

Perceived Viability of Blockchain Technology Adoption

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To Link this Article: <http://dx.doi.org/10.6007/IJARAFMS/v14-i3/22885> DOI:10.6007/IJARAFMS/v14-i3/22885

Published Online: 30 September 2024

Abstract

This study is qualitatively designed to explore the viability of blockchain technology adoption through the perception of regulators, Islamic banks officials and their Shari'ah board members in Nigeria. Thematic analysis was used to fill in gaps surrounding blockchain use in a Shari'ah regulated environment. Three themes-inadequate regulation, wider acceptance of technology and viability of blockchain adoption emerged using Nvivo. The findings of the study reveals the viability of blockchain technology acceptance and used by Islamic banks in Nigeria. The study further found that, the presence of Shari'ah board members and regulatory sandbox contributes to stability of Islamic banks operations. Despite the security and trust challenges in financial technology ecosystem; Islamic banks in Nigeria are not using blockchain technology in providing wide range of services to their customers due to non-existence of blockchain technology regulation designed for Islamic finance ecosystem, thus revealing the regulatory irresponsibility. Therefore, Banks are reluctant to deployed blockchain technology to render effective operation to their customer, leading to ethical issue and customer vulnerability. This brings to light the significance for the use of distributed digital ledgers in facilitating Shari'ah base compliance transactions, thus necessitating Shari'ah-based blockchain regulations in Nigeria.

Keywords: Blockchain, Regulator, Shari'ah Board, Islamic Banks, Nigeria

Introduction

Financial Technology (FinTech) has substantially transformed both conventional and Islamic banks, signifying a shift in the thick of things on how we engage with financial institutions. Banks are now responding to FinTech solutions to enhance their operations and customer service experiences (Mogaji, 2023). As a result, the banking 4.0 concept is constantly changing due to unstoppable digital forces that have an impact on operational effectiveness. Therefore, the emergence of Fintech 4.0 with the rise of Neo-banks and digital revolutions, along with broad deregulation, have disrupted the banking system (Ariff et al, 2024). The banking and the financial landscape is continuously upgrading with technology, such as, Insurrect, RegTech, and Smart contract (Sampat et al., 2023). Smart contract application has potential to help Islamic contracts become more secure, immutable, and easy to verify information,

capable of lessen counterparty and operational risks that arise from settlement, thereby reducing *gharar* (Antova et al., 2020). However, the emergence of blockchain appears to strengthen the quality and reliability of information among participants (Rabbani, 2020). As blockchain technology develops, entrepreneurs are looking for new ways to combine it with other emerging technologies, such as Artificial Intelligence (AI), the Internet of Things (IoT), and or cloud computing, so as to create value, boost confidence, and increase adaptability to the digital transformation (Cuomo, 2020). This transformation has greatly altered the banking backdrop and pave ways for new entrances to challenge traditional bank models management (Mogaji, 2023). Thus, compelling traditional banks greater reliance on technology developments across all aspects of operations (Chong, 2021).

With emergence trends of blockchain, financial industry key players has recognised the platform as a leading tool to secure their leading position in supporting the fourth industrial revolution (Nazim et al., 2021). In the era of the fourth industrial revolution, one of the potential applications that can be linked with blockchain is the IoT, which can be used to improve the security of financial transactions (Rawat et al., 2020). Thus, preventing users to multifaceted risks, including ambiguous legal frameworks, regulatory gaps, compromised data privacy, and rapidly growing financial fraud (Ariff et al., 2024; Khan et al., 2023). It is imperative to safeguard that the information rolling through IoT remains secured and makes the participants accountable (Rawat et al., 2020). As a result, Islamic financial institutions are cautious about implementing technology based tools. Blockchain implementation in Islamic banking systems is particularly challenging at the moment, as many models are still in the development stage from a Shari'ah perspective (Rabbani, 2022). This presents numerous operational and strategic issues and challenges for the products. Therefore, it is quite challenging for Islamic banks and other financial institutions to accept new innovations; without first judging and assessing them in accordance with Shari'ah principles (Khan et al., 2023). Blockchain is described as a distributed digital ledger that is employed to record and transmit information via a peer-to-peer network (Ali et al., 2021). A decentralized digital ledger composed of blocks of operations between participants and a data structure that manage transactional records while ensuring its transparency and security (Demirkan et al., 2020; Nazim et al., 2021). This allows for secure and trustworthy transactions without the involvement of a third party (Alam et al., 2021). Such as banks or other intermediaries (Rawat et al., 2020). Conventionally, these intermediaries processed and verified the financial transaction which is prone to errors and therefore, leads to expensive and time-consuming procedures (Rawat et al., 2020). Blockchain system eliminates these difficulties related to financial services by establishing a distributed public ledger using a "proof-of-work" and "proof-of-stake" to verify transactions. However, there remain unanswered questions regarding the Shari'ah validity of blockchain technology adoption by Islamic banks in Nigeria. As there exist only four (4) Islamic banks operating in the country with a population of more than 200 million people (Said, 2020). This is a challenge for Islamic financial institutions to actively compete with conventional businesses, in providing services that are in line with Shari'ah principles. The objective of this study is in twofold: firstly, to investigate how Shari'ah Board members' can promote Islamic finance through the adoption of a Shari'ah compliance blockchain platform. Secondly, to explore operators' perceived viability of blockchain in Islamic financial ecosystem as well as how regulators contributes to Islamic bank stability and it relations to smart contract using a Unified Theory of Acceptance and Use of Technology

