity. The experts represent a range of positions across Moroccan Islamic banks, consulting firms, and academia, providing diverse perspectives on both financial technology and Islamic banking.

Table 1: Profile of the Experts

Sector	Expert	Position	Institution
Banking Practitioners	E1	Manager, Strategy & Organization	Al Akhdar Bank
	E2	Branch Manager	Bank Assafa
	E7	Responsible Digital	Bank Assafa
	E8	Project Manager	Bank Assafa
	E9	Manager of Engagement Studies	Bank Al Yousr
	E10	Head of Risk Management & Control	BCP Banque Populaire du Maroc
Consultants / Industry Experts	E3	Green Finance Lead / Former CEO	MindED Inc. / El Maali Group
	E4	CEO	Integration Consulting
	E6	Founder and CEO	Fineopolis Consulting
Academia	E5	Assistant Professor & FinTech Consultant	Ibn Zohr University

The sample includes a balanced mix of banking practitioners (6 experts), consultants and industry specialists (3 experts), and academics (1 expert). This diversity ensures that both operational and strategic perspectives are represented, strengthening the reliability of the findings. The expertise spans strategy, risk management, digital transformation, green finance, and FinTech innovation, providing a rich foundation for analyzing the challenges and prospects of AI adoption in Moroccan Islamic banks.

4.2 Interview Themes and Questions

The qualitative data collected from the expert interviews were categorized into three overarching themes, which align with the study's research objectives. Each theme was further divided into sub-themes, with specific interview questions designed to elicit detailed insights. Table 2 summarizes the themes, sub-themes, and guiding questions.

Table 2: Interview Themes, Sub-themes, and Questions

Main Theme	Sub-themes	Sample Interview Questions
1. State of Technology Adoption in Moroccan Participative Banks	Current use of AI and FinTech	• To what extent have Moroccan Islamic banks embraced FinTech and AI? • What AI-based tools are currently utilized, and in which areas?
	Perceived advantages of AI	• Do you believe Moroccan Islamic banks should adopt AI, and why? • How would AI adoption enable Moroccan Islamic banks to: lower operational costs, enhance security, achieve faster payments, provide superior transactions, expand financial inclusion, and improve efficiency and transparency?

2. Challenges to AI Adoption	Regulatory and legal obstacles	• To what extent do regulatory and legal impediments pose obstacles to the adoption of AI by Moroccan Islamic banks?
	Investment constraints	• To what degree is the current level of investment inadequate for widespread AI adoption?
	Technological and infrastructural impediments	• How do technological and infrastructure limitations affect the readiness of Moroccan Islamic banks to adopt AI?
	Human and consumer factors	• To what degree are the availability of skilled human resources and customer awareness challenges for AI adoption?
3. Prospects and Future Strategies for AI Adoption	Strategies for adoption	• Which areas require improvement for Moroccan Islamic banks to be fully prepared for AI integration (e.g., investment, human resources, infrastructure, governance, client awareness)?

		• What strategies should be adopted to overcome current challenges?
	Anticipated prospects	• What are the expected benefits of AI adoption for Moroccan Islamic banks?
	Expert recommendations	• What additional suggestions or recommendations would you provide to help Moroccan Islamic banks embrace AI and improve services, efficiency, and transparency?

4.3 Coding Framework

The qualitative data were coded thematically based on the three main themes identified. Sub-themes were refined into codes, with illustrative expert quotations supporting each category. Table 3 presents the coding framework.

