The Impact of Financial Technology on promoting Financial Inclusion in Algerian Islamic Banks The Case of Al Salam Bank –Algeria

BOUDJELAL Anfel *

LERDR Laboratory of Studies and Research in Rural Development,

University of Bordj Bou Arreridj, Algeria

anfel.boudjelal@univ-bba.dz

Received: 18/03/2026 **Accepted:** 14/04/2026 **Published:** 10/06/2026

Abstract:

This study aims at examining the impact of financial technology (FinTech) on promoting financial inclusion in Algerian Islamic banks. It adopts a qualitative approach based on semi-structured interviews with bank practitioners, analyzed using NVivo 15, focusing on Al Salam Bank–Algeria as a case study.

The findings show that FinTech improves access, usage, and service quality through tools such as mobile banking, electronic payments, and digital wallets, helping reach unbanked populations and reducing reliance on physical branches. However, its impact remains largely limited to basic transactional services, as advanced Shariah compliant products are not fully digitized.

The study also identifies key challenges, including regulatory gaps, weak digital infrastructure, cybersecurity risks, and low financial literacy, which continue to constrain the achievement of comprehensive financial inclusion.

Keywords: Financial Technology, Financial Inclusion, Islamic Banking, Shariah Compliance.

JEL classification codes: G21, G23, O33, O16.

* **Coresponding Author; BOUDJELAL Anfel; anfel.boudjelal@univ-bba.dz**

Introduction:

The rapid diffusion of financial technology (FinTech) is fundamentally reshaping the architecture of financial intermediation, creating new pathways through which previously excluded populations may access formal financial services. In Muslim-majority economies, this transformation carries a dual dimension: beyond its purely operational implications, FinTech adoption intersects with the imperatives of Islamic finance, which is inherently oriented toward equity, risk-sharing, and the economic empowerment of underserved communities. Islamic banks are therefore confronted with a strategic imperative to harness digital innovation while preserving the ethical integrity of Shariah compliant financial intermediation.

In Algeria, this imperative acquires particular urgency. Despite a relatively extensive banking network, financial inclusion indicators remain structurally weak, with a significant share of the adult population relying on informal channels due to geographic, cultural, and infrastructural barriers. The promulgation of Regulation No. 20-02 by the Bank of Algeria in 2020, which institutionalized Islamic banking windows across the national banking system, represents a critical juncture in this regard one that simultaneously expands the reach of Islamic finance and raises fundamental questions about the role of technology in translating this regulatory impetus into measurable inclusion outcomes.

Research Problem: The global financial system has undergone a profound structural transformation driven by the rapid proliferation of financial technology, which has fundamentally altered the modalities through which financial services are designed, delivered, and accessed. In Algeria, this transformation intersects with two parallel dynamics: the persistent weakness of financial inclusion indicators (as evidenced by World Bank Global Findex data) showing that fewer than half of Algerian adults hold a formal financial account and the accelerating development of Islamic banking, catalyzed by Regulation N°: 20-02 of 2020.

Against this backdrop, Algerian Islamic banks, and Al Salam Bank Algeria in particular, find themselves at the confluence of two imperatives: harnessing FinTech innovations to expand their reach, and ensuring that such innovations remain anchored in the ethical and legal framework of Islamic finance. Despite the growing body of literature on FinTech and financial inclusion at the global level, empirical research examining this relationship within the specific context of Algerian Islamic banking remains scarce.

The qualitative dimensions of this relationship how bank practitioners perceive, implement, and experience the integration of FinTech within a Shariah-compliant institutional setting have received particularly limited scholarly attention. This study therefore seeks to address this gap by posing the following central research question:

To what extent does financial technology contribute to promote financial inclusion within Algerian Islamic banks, case of Al Salam bank - Algeria?

- This central question is further articulated through the following sub-questions:

- How does FinTech adoption facilitate access to Shariah-compliant financial services in Algerian Islamic banks?

- In what ways does FinTech improve the usage and quality of financial services provided by Algerian Islamic banks?

- What constraints hinder the effective contribution of FinTech to financial inclusion in Algerian Islamic banks?

- How does FinTech adoption at Al Salam Bank Algeria specifically influence access, usage, and quality of Shariah-compliant financial services?

Research Hypotheses: Given the qualitative nature of this study, the following propositional statements orient the empirical investigation and structure the thematic analysis conducted through NVivo:

- FinTech adoption improves access to Islamic financial services.

- FinTech enhances the use and quality of Islamic banking services.

- Structural and regulatory barriers limit FinTech's role in promoting financial inclusion.

- FinTech adoption at Al Salam Bank Algeria positively contributes to improving access, usage, and service quality of Islamic banking products, thereby enhancing financial inclusion for previously underserved customer segments.

Study Objectives: To critically examine, through qualitative evidence drawn from Al Salam -Algeria, the mechanisms by which FinTech adoption shapes the accessibility, usage, and quality dimensions of financial inclusion within an Algerian Islamic banking setting.

- To develop a theoretically grounded conceptual framework linking FinTech innovation to financial inclusion outcomes within the specific normative constraints of Shariah-compliant banking.
- To uncover, through thematic analysis of practitioner perspectives, the structural, regulatory, and behavioral factors that mediate or impede the inclusive potential of digital financial technologies in Algerian Islamic banks.
- To generate context-sensitive, evidence-based recommendations for bank managers and regulatory authorities seeking to optimize the contribution of Islamic FinTech to broader financial inclusion objectives in Algeria.

Study Importance: This study examines FinTech, financial inclusion, and Islamic banking in Algeria. Using NVivo-assisted qualitative analysis, it provides insights for Islamic banks and regulators on enhancing inclusion while ensuring

Shariah compliance. Socially, it highlights the potential of Islamic FinTech to empower underserved populations and support sustainable, inclusive development.

I. The Concept of Financial Technology and Its Historical Development

1. The concept of Financial Technology (FinTech):

The concept of (FinTech) has gained increasing attention in recent years. Despite its widespread use in both academic and professional contexts, there is still no universally accepted definition in the literature. In general terms, FinTech refers to the integration of modern digital technologies into financial activities with the aim of improving the efficiency, accessibility, and quality of financial services.