(UTAUT) as a theoretical framework for the study. The following research questions supported the study objectives.

RQ 1-How can Shari'ah Boards promote Islamic finance activities in the era of blockchain technology?

RQ2- How does Smart contract contribute to the effectiveness of Islamic Banks in a regulated environment in Nigeria?

The qualitative nature of this study is designed to explore the perception of Non-Interest banks officials and their Shari'ah board members on a blockchain technology services that Islamic banks might offer and its feasibility in the country. This is the fact that, Islamic finance can be used to utilise the potential that blockchain technology brings through Islamic banking system (Sa'id, 2020). A number of research work has been conducted on blockchain technology (Rabbani et al., 2020; Brody & Couture, 2021; Bakri et al., 2023) as well as Islamic and conventional finance in various countries on different perspectives (Busari & Aminu, 2021; Bin Khatiman et al., 2021; Baiod et al., 2021). While recognising the growing number of studies on blockchain, it is imperative to iterate the significant gap in knowledge that this study aims to address. There is a lack of research that addresses the in-depth understanding of blockchain technology viability in a Shari'ah regulated environment from the stakeholders' perspective. Research work by scholars is deemed important to address the issues affecting adoption of new technologies and innovation that affect the operation of Islamic banking industry across the world, particularly in Nigeria been a secular state. Thus the study is keen to gather stakeholders' viewpoints on the use or otherwise of blockchain technology by Non-Interest banks in Nigeria.

Literature Review

Deployment of FinTech into Islamic Banking operation

Traditional banks have adopted FinTech platform to improve their operation and customer service operation (Mogaji, 2023). FinTech have become a trend in both conventional and Islamic financial service industry in Nigeria. Peer-to-peer lending platforms, digital payment systems, robo-advisory services and blockchain are just a few examples of the innovations that fall under the umbrella of FinTech (Rahim et al., 2022). Activities are carried out online through the website platform of various peer lending companies (Aulia et al., 2020). This helps banks facilitate financing for businesses and consumers (Rani et al., 2021). As a result Fintech platform have simplified transactions, encouraged financial inclusivity, and increased capital availability for both individuals and businesses (Rabbani, 2022). Albeit, the conventional FinTech industry's fast growing and rapid changing nature has given rise to new risks and issues, one of which is unethical behaviour (Sampat et al., 2023; Brogi & Lagasio, 2024). In the context of FinTech, misconduct refers to a broad range of immoral and illegal activities, including manipulation of markets, fraud, data security breaches, unfair lending practices, and improper handling of customer information (Brogi & Lagasio, 2024). Being conscious on morality and Shari'ah guidelines on mind could open up significant opportunities for Islamic banks to offer more cutting-edge FinTech solutions to customers (Haridan et al., 2020).

Muslims' desire for a banking system that complies with Sharia law has led to the emergence of Islamic banking, which is designed as an alternative to the traditional model (Bakhouché et al., 2022). However, the integration of FinTech into the Islamic finance sector