Table 3: Coding Framework for Interview Data

Theme	**Sub-theme**	**Codes**	**Illustrative Quotes (Experts)**
1. State of Technology Adoption	Current use of AI and FinTech	• No AI adoption • Limited FinTech (mobile banking, fraud detection)	*"The majority of Islamic banks in Morocco commenced their operations in 2018. They are still establishing basic services; AI*

			was not a priority." (E1)
	Perceived advantages of AI	• Cost reduction • Efficiency gains • Fraud detection • Financial inclusion	*"By using AI we save time and resources, we can optimize costs, capture market trends, improve customer relations, and detect risks imperceptible by standard methods."* (E10)
2. Challenges to AI Adoption	Regulatory and legal	• Absence of AI-specific laws • Partial data protection rules	*"There is no comprehensive legal framework for AI; this uncertainty discourages banks from investing heavily."* (E4)
	Investment constraints	• High financial requirements • Competing priorities (branch expansion)	*"AI requires large investment, but Islamic banks are still investing in their physical presence."* (E6)
	Technological & infrastructural gaps	• Limited IT systems • Rural connectivity issues	*"Digital infrastructure remains underdeveloped in rural Morocco, which slows digital transformation."* (E9)

	Human and consumer factors	• Shortage of AI-skilled staff • Low client awareness • Training gaps	*"The availability of qualified human resources and customer awareness pose significant challenges. Training staff and educating clients are both essential."* (E2)
3. Prospects & Future Strategies	Strategies for adoption	• Gradual adoption (chatbots, fraud detection) • Partnerships with FinTech • Workforce training	*"Banks should start with small-scale pilots, like chatbots, before moving to full AI systems."* (E7)
	Anticipated prospects	•Competitiveness • Efficiency • Enhanced reputation	*"Adopting AI will help participative banks catch up with conventional ones and improve their image."* (E5)
	Expert recommendations	• Align with Shariah compliance • Strengthen governance • Encourage policy reforms	*"AI governance must also align with Shariah principles to maintain trust and legitimacy."* (E3)

4.4 Interviews Results

4.4.1 State of AI and FinTech Adoption in Moroccan Islamic Banks

All ten experts agreed that Moroccan Islamic banks have not yet adopted Artificial Intelligence in their operations. Their primary focus

remains on consolidating fundamental banking services, as most institutions were established only between 2017 and 2018. Nevertheless, limited FinTech tools such as mobile applications and fraud detection systems are in use. As one expert explained, "The majority of Islamic banks in Morocco commenced their operations in early 2018. These new banks have spent their initial years establishing basic services and products and ensuring compliance with banking regulations. Artificial intelligence was not a priority" (E1).

This perspective reflects the sector's current pre-adoption phase. While conventional Moroccan banks have begun experimenting with AI-driven solutions, Islamic banks remain focused on regulatory compliance and organizational stabilization. Their delayed integration of AI highlights the structural and developmental gap between participative and conventional financial institutions in Morocco.

4.4.2 Perceived Advantages of AI Adoption

Despite the current absence of AI systems, nine of the ten interviewees emphasized the transformative potential of AI for Moroccan Islamic banks. Participants widely agreed that AI could help reduce operational costs, improve efficiency and transparency, enhance fraud detection, and strengthen decision-making processes. Many also underscored AI's potential to expand financial inclusion by improving accessibility and personalization of services.

One expert summarized this view by stating, *"By using AI we save time and resources, we can optimize costs, capture market trends, improve customer relations, and detect risks imperceptible by standard methods"* (E10). This sentiment illustrates the experts' belief that AI could redefine banking performance through automation, predictive analytics, and customer engagement tools. Collectively, these responses suggest that Moroccan Islamic banks perceive AI not merely as a technological upgrade but as a strategic driver of long-term competitiveness and sustainability.

4.4.3 Challenges to AI Adoption

The experts identified four major categories of challenges hindering AI adoption: regulatory and legal, financial, technological and infrastructural, and human resource–related obstacles.

Regarding regulatory and legal aspects, the experts expressed mixed views. Some noted that the absence of an explicit legal framework for AI creates uncertainty and discourages banks from investing in such technologies. Others argued that existing mechanisms, such as those provided by the National Commission for the Control of Personal Data (CNDP), already offer partial coverage for AI governance. Despite these differing opinions, there was broad agreement that clearer national policies and sector-specific regulations are essential to accelerate adoption.