From a broader perspective, the FinTech can be described as a set of technological innovations that reshape the financial services industry by transforming the way financial products are designed, delivered, and consumed. This perspective highlights the structural impact of technology on financial markets and institutions. (Arner, 2015, p. 04)

Similarly, Patrick Schueffel considers FinTech to be a dynamic field that reflects the convergence between financial services and digital technologies, leading to the development of new financial solutions, business models, and service delivery channels. (Schueffel, 2016, p. 36)

In addition, the FinTech represents a transformation of the financial ecosystem driven by technological innovation and the emergence of new market participants. (Zetzsche, 2020, p. 13)

Overall, financial technology arises from the interaction of several disciplines, including computer science, financial economics, management sciences, and commercial law, making it a multidimensional phenomenon with diverse technological and institutional applications. (Braun, 2006, p. 82)

Beyond individual academic contributions, many international organizations have also attempted to formalize the concept of FinTech. Institutions such as the Financial Stability Board and the Basel Committee on Banking Supervision define FinTech as technology-driven financial innovation capable of creating new business models, processes, and financial products that significantly affect financial markets and services. Similarly, the International Monetary Fund highlights its transformative role in reshaping financial intermediation, while the World Bank emphasizes its potential to improve efficiency and expand access to financial services. (World, 2021, p. 143)

Overall, these institutional perspectives converge on two major aspects of FinTech: its technological foundation, and its transformative impact on the structure and accessibility of financial services.

2. Islamic Financial Technology (Islamic FinTech):

While the preceding definitions whether advanced by scholars or international institutions- consistently underscore the technological and transformative dimensions of FinTech, they remain anchored in a conventional financial paradigm. The growing prominence of Islamic finance has therefore necessitated a distinct conceptual adaptation, giving rise to Islamic FinTech, which seeks to harness these same technological innovations within a financial framework governed by Shariah principles.

Islamic FinTech can be defined as the application of technology-driven financial innovations within a Shariah-compliant framework that prohibits Riba, Gharar, and unethical financial activities Its key manifestations include equity-based crowdfunding platforms, mobile Islamic banking applications, and blockchain-enabled instruments such as digital Sukuk (Iman, 2018, p. 23).

Ultimately, Islamic FinTech seeks not merely to digitize existing services, but to realign digital financial architecture with the ethical and distributive values of the Islamic economic system (Gomber et al., 2017, p. 43).

We conclude that Islamic FinTech is defined as the use of digital technologies by Islamic banks to develop and deliver Shariah compliant financial services and products such as electronic payments, mobile banking, and digital financing platforms, while ensuring adherence to the core Islamic financial principles prohibiting Riba, Gharar, and unethical transactions.

3. Dimensions of Financial Technology

Studies confirm that FinTech and Algerian banking institutions can derive mutual benefit from their cooperation, five dimensions of FinTech can be identified.

Electronic payment systems use digital infrastructures to execute transactions without physical cash. Their adoption in Algerian banks has contributed to measurable improvements in service quality, particularly in transaction speed and customer satisfaction. (The impact of financial technologies (fintech) on the development of Islamic banking instruments in Algeria: an analytical study in light of banking digital transformation)

Mobile and internet banking delivers banking services remotely through applications and online platforms. CPA and BNA are identified as leading Algerian banks in digital service modernization, reflecting a gradual transition toward fully digital banking systems. (Qudah, 2023, p. 12)

Digital lending and alternative finance encompasses technology-enabled models such as peer-to-peer lending and crowdfunding. Banks that have adopted FinTech services demonstrate enhanced capacity to extend banking services to previously underserved population segments. (Hassiba, 2022, p. 170)

Emerging financial technologies notably AI, blockchain, and cloud computing enhance efficiency and broaden financial access. Islamic banks adopting these innovations are better positioned to deliver financial products with high efficiency and quality, making FinTech adoption imperative in the digital era. (al-wahida., 2023, p. 48)

Islamic FinTech applications deliver Shariah-compliant digital financial solutions. Studies highlight the urgency of developing a clear strategy for Islamic FinTech adoption in Algeria alongside adequate digital infrastructure. (Zouaghi, 2023, p. 34)

In this regard, Regulation N°: 20/02 authorizing Islamic banking windows is identified as a decisive institutional step toward activating Islamic finance and enhancing financial inclusion across all segments of Algerian society. (Hamdouche, 2021, p. 549)

II -Financial Inclusion :

1. Defining Financial Inclusion:

Financial inclusion is a multidimensional concept that has been approached from various institutional and academic perspectives. In general, it refers to ensuring that all individuals and businesses can access and use appropriate financial products and services at affordable costs, under acceptable quality standards, and through formal financial institutions.

Such services typically include bank accounts, savings, credit, payments, insurance, and transfer facilities. In this regard, Mazer et al. view financial inclusion as a process aimed at expanding access to quality financial services, including credit, deposits, payments, pensions, financial literacy, and consumer protection. (Mahmoud, 2011, p. 12)

Similarly, the Organization for Economic Co-operation and Development (OECD) and the International Network on Financial Education (INFE) define it as promoting access to a broad range of regulated financial products and encouraging their use by all segments of society through affordable, timely, and innovative mechanisms supported by financial education. (AMF, 2015, p. 08)

At the national level, the Bank of Algeria defines financial inclusion as the availability and effective use of diverse financial services by all social groups, especially marginalized categories, through formal channels and with appropriate consumer protection. (CGAP, 2011, p. 6)

Based on these perspectives, financial inclusion may be understood as a situation in which individuals and institutions are able to access and use suitable, affordable, and reliable financial services through the formal financial system in a sustainable and responsible way.

2. Financial Inclusion in the Islamic Economic Framework

Within the Islamic economic framework, financial inclusion is closely linked to the higher objectives of Shariah, particularly the preservation of human dignity and social welfare. Islam promotes a set of redistributive and solidarity-based mechanisms, such as Zakat, Sadaqah, and Waqf, to support vulnerable groups and reduce social and economic deprivation. These principles are consistent with the broader goals of financial inclusion, which seek to integrate excluded groups into the formal financial system.

From a conceptual perspective, some classical Islamic contractual forms may be viewed as reflecting ideas similar to modern financial inclusion. One example is Sharikat Al-Dhimam a partnership based primarily on the social reputation and creditworthiness of its partners rather than on capital contribution. This arrangement allowed individuals lacking financial assets to engage in economic activity on the basis of trust and credibility, which resembles the contemporary notion of social creditworthiness. However, this form of partnership was not unanimously accepted by all schools of Islamic jurisprudence, as some jurists rejected it due to the absence of capital or labor and because of the uncertainty involved.

Overall, the Islamic economic perspective supports inclusion by emphasizing justice, solidarity, and equitable access to economic opportunity.