and internal governance mechanism (Shari'ah board) with expertise in handling FinTech apps and systems could make it easier for business to handle the new risk of Shari'ah non-compliance (Haridan et al., 2020). In Nigeria Islamic banks are designed to provide financial services to customers in line with Shari'ah guidelines (Sa'id, 2020). Guidelines have been issued for the regulation and supervision of institutions offering non-interest financial services in Nigeria. In accordance with Section 33 (1) (b) of the CBN Act 2007, Sections 23(1) 52, 55(2), 59(1)(a), and 61 of the Banks and Other Financial Institutions Act (BOFIA), and Section 4(1) (c) of the Regulation on the Scope of Banking Activities and Ancillary Matters, No. 3, 2010. This guideline is issued in accordance with the non-interest banking regime. Hence, over a decade Non interest banks have been operating in Nigeria under the provision of Banks and Other Financial Institution Act (BOFIA) 2004, which was repealed by BOFIA 2020. Despite the long existence of Islamic banks in Nigeria; Shari'ah based technology guidelines in relation to Islamic FinTech and its components such as blockchain (Smart contract) has not been categorically pronounced. Therefore, it is imperative to capture the state of the art of blockchain technology use in the second industry (Islamic finance industry) in Nigeria. This could be achieved by recognising the presence and role of regulatory authorities such as Central Bank of Nigeria (CBN) and Securities and Exchange Commission (SEC) commitments to ensuring policies that are applicable to blockchain technology adoption and use in Islamic banks in Nigeria.

Blockchain Technology Adoption and used

Blockchain is branded as a category of technology innovation that provide users with trust and confidence, that information recorded on distributed ledger have not been tampered, either accidentally or intentionally. This type of technology is widely deployed by private organisation and government for privacy and security related matters. In 2021 the Central Bank of Nigeria launched the long awaited e-Naira platform, known as a Central Bank Digital Currency (CBDC) (Eghe-Ikhrhe & Bonsu-Assibey, 2022). The e-Naira uses blockchain technology, a private centralised ledger controlled by the Apex bank, part of the strategies was to support cashless policy in the Nigerian economy. The digital currency adoption is based on the private type of blockchain which is a centralised ledger controlled and managed by the CBN. However, adoption of Blockchain in financial services is still in earlier stages, thus, has become one of the new and most popular technologies which classifies and record transaction related to every single party (Alshater et al., 2022). The adoption of blockchain technology is perceived to enhance transparency, traceability and truthfulness of every single financial transaction thereby increases user confidence and promotes accountability in financial services industry (Chong, 2021). These features increase customer trust and reduce the chance of fraud by potential perpetrators (Agrawal & Mishra, 2021). Therefore, Blockchain appears to be the next stride in the digital era, and it has the potential to disrupt the activities of every industry by providing smart solutions for value transaction (Bonsón & Bednárová, 2019). Smart solution in the like of smart contract, essentially recognised how transactions are initialised, recorded, analysed and stored (Zhang et al., 2020). As a result, businesses today want to adopt this technology because of the numerous benefits it provides, such as decentralisation and trustworthiness (Baba et al., 2021). Blockchain technology can be used to create financial tools that involve payments system, smart contracts, and transactions records, as well as the ability to reduce undesirable transactions and their consequences (Queiroz & Wamba, 2019). Due to its ability to coordinate institutions' transactional activities within a robust framework of trust and transparency, blockchain's

features and conditions are consistent with the tenets of Islamic law (Antova et al., 2020). The fact that smart contracts and blockchain as a financial tools provide users with trust and confidence, and significantly lower Islamic Financial Institutions costs (Antova et al., 2020). Islamic financial institutions such as Non-Interest banks ought to provide customers with Shari'ah based online services, with the aim to prevent undesirable online transaction. Undesirable transaction in the face of Muslims constitutes, all unlawful transactions that is against the tenants of Islamic Shari'ah. Therefore, the use of distributed digital ledgers may facilitates Shari'ah financial transactions that would ensure user confidence. Therefore, Islamic banks are at the top level to ensure Shari'ah based compliant tool through knowledgeable and well experience Shari'ah board members. The study is keen to responds to research questions of the study. Thus fulfilling the research objectives of the study.

Shari'ah Board Governance

The Shari'ah board members are regarded as well-respected individuals with firm moral and religious beliefs (Abdeen et al., 2019). The Shari'ah boards provide independent Shari'ah assurance on Islamic bank operations, much like the external auditor does. Thus, in addition to other professional credentials in areas like accounting, auditing, finance, law, and technology, Shari'ah boards must ensure that their members possess adequate knowledge of Shari'ah and Islamic banking system (Haridan, 2023). Acknowledging their knowledge and versatile experience, Shari'ah board members are crucial to the implementation of Shari'ah-based practices in Islamic banks. The Shari'ah advisor bears the responsibility of ensuring that all banking operations, products and services, and documentation adhere to the Shari'ah rules and principles that are specific to each mode of financing (Bakhouché et al., 2022). Thus, ensuring user confidence.