Financial constraints emerged as a universal concern. All participants agreed that the implementation of AI systems requires substantial investment in software, data infrastructure, and training. Yet most Moroccan Islamic banks remain focused on expanding their physical presence and customer base, limiting the resources available for advanced technological innovation.

Technological and infrastructural weaknesses further compound the issue. Many respondents cited insufficient IT capacity, limited system integration, and underdeveloped digital infrastructure—particularly in rural areas—as major barriers. Finally, human capital constraints were highlighted as a critical challenge. Experts emphasized the shortage of skilled professionals capable of managing AI technologies and the limited awareness among clients about digital banking tools. As one participant noted, *"The availability of qualified human resources and customer awareness pose significant challenges. Training staff and educating clients are both essential"* (E2).

Collectively, these challenges reveal that while regulatory gaps exist, the most immediate constraints are financial, infrastructural, and human-capital related.

4.4.4 Prospects and Strategies for Adoption

Despite these obstacles, interviewees were optimistic about the long-term potential of AI in Moroccan Islamic banks. Many predicted that

AI adoption would enhance efficiency, strengthen security, and improve transparency in operations. Experts also anticipated that AI would help Islamic banks compete more effectively with conventional banks, expand services to small and medium-sized enterprises (SMEs), and strengthen relationships with the Moroccan diaspora.

To achieve these outcomes, participants proposed several strategies. The most frequently mentioned approach was to pursue gradual digital transformation, beginning with small-scale pilot projects such as AI-powered chatbots or fraud detection systems. Others emphasized the need for strategic partnerships with FinTech firms to share expertise and reduce the costs of technology acquisition. Workforce training and capacity-building were also identified as priorities to bridge the existing skills gap. Finally, many experts called for the creation of a sector-wide governance and ethical framework to ensure that AI deployment aligns with Shariah principles and maintains customer trust.

Overall, the experts' insights paint a cautiously optimistic picture: while Moroccan Islamic banks face structural and financial challenges, they also possess strong potential to leverage AI as a tool for modernization, inclusion, and competitiveness.

5.0 Discussion

5.1 Comparing Global and Moroccan Enterprises

The results align with global studies emphasizing AI's potential to enhance efficiency and reduce costs (Aziz & Dowling, 2018; Rahman et al., 2021). However, Moroccan Islamic banks remain at the pre-adoption stage, a finding that diverges from the experience of Islamic banks in the Gulf Cooperation Council (GCC) and Southeast Asia, which have already implemented AI in customer service, risk management, and compliance. While Gulf banks such as Kuwait Finance House and Dubai Islamic Bank use AI to drive large-scale digitalization, Moroccan Islamic banks are still focused on foundational operational stability. This difference reflects Morocco's recent entry into the Islamic banking sector and underscores the developmental gap between emerging and mature Islamic financial systems.

5.2 Barriers to Adoption

The findings confirm that underinvestment, infrastructural weakness, and human-capital shortages are the principal obstacles to AI adoption. Although regulatory ambiguity was mentioned, most experts considered it secondary to institutional readiness. This contrasts with the GCC and Malaysian contexts, where regulation and Shariah compliance are often the main constraints (Aziz & Dowling, 2018). In Morocco, the bottleneck is primarily structural rather than legal, echoing broader challenges identified across African financial sectors (Ait et al., 2020; Bachir & Marzouki, 2023).

5.3 Shariah and Ethical Considerations

An important but underexplored issue is ensuring that AI applications remain compliant with Islamic ethical and legal principles. Experts stressed that transparency in algorithms, fairness in decision-making, and protection of customer data must guide AI integration. Developing Shariah-compliant AI governance frameworks could therefore serve as both an ethical requirement and a source of competitive advantage for Moroccan Islamic banks.