3. Importance of promoting Financial Inclusion

Strengthening financial inclusion produces significant benefits at the economic, financial, and social levels. First, it contributes to economic development by facilitating broader participation in financial activity, encouraging entrepreneurship, and helping small informal businesses transition into the formal economy. This, in turn, improves productivity and expands the tax base.

Second, financial inclusion supports the stability of the financial system. A wider deposit base and broader participation in formal finance reduce concentration risks and enhance the resilience of banks and financial institutions.

Third, financial inclusion improves the economic and social integration of individuals. Access to formal financial services enables people to save securely, invest in education or business opportunities, manage risks more effectively, and better withstand economic shocks.

Finally, expanding financial inclusion promotes the modernization and automation of the financial system. The growing use of digital financial services, especially electronic payments, helps reduce transaction costs, accelerate financial operations, and strengthen the monitoring of financial flows, thereby supporting transparency and reducing financial crime risks.

4. Foundational Pillars of Financial Inclusion

The foundational pillars of financial inclusion, as identified in the official documentation of the Bank of Algeria, may be summarized in the following table:

Table 01: Foundational Pillars of Financial Inclusion

Pillar	Key Elements	Objective
Financial Infrastructure Support	Legislative and regulatory environment; geographic expansion of bank branches and service points; development of payment and settlement systems; deployment of FinTech and	Facilitating access to financial services and improving financial system efficiency

Pillar	Key Elements	Objective
	digital services; establishment of comprehensive credit databases	
Financial Consumer Protection	Fair and transparent treatment of customers; disclosure of information and risks; provision of financial advisory services; data protection; effective complaint resolution mechanisms; awareness of customer rights and obligations	Strengthening trust in the financial sector and supporting financial stability
Development of Financial Products and Services	Design of products tailored to customer needs; innovation in savings, insurance, and payment services; promotion of competition; reduction of unjustified fees; responsiveness to customers' economic circumstances; revision of financing regulations and staff training	Broadening usage of financial services across all societal groups
Financial Literacy	Development of a national financial awareness strategy; dissemination of financial knowledge; targeting of vulnerable groups including youth, women, and small enterprises; provision of awareness and media programs; empowerment of individuals to make sound financial decisions	Building informed and financially capable citizens

Source: Bank of Algeria, Financial Inclusion Brochure. December 2025.

III. Practical Study and Results Analysis

1. Research Design and Data Collection

This section is devoted to the analysis and discussion of the results obtained from the qualitative analysis of seven interviews conducted with a selected sample of respondents. The collected data were processed and analyzed using NVivo 15 software, which facilitated the systematic coding, organization, and interpretation of the qualitative material. This methodological choice enabled an in-depth examination of participants’ discourses, perceptions, and interpretations related to the research topic.

2. Analytical Framework:

The analysis is structured around four main analytical approaches. The lexical approach focuses on the frequency and recurrence of key terms and expressions used by the interviewees, allowing the identification of dominant vocabulary and central concepts. The linguistic approach examines language structures, modes of expression, and discursive strategies, shedding light on implicit meanings and underlying positions embedded in the narratives.

The thematic approach aims to identify and categorize the main themes and sub-themes emerging from the interviews, highlighting shared patterns and divergent viewpoints within the sample. Finally, cognitive mapping is employed to visually represent the relationships between concepts and themes, providing an integrated understanding of how participants cognitively structure and relate ideas concerning the subject under study. Collectively, these approaches ensure a comprehensive and rigorous interpretation of the qualitative findings.

2.1. The Lexical Approach

The lexical approach aims to describe the main topics addressed by the interviewees in relation to the study variables, which are primarily reflected in the research title. This is achieved by identifying the most frequently recurring terms in the interviews. The approach is based on frequency statistics and lexical similarity between the words used by the respondents.

Using NVivo 15 software, a frequency analysis was conducted on 101 recurring words containing more than three letters. From this list, the terms most relevant to the subject of the study were selected. The following table presents the most frequently used terms according to the study sources.

Table 02: Most Recurring of Key Terms Identified in the Study

Word	Frequency	Repetition
Digital, digitalization, digitally, digitalize, digitalized, digitalizing, electronic.	99+11+2+1+2+1+5	121
Islamic, Shariah, Sharia	91+ 11+3	105
Banks, Banking, Bank	73+51+17	141
Financial, Finance, Financing	58+19+11	88
Services, Products, Tools, Cards, Product, Accounts, Loan	49+ 27+15+10+7+5	113
Fintech, Innovation, Cybersecurity	36+13+5	54
Customers, Customer, Clients	30+16+7	53
Regulations, Infrastructures, Regulatory, Legal, Trust, Transparency, Principles, Compliance, Compliant, Standards	30+17+18+16+11+8+6+10+6+5	127
Technology, Mobile, Technical, Applications, technological, Systems, System	23+24+15+13+11+9+6	101
Algerian, Algeria	24+17	41
Adaptation, Transfers, Platforms, Inclusion, Ecosystem, Transformation, Adoption, Frameworks, Integrations	4+6+8+19+5+19+20+13+6	100
Challenges, Solutions, Results, Challenge	15+15+7+5	42
Payments, Processes, Operations, Payment, Transactions	14+9+11+11+8	53
Branches, Areas, Sector, Segments	5+14+13+7	39
Citizens, Humans, People, Populations	5+12+6+5	28
Impact, Affect	10+5	15

Improve, Strengthen, Improvements, Promote	10+7+5+4	26
Information, Data	8+6	14
Training, education, experience	8+5+6	19
Total		1280

Source: prepared by researcher based on NVivo 15 outputs.

financial inclusion, reflecting the central focus of the interviewees' discourse on the core variables of the study. The table above presents the terms that occurred most frequently according to the NVivo outputs. The frequency of these terms highlights two main aspects regarding the responses of the interviewed experts.

First, certain terms appeared with high frequency, indicating their importance to the experts and their direct relevance to the study topic, as they reflect the core variables of the research. Second, the consistency and similarity of the terms used are notable. For example, Islamic and Sharia were used interchangeably, as were banks and bank. This demonstrates that the experts varied their terminology when answering different questions, while maintaining the focus on the study's subject matter.

Financial inclusion significantly drives financial innovation within the banking sector by accelerating digital transformation and expanding access to inclusive financial solutions.

The shift toward Digital (99) environments and continuous digitalization (11) enables institutions to deliver services digitally (2), as they progressively digitalize (1) their legacy structures into fully digitalized (2) models while constantly digitalizing (1) their operations through advanced electronic (5) channels. In Algeria (17), Algerian (24) Banks (73) and the broader Banking (51) system, including each individual Bank (17), are integrating modern Technology (23), Mobile (24) solutions, and innovative Applications (13) within secure Systems (9) and each integrated System (6) to enhance efficiency across the financial Sector (13) and its various Segments (7), including underserved Areas (14) with limited Branches (5).

The expansion of Financial (58) inclusion strengthens Finance (19) and diversified Financing (11) mechanisms by offering inclusive Services (49) and innovative Products (27). Each Product (7), whether through digital Tools (15), payment Cards (10), customer Accounts (5), or accessible Loan (5) facilities, contributes to the modernization of the Algerian banking ecosystem. The rise of Fintech (36) and continuous Innovation (13), supported by strong Cybersecurity (5) frameworks, enhances protection of sensitive Information (8) and Data (6) belonging to Customers (30), each individual Customer (16), and diverse Clients (7).

Moreover, inclusive innovation within Islamic banking aligns with Islamic (91) financial models that respect Shariah (11) and Sharia (3) principles, ensuring ethical compliance and reinforcing public trust. A robust Regulatory (18) and Legal (16) environment built on clear Regulations (30), reliable Infrastructures (17), internationally recognized Standards (5), and strict Compliance (10) ensures institutions remain fully Compliant (6) while promoting Trust (11), Transparency (8), and adherence to core financial Principles (6).

Through secure Payments (14), efficient Payment (11) channels, transparent Transactions (8), optimized Processes (9), and effective Operations (11), financial inclusion fosters systemic Transformation (19) within a dynamic financial Ecosystem (5). Digital Platforms (8) facilitate seamless Transfers (6) and institutional Integrations (6) within comprehensive Frameworks (13) that encourage rapid Adoption (20) and continuous Adaptation (4) to technological change. Despite existing Challenges (15) and ongoing Challenge (5) factors, inclusive strategies generate sustainable Solutions (15) and measurable Results (7) that positively Impact (10) and Affect (5) economic participation.

Ultimately, financial inclusion benefits Citizens (5), Humans (12), People (6), and broader Populations (5) by expanding access to secure financial services. It helps Improve (10) service quality, Strengthen (7) institutional resilience, generate lasting Improvements (5), and Promote (4) financial literacy through structured Training (8), continuous education (5), and enhanced user experience (6). In this way, financial inclusion acts as a catalyst for sustainable innovation and long-term development in the Algerian financial system.

This visual representation reinforces the lexical analysis by highlighting the terms that appear most frequently in the interviews. The size and prominence of each word in the cloud indicate its relative importance and recurrence across the data set, allowing for a quick and intuitive understanding of the core concepts emphasized by the respondents.

Figure 01: Word Cloud of Key Terms from the Sources

Source: prepared by researcher based on NVivo 15 outputs.

The word cloud represents one of the tools of the lexical approach used to identify the main topics addressed by the respondents. It visually displays the terms according to their frequency of occurrence in the answers provided by the interviewed sample. The size of each word reflects the intensity of its use across the data set.

A close examination of the word sizes in the cloud clearly shows that the experts placed significant emphasis on the core variables of the study, particularly those highlighted in red. This visual prominence confirms that the respondents' discourse was strongly centered on the main themes of the research. Accordingly, the members of the study sample demonstrated considerable attention and relevance to the subject under investigation.

Therefore, the use of lexical visualization through NVivo 15 enhances the reliability of the qualitative findings, as it is grounded in systematic frequency analysis rather than subjective interpretation. By combining quantitative word frequency metrics with qualitative interpretation, the word cloud strengthens the validity of the analysis and supports the consistency between the empirical data and the study's theoretical framework.

While the lexical approach provided a quantitative overview of the most recurrent terms and highlighted the central concepts shaping the experts' discourse, it remains limited to identifying patterns of frequency and prominence. To move beyond the level of word occurrence and explore the deeper meanings embedded in the respondents' narratives, the analysis now shifts to the linguistic approach.

1.2 The Linguistic Approach

The linguistic approach aims at examining how the interviewees articulated their responses, moving beyond what was said to analyze how it was expressed. In other words, this approach seeks to measure the degree of similarity in the terminology and expressions used across the different interviews. It focuses on identifying patterns of textual resemblance among the experts' responses, particularly in terms of content structure and semantic meaning.

Unlike the lexical approach, which concentrates on word frequency, the linguistic analysis explores textual coherence, discursive alignment, and the consistency of conceptual framing. It assesses the extent to which experts share similar narratives, arguments, and interpretative perspectives when responding to the interview questions. This allows for the evaluation of convergence or divergence in their viewpoints regarding the relationship between financial technology and financial inclusion in Algerian Islamic banks.

To quantify textual similarity, the study relies on NVivo 15 qualitative analysis software, which computes text similarity coefficients using Pearson's correlation measure. The Pearson correlation coefficient provides an objective indicator of the degree of resemblance between interview transcripts, reflecting similarities in textual content and semantic orientation. Higher correlation values indicate stronger alignment in discourse patterns, while lower values suggest greater variation in expression or emphasis.

The linguistic similarity analysis compares the interviews conducted with experts from different institutions in order to assess the consistency of their perspectives. The results generated by NVivo15 are presented in the following table, which illustrates the degree of textual similarity between the experts' responses.

Table 03: Textual Similarity Between Interview Sources Using Pearson Correlation Coefficient

Source A	Source B	Pearson Correlation Coefficient
Interview_2	Interview 1	0.752192
Interview_5	Interview_3	0.702052
Interview_3	Interview_2	0.688904
Interview_5	Interview_2	0.678126
Interview 1	Interview 6	0.6495
Interview 6	Interview_4	0.643879
Interview 1	Interview_4	0.639447
Interview_2	Interview_4	0.629165
Interview 1	Interview 7	0.614841
Interview_5	Interview 1	0.614207
Interview_2	Interview 6	0.607418
Interview_3	Interview 1	0.597477
Interview 7	Interview 6	0.587735
Interview_5	Interview 6	0.572256
Interview 7	Interview_4	0.567454

Interview_3	Interview_4	0.536311
Interview_2	Interview 7	0.527106
Interview_5	Interview_4	0.522404
Interview_3	Interview 6	0.503003
Interview_5	Interview 7	0.471831
Interview_3	Interview 7	0.434924

Source: prepared by researcher based on NVivo 15 outputs.