5.4 Contribution to Knowledge

This study offers original empirical evidence on AI adoption within North African Islamic banking - a context largely absent from current scholarship. It demonstrates that Morocco's participative banks face distinctive structural and human-capital challenges yet also possess opportunities for innovation through strategic collaboration and ethical AI frameworks. By highlighting these dynamics, the research contributes valuable insights for policymakers, regulators, and practitioners seeking to align technological progress with Islamic financial principles.

6.0 Conclusion and Recommendations

6.1 Conclusion

This study investigated the current state of Artificial Intelligence (AI) and FinTech adoption in Moroccan Islamic banks, exploring the challenges they face and identifying potential strategies for future

integration. Through qualitative analysis of expert interviews, the research found that Moroccan Islamic banks remain in a pre-adoption stage, focusing primarily on building foundational systems, regulatory compliance, and customer trust since their establishment in 2017–2018. Although several conventional Moroccan banks have already begun experimenting with AI-driven solutions, Islamic banks continue to rely on basic digital tools such as mobile banking and fraud detection systems.

Nevertheless, the experts interviewed shared a strong belief in the transformative potential of AI for the Moroccan Islamic banking sector. They emphasized its capacity to reduce operational costs, enhance efficiency, strengthen fraud detection, improve transparency, and expand financial inclusion. However, realizing these benefits will depend on overcoming several critical barriers, including inadequate investment, underdeveloped digital infrastructure, and a shortage of skilled professionals. While the absence of a clear AI regulatory framework poses some uncertainty, most experts regarded institutional readiness and financial constraints as more pressing obstacles.

Despite these challenges, the study found optimism about the long-term prospects for AI integration. Experts proposed gradual adoption strategies, partnerships with FinTech firms, targeted staff training, and the development of Shariah-compliant AI governance models. These steps, they argued, would allow Moroccan Islamic banks to innovate responsibly while maintaining adherence to ethical and religious principles. In summary, this research contributes to the growing literature on technology in Islamic finance by providing one of the first empirical analyses of AI readiness in Morocco. It offers three major contributions:

1) It documents the pre-adoption stage of AI in Moroccan Islamic banking, a largely unexplored context in academic literature.
2) It reveals that, in contrast to Gulf and Asian Islamic banks, financial and infrastructural barriers outweigh regulatory challenges in Morocco.
3) It highlights Shariah-compliant AI governance as both an ethical necessity and a potential source of competitive advantage.

By addressing these areas, Moroccan Islamic banks can position themselves as modern, efficient, and ethically grounded institutions within the global financial landscape.

6.2 Recommendations

6.2.1 Policy Level Recommendations

At the national level, regulators and policymakers should develop a comprehensive AI strategy tailored to the financial sector, incorporating guidelines for Islamic finance institutions. This framework should be developed in collaboration with the Higher Council of Ulemas to ensure Shariah compliance while fostering innovation. Public–private partnerships can play a key role in funding digital infrastructure and facilitating AI experimentation. Additionally, educational institutions should collaborate with banks to build AI and FinTech capacity through specialized training programs, certifications, and university curricula that align with industry needs.

6.2.2 Bank Level Recommendations

Islamic banks should adopt a phased and strategic approach to AI integration. This can begin with small-scale pilot projects such as chatbots, fraud detection systems, and document automation before expanding to advanced analytics or customer personalization tools. Banks should also establish collaborative partnerships with FinTech companies to access technological expertise and reduce implementation costs. Parallel to this, banks need to invest in continuous professional training to equip staff with the technical and ethical competencies required for AI deployment.

6.2.3 Future-Orientated Recommendations

To ensure sustainable and ethical AI adoption, Moroccan Islamic banks should create internal AI governance committees responsible for evaluating algorithmic transparency, data protection, and Shariah compliance. At the same time, policymakers and financial institutions should encourage the growth of Islamic FinTech ecosystems, including incubators and accelerators that support innovation among startups. Finally, banks should leverage AI-driven platforms to expand their services to small and medium-sized enterprises (SMEs),

underserved populations, and the Moroccan diaspora—thereby advancing national goals of financial inclusion and economic development.

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