The results presented in Table 03 indicate that the Pearson correlation coefficients between experts range from 0.434929 to 0.715167. These values represent moderate to relatively high levels of textual similarity in terms of interview content, thematic orientation, and the overall direction of each expert's responses. Such findings constitute a strong indicator of substantial discursive convergence among the interviewed experts, reflecting a broad alignment in their understanding and interpretation of the research problem. This degree of similarity suggests that, despite differences in professional positions and institutional affiliations, the experts share a largely coherent perspective regarding the role of financial technology in promoting financial inclusion within Algerian Islamic banks.

Through this methodological procedure, the linguistic approach strengthens the robustness of the qualitative analysis by combining interpretative reading with statistical measurement of textual convergence. It therefore provides empirical support for evaluating whether experts share a common understanding of how financial technology contributes to promoting financial inclusion within Algerian Islamic banks.

The analysis of textual similarity coefficients can be interpreted through the following thematic dimensions:

1.2.1 Level of Financial Technology Adoption

All participants agreed that the level of financial technology adoption in Algerian Islamic banks remains at an early or intermediate stage. The technical analyst described it as "in an early to intermediate phase," the software engineer considered it "moderate with significant possibility for improvement," and the Head of Information Systems characterized it as "moderate but steadily growing." Similarly, the Digital Banking Services Manager described it as "modest and still in its early phase." This consensus across different professional roles reflects a shared perception of limited but evolving digital transformation within the sector.

1.2.2 Available Digital Services

There was strong agreement among participants regarding the core digital services currently offered by Algerian Islamic banks. These include mobile banking applications, cards and electronic wallets, electronic payment and transfer services, online banking platforms, QR code payment solutions, and online microcredit platforms linked to e-commerce websites. Some experts also referred to e-commerce platforms such as ACM and Diar Dzair, which are connect directly to Islamic banks through web services to submit Sharia-compliant financing requests. This convergence indicates a unified understanding of the digital service landscape in the Algerian Islamic banking market.

1.2.3 Regulatory and Sharia Challenges

All interviews revealed unanimous agreement on the existence of significant regulatory and Sharia-related challenges. The primary challenge concerns Sharia compliance, as all digital products must conform to Islamic sharia principles, adding an additional layer of verification and complexity. A second challenge relates to the legal and regulatory framework, which remains incomplete or insufficiently adapted to digital Islamic finance. A third challenge involves bureaucratic procedures and slow approval processes across multiple supervisory bodies. Finally, cybersecurity, data protection, and privacy concerns were identified as shared challenges with the conventional banking sector.

1.2.4 Impact of Technology on Transparency and Trust

Participants consistently emphasized the positive impact of financial technology on transparency and customer trust. Digital tools enhance transparency through real-time transaction tracking, 24/7 accessibility, and clearer user interfaces that facilitate understanding of Islamic banking products. Furthermore, precise digital records and timestamped transactions reinforce customer confidence. However, all experts acknowledged that trust may be negatively affected in cases of technical failures or service interruptions, and that a significant segment of society still exhibits apprehension toward digital technologies.

1.2.5 Need for Training and Awareness

A unanimous consensus emerged regarding the urgent need for training and awareness programs at two levels. First, employees require continuous training on digital tools to confidently guide customers and promote digital adoption. Second, customers -particularly those in remote areas or with limited digital literacy- need financial and digital awareness initiatives. Participants also highlighted resistance to change among both employees and clients, underscoring the importance of awareness campaigns and financial education programs starting from school curricula. This shared recognition reflects a collective awareness of the central role of human capital in the success of digital transformation.

All participants acknowledged the existence of measurable improvements in financial inclusion following the introduction of digital solutions, although they differed in assessing the magnitude of this impact. They observed increased use of electronic payments and mobile transactions, reduced need for branch visits for basic operations, and improved access to banking services for previously unbanked individuals through cards and electronic wallets. They also noted improvements in service speed, particularly in account management, savings operations, and online payments.

Nevertheless, experts agreed that full financial inclusion remains limited, especially regarding complex products such as financing, savings schemes, and business services.

Overall, the high degree of textual similarity across interviews reinforces the robustness of the qualitative findings and confirms the existence of a shared expert perspective on both the opportunities and constraints of financial technology in advancing financial inclusion within Algerian Islamic banks.

1.3 The Thematic Approach

The thematic approach aims to interpret and analyze the content of the interviews in depth. Unlike the lexical and linguistic approaches, which focus on word frequency and textual similarity, the thematic analysis seeks to uncover the underlying meanings embedded in the discourse by examining the data segment by segment. This method involves systematically coding the content into meaningful categories (nodes) that can be interpreted and analytically discussed. In this study, NVivo 15 software was used to conduct the thematic analysis. The researcher coded the interview transcripts according to predefined and emerging themes corresponding to the study questions. NVivo enables the extraction of coverage percentages for each node (i.e., each question or thematic category), thereby providing a quantitative indicator of the extent to which each theme was addressed within the interviews.

The coverage percentage is calculated as follows:

Coverage Percentage =

(Number of words coded at a specific node in one source/Total number of words in the same source) × 100

This procedure was applied to each question across all interviews individually, in order to determine which questions received greater attention from each respondent. By analyzing coverage percentages, it becomes possible to identify the themes that generated the most extensive discussion and, consequently, those perceived as most significant by the experts.

The coverage results for the different nodes are presented below.

These percentages provide insight into the relative weight assigned by each expert to specific dimensions of financial technology adoption, regulatory constraints, digital services, transparency, trust, and financial inclusion outcomes. Higher coverage values indicate themes that were discussed in greater depth and detail, whereas lower values suggest comparatively limited emphasis.

Through this approach, thematic analysis enhances the interpretative rigor of the study by combining systematic coding with measurable indicators of thematic prominence. It therefore allows for a structured understanding of how experts prioritize and frame key issues related to the role of financial technology in promoting financial inclusion within Algerian Islamic banks.

The coverage percentages for the nodes across all expert interviews are presented in the next table.

Table 04: Coverage Percentage of Nodes

Coverage Rate (%)										
Expert	**Node 1**	**Node 2**	**Node 3**	**Node 4**	**Node 5**	**Node 6**	**Node 7**	**Node 8**	**Node 9**	**Node 10**
Expert 1	11.16	3.13	7.36	7.65	6.11	7.67	6.88	6.80	5.82	12.88
Expert 2	3.92	8.33	7.58	6.11	4.41	11.31	10.47	8.53	8.86	16.66
Expert 3	2.77	1.48	4.43	4.30	11.76	11.08	5.46	6.04	5.57	8.81
Expert 4	6.43	6.33	8.54	6.17	15.67	7.75	10.72	11.47	8.85	8.85
Expert 5	0.75	12.96	2.16	9.08	19.45	5.56	4.18	2.18	9.64	6.90
Expert 6	10.81	13.37	6.44	7.30	10.60	5.48	4.41	6.47	4.47	9.40
Expert 7	7.17	15.36	6.76	7.39	11.96	5.42	4.84	6.67	5.42	12.09

Source: prepared by researcher based on NVivo 15 outputs.

The table above shows the coverage rates for the six nodes according to each source. These rates vary for each node from one expert to another and can be explained as follows:

Node 1: Level of FinTech Adoption

Highest coverage (Expert 1, 11.16%): "From my perspective as someone with around five years of experience, FinTech adoption in Algerian Islamic banks is still at an early-to-intermediate stage. Digital tools are present and visible to customers, but they are often limited to essential functions rather than advanced or fully integrated solutions. Most improvements focus on customer-facing services, while internal processes and advanced automation remain largely traditional. Compared to international Islamic banking standards, Algerian Islamic banks are still in a learning and adaptation phase, experimenting with digital solutions rather than fully embracing them as a core strategy."

Lowest coverage (Expert 5, 0.75%): "It is timid and still at an early stage.

Node 2: Main Digital Services/Applications

Highest coverage (Expert 7, 15.36%): "Online account opening with limited interactivity. Basic mobile banking apps for checking balances and transfers. QR-based payment systems for select merchants. Some banks have started offering online pre-approval for Islamic credit products. Social media channels are mainly used for marketing, not for direct customer engagement."

Lowest coverage (Expert 3, 1.48%): "The implemented services are mainly mobile applications.

Node 3: FinTech's Facilitation of Access (Remote Areas)

Highest coverage (Expert 2, 7.58%): "Financial technology has significantly improved access to banking services in general, and this has naturally extended to Islamic financial services as well. Digital platforms such as mobile banking, online applications, and web-based financing interfaces have reduced the need for customers to visit physical branches, which is especially beneficial for citizens living in remote or underserved areas. By providing easier access to information, products, and application processes, FinTech allows customers to choose the type of financing that best suits their needs, whether Islamic or conventional. As a result, the increasing availability of digital channels has contributed to a growing number of customers opting for Islamic finance, thanks to its accessibility and transparency."

Lowest coverage (Expert 5, 0.75%): "By providing customers with remote access to information, as well as tools that allow for remote account management."

Node 4: Attracting New Customer Segments (Youth/Informal Sector)

Highest coverage (Expert 2, 6.11%): "In Algeria, customers from all age groups whether youth, adults, or elders tend to prefer financial products that align with Sharia principles, mainly to avoid any doubts or suspicion related to non-compliance. When Islamic banks provide digital services that remain fully compliant with Islamic finance principles, customers are even more likely to choose them. Digital transformation increases accessibility, convenience, and transparency, which helps Islamic banks attract not only traditional customers but also younger users and individuals from the informal sector who prefer simple, fast, and trustworthy financial solutions."

Lowest coverage (Expert 5, 0.75%): "In my view, digital transformation has not played a significant role for this segment. Customers seeking Shariah-compliant financing are not necessarily digitally connected or users of such tools. Their primary need was Shariah compliance, which led them to approach bank branches directly. In summary, it was the product offering that met a need; the digital channel mainly played a role in information dissemination and online benchmarking to identify which banks offer which products."

Node 5: Main Technical/Regulatory Challenges

Highest coverage (Expert 4, 15.67%): "Until recently, the regulatory framework was incomplete. The Bank of Algeria has recently issued rules for digital banks (Regulation 24-04 and related instructions), and the framework has evolved rapidly in recent years. There is an absence or immaturity of an agent network and a unified national standard, even though QR and mobile payment projects are underway. Shariah compliance is another challenge: solutions must be designed to be compatible, which adds an additional validation layer and can sometimes slow innovation. Security, data confidentiality, and cybersecurity also require robust technical requirements and operational capabilities."

Lowest coverage (Expert 5, 4.41%): "Regulatory challenges: The regulatory framework remains unclear and incomplete for Islamic finance. This activity is relatively recent in Algeria, and regulations are not yet fully adapted to the market. They are continuously being adjusted to meet broad demand while remaining compliant with laws and religious principles. Furthermore, current regulations do not yet allow for the full range of Islamic finance products to be offered. Information challenges: Despite the efforts made, there is still a significant lack of awareness regarding Islamic finance, its principles, and how it operates. Technological challenges: In my opinion, the main technical challenge lies in the fact that certain validation and approval bodies are not digitized, which prevents the full digitization of workflows. Social challenges: A large proportion of customers either do not use digital services or are not yet interested in this type of financing. A broad awareness and financial education program is needed to popularize and demystify this field."

Node 6: Encouragement by Legal/Regulatory Framework

Highest coverage (Expert 6, 5.48%): "Yes, recent regulations show a willingness to support digital banking. However, administrative and regulatory constraints limit the speed of product adaptation and market launch."

Lowest coverage (Expert 3, not explicitly given, assumed minimal): "Islamic products were introduced into the Algerian market only in recent years, making them relatively new compared to conventional or classical finance. In most banks, they have been integrated as Islamic windows within conventional banks. Moreover, the legal and regulatory framework of the Algerian banking system was historically built on the principles of conventional finance rather than those of Islamic finance."

Node 7: Technological Infrastructure & Human Resources Readiness

Highest coverage (Expert 2, 10.47%): "The readiness of Islamic banks to embrace digital transformation varies, but it largely depends on the ambition and strategic vision of each bank, as well as the support of the relevant legal and regulatory parties. Readiness is primarily influenced by institutional ambition: Banks with clear digital strategies tend to invest more in infrastructure and modern systems. Human resources are capable, even if not always widespread:

Competence exists within the human resources of Islamic banks both on the business side and the technical side. While highly specialized digital expertise may not be very common across the sector, qualified professionals are always present when banks choose to prioritize innovation. Dependence on external regulatory and legal alignment: The pace of digital readiness also relies on the alignment with legal and regulatory bodies, which influence how quickly new technologies can be adopted and implemented within the banking ecosystem."

Lowest coverage (Expert 7, 4.84%): "Banks have basic infrastructure, but specialized FinTech skills are scarce. Continuous training is required."

Node 8: Impact on Customer Trust & Transparency

Highest coverage (Expert 2, 8.53%): "Digital transformation increases accessibility, convenience, and transparency. Fintech solutions provide continuous access to banking services, which strengthens customer confidence. The diversification of digital services ranging from mobile banking to real-time transaction tracking gives customers more options and clearer visibility into how their Islamic financial products function. Digital platforms simplify complex Islamic banking operations, making them easier for customers to understand and use. Fast, seamless, and user-friendly processes increase customer satisfaction and make the banking experience more transparent."

Lowest coverage (Expert 1, 6.80%): "FinTech has had a positive but cautious impact on trust. Customers appreciate being able to track transactions and check balances in real time. Digital records improve transparency compared to manual processes. However, when systems experience downtime or delays, trust can be affected. Customers still rely heavily on branch staff for explanations, especially for Islamic finan

Node 9: Tangible Results on Financial Inclusion

Highest coverage (Expert 2, 8.86%): "Digital tools have made financial services more accessible and convenient. As a result, the use of electronic payments has increased significantly, allowing more people to participate in the formal financial system. Customers no longer need to go to the bank for most routine operations. The growth of online shopping platforms and digital loan-based systems has broadened financial inclusion."

Lowest coverage (Expert 1, 5.82%): "From what I have seen: More customers use e-payments for daily transactions. Branch visits have decreased for basic operations. Some customers who were previously unbanked now use cards or wallets. That said, full financial inclusion is still limited, especially for complex products like financing, savings, or business services."

Node 10: Suggested Measures/Policies to Strengthen Integration of FinTech & Financial Inclusion

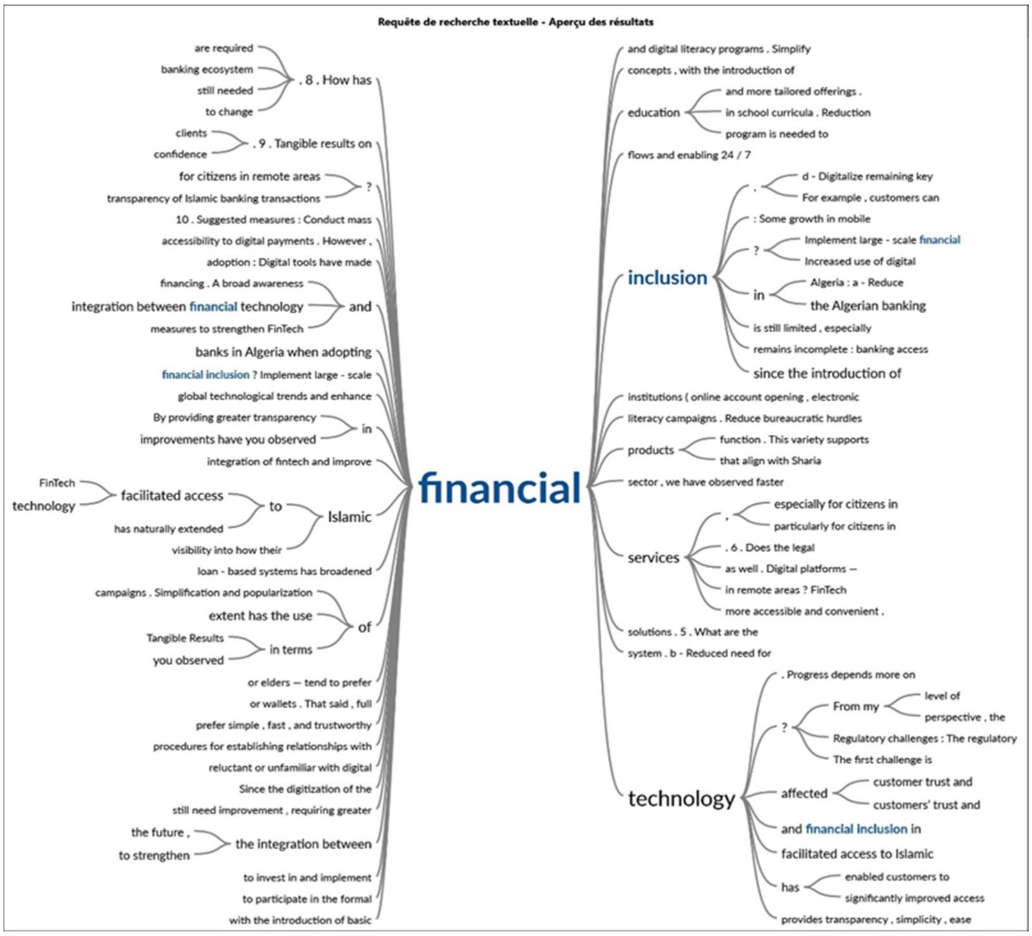
Highest coverage (Expert 2, 16.66%): "As a technical lead, I believe several strategic measures are necessary to accelerate the integration of fintech and improve financial inclusion in Algeria: Reduce bureaucracy and remove unnecessary legal constraints. Strengthen digital and innovation teams within banks. Accelerate the adoption of AI-driven technologies. Digitalize remaining key banking products and processes."

Lowest coverage (Expert 5, 6.90%): "• Mass information and awareness campaigns. • Simplification and popularization of financial concepts, with the introduction of basic financial education in school curricula. • Reduction of regulatory restrictions and administrative burdens. • Large-scale introduction of microcredit for the purchase of goods and services (such as smartphones, computers, televisions, etc.).

3. Cognitive Maps Analysis

To better illustrate the mental structures and conceptual relationships identified in the interviews, the cognitive maps generated using NVivo 15 provide a visual representation linking **financial technology** with **financial inclusion**. These maps summarize the recurring ideas expressed by the seven experts and demonstrate how key concepts are interconnected.

Figure 02: Cognitive Map of Financial Technology and Financial Inclusion



Source: prepared by researcher based on NVivo 15 outputs.

The cognitive maps highlight several thematic clusters:

- **Facilitated Access to Islamic Financial Services**: Financial technology has significantly improved access to Islamic financial services, naturally extending their visibility and reach. Loan-based systems have been made more accessible, financing options have broadened, and digital campaigns have promoted simplification and popularization of financial products. Experts emphasized that digital platforms provide transparency, simplicity, and trustworthy procedures, particularly benefiting citizens who are reluctant or unfamiliar with traditional banking processes.
- **Integration of FinTech and Banking Services**: The maps reveal that the integration between financial technology and Islamic banking has reduced the need for physical bank visits, allowing customers to manage accounts remotely 24/7. This integration has been particularly impactful for individuals in underserved regions, where access to conventional banking is limited. Experts noted that digital solutions enhance both service efficiency and customer convenience, supporting broader participation in formal financial systems.
- **Observed Tangible Results in Financial Inclusion**: Experts reported measurable improvements since the introduction of FinTech solutions, including increased use of mobile payments, faster service delivery, and enhanced account management. These results confirm that technology contributes positively to financial inclusion, though it remains incomplete, particularly in rural areas. Experts highlighted that progress depends on strategic institutional commitment and digital literacy, in addition to technical capabilities.
- **Regulatory and Sharia Compliance Challenges**: The cognitive maps also underscore regulatory and Sharia-related constraints. The main challenges involve ensuring compliance with Islamic finance principles while adapting Algeria's existing legal framework, which was historically built on conventional banking. Experts indicated that overcoming bureaucratic hurdles and strengthening digital infrastructure are critical to enabling full financial inclusion.
- **Strengthening the Technology Inclusion Nexus** : To enhance the future impact of financial technology on inclusion, experts recommended:

- Conducting mass literacy and awareness campaigns, including financial education at the school level.
- Expanding digitalization of core banking products, such as online account opening and electronic signatures.
- Providing more tailored financial services and improving connectivity in remote areas.

Overall, the cognitive maps confirm that financial technology facilitates access, improves transparency, and strengthens trust, while also highlighting the regulatory, educational, and infrastructural measures needed to maximize financial inclusion. They provide a structured visualization of the experts' conceptualizations, illustrating how the main variables of the study are interlinked in practice and perception.

IV. Conclusion

4.1 Results and Hypothesis Testing

The qualitative analysis conducted using NVivo 15 reveals a consistent and analytically robust relationship between FinTech adoption and financial inclusion at Al Salam Bank Algeria. The convergence of thematic and lexical patterns, supported by moderate-to-strong inter-expert correlations (r = 0.43–0.72), enhances the internal reliability of the findings and confirms a broadly shared expert understanding of the phenomenon under investigation.

H1- Partially Supported: FinTech adoption positively improves access to Islamic financial services through digital payments, mobile banking, and electronic wallets, reducing branch dependence and expanding outreach to unbanked populations. However, this impact remains confined to basic transactional services, as complex Islamic financial products are not yet meaningfully digitized.

H2- Fully Supported: Structural constraints constitute the primary barrier to FinTech-driven inclusion, operating at three interrelated levels: regulatory gaps and protracted approval processes; insufficient digital infrastructure and cybersecurity vulnerabilities; and persistent deficits in financial literacy among both customers and employees, compounded by behavioral resistance to change.

H3: Supported with Nuance: Regulation No. 20-02 (2020) has established an enabling institutional framework for Islamic FinTech in Algeria. Nevertheless, its translation into measurable inclusion outcomes remains conditional upon proactive bank-level investment in digital capabilities, human capital development, and customer awareness.

H4: Partially Supported: FinTech has contributed to measurable improvements in financial inclusion across access, usage, and service quality, particularly through digital channels and the growth of mobile payments. However, this progress remains uneven due to regional disparities, the persistence of the informal sector, and fragile customer trust linked to security and service reliability. The absence of widespread Shariah-certified digital products further limits adoption. Overall, financial inclusion remains incomplete, especially in rural and underserved areas.

Recommendations:

- Establish a comprehensive regulatory framework for Islamic FinTech that ensures Shariah compliance, streamlines approval procedures, and supports innovation through regulatory sandbox mechanisms.
- Strengthen digital and financial infrastructure by standardizing mobile and QR payment systems, expanding connectivity in underserved areas, and enhancing cybersecurity to maintain customer trust.
- Promote human capital development through continuous training of bank employees and by improving financial and digital literacy among customers, especially in rural and marginalized regions.
- Encourage Al Salam bank -Algeria to expand beyond basic digital services by developing automated Shariah-compliant financing solutions and adopting targeted strategies to integrate the informal sector into the formal financial system.

V. Bibliography List

- *World Bank Group (2021), Global Findex Database 2021: Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19, World Bank Group, Washington, USA.*
- *Mahmoud Mohieldin (2011), The Role of Islamic Finance in Enhancing Financial Inclusion in Organization of Islamic Cooperation Countries, World Bank, Washington, USA.*
- *Consultative Group to Assist the Poor (2011), Global Standard Setting Bodies and Financial Inclusion for the Poor: Toward Proportionate Standards and Guidance, CGAP, Washington, USA.*
- *Arab Monetary Fund (2015), Requirements for Adopting a National Strategy to Enhance Financial Inclusion in Arab Countries, AMF, Abu Dhabi, UAE.*
- *Douglas W. Arner (2015), The Evolution of Fintech: A New Post-Crisis Paradigm?, UNSW Law Research Paper, Sydney, No. 62.*
- *Virginia Braun & Victoria Clarke (2006), Using Thematic Analysis in Psychology, Qualitative Research in Psychology, UK, Vol. 3.*
- *Peter Schueffel (2016), Taming the Beast: A Scientific Definition of Fintech, Journal of Innovation Management, Portugal, Vol. 4.*
- *Douglas W. Arner et al. (2020), Regulating a Revolution: From Regulatory Sandboxes to Smart Regulation, Fordham Journal of Corporate & Financial Law, USA, Vol. 23.*

- *Hani Qudah (2023), Islamic Finance in the Era of Financial Technology: A Bibliometric Review of Future Trends, International Journal of Financial Studies, Switzerland, Vol. 11, No. 2.*

- *Zouaghi A. et al. (2023), Prospects for Using Digital Financial Services in Banks to Enhance Financial Inclusion in Algeria, International Journal of Islamic Finance, Malaysia, Vol. 14, No. 1.*

- *Hamdouche W. et al. (2021), The Role of Financial Technology in Enhancing the Performance of the Algerian Banking Sector: Drivers and Challenges, Journal of New Economy, Algeria, Vol. 12, No. 4.*

- *Hassiba S. (2022), Reality and Challenges of Islamic Financial Technology in Algeria, Journal of Research and Studies, Algeria, Vol. 19, No. 2.*

- *Al Wahida A. M. (2023), Islamic Banking Products as a Mechanism to Enhance Financial Inclusion in Algeria in Light of Some International Experiences, Doctoral Thesis, Ferhat Abbas University, Sétif, Algeria.*