Customer confidence is paramount in the Banking system which is now shaped by the financial services industry's disruptions and rapid technological advancements, which make it possible to provide banking services outside of its traditional purview (Rahman et al., 2023). The disruptions have also affected the market structure which necessitate a digital shift for Islamic banking system (Sa'id, 2020). Islamic banks in Nigeria are mandated to establish Shari'ah boards, which are crucial in monitoring all facets of Shari'ah, including transactions, models and frameworks, and industry operations. To guarantee that they adhere to Shari'ah principles, regulators need to be involved at every stage of development which also require close collaboration with FinTech companies. This collaboration will enhance the validity of Shari'ah based compliance tool in a regulated banking industry.

Shari'ah Complaint Tool

The Islamic bank has historically been seen as a financial services organization that offers financing options to Muslims based on Shari'ah compliant principles. In principles, Islamic financial institutions must create value for their stakeholders by offering Shari'ah-compliant products and services. Shari'ah rules, which uphold the sanctity of contracts, individual rights, property rights, and risk sharing, regulate the Islamic banking industry (Haridan et al., 2020). Thus, the rise of Islamic banking is considered as a signpost for the advancement and maintenance of social and economic institutions, serving as an alternative to the traditional financing system (Atif et al., 2021). Traditional banking system, is based on the social contract, whereas the Islamic banking industry is governed by *Maqasid al-Shariah*, which is the goal or purpose of Shari'ah (Alaeddin et al, 2021). The purpose is to provide risk sharing business

initiatives under equity financing such as *Musarakah* (partnership) or *Mudharabah* (profit sharing). Alaeddin et al., (2021) demonstrates the vast potential for applying blockchain technology to a range of Islamic financial applications, including *Sukuk*, *Zakat*, and *Waqf*. The primary obstacles to blockchain adoption in this sector are the intricacy of Islamic finance products combined with the opaque nature of its application, leading to ambiguous rules and a lack of standards.

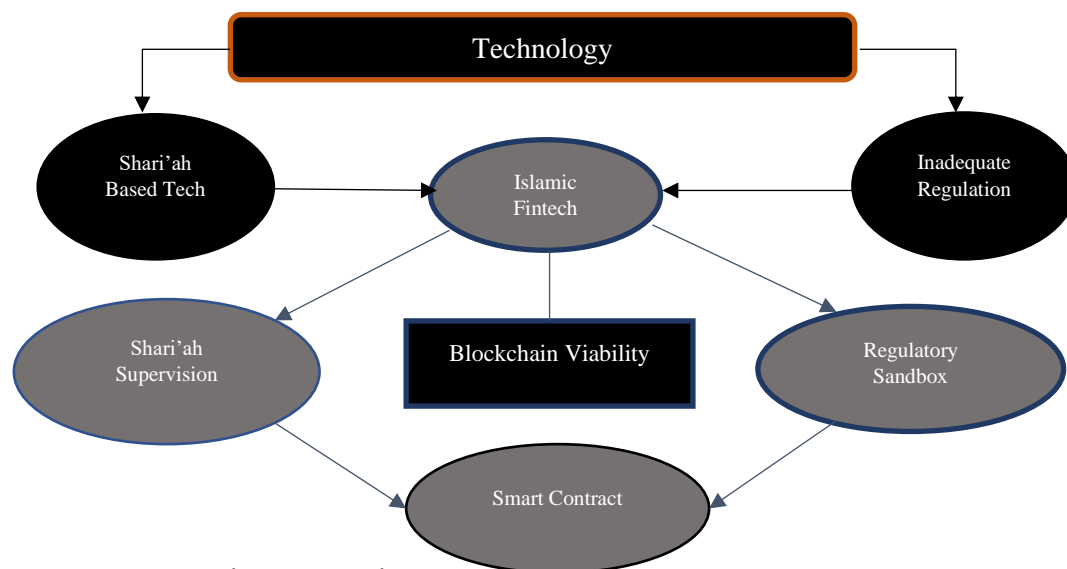


Figure 1.0 Conceptual Framework
 Source: Authors' own work

Figure 1 depicts the study conceptual framework linking technology tools to Shari'ah guidelines needed to streamline the operation of Islamic banks in a regulated environment; as banking and the financial landscape is continuously upgrading with technology, such as, Insurrect, RegTech, and Smart contract. Smart contracts application has potential to help Islamic contracts become more secure, immutable, and easy to verify information, and lessen counterparty and operational risks that arise from settlement, thereby reducing *gharar*.

Research Methodology

This study is designed to investigate the viability of blockchain technology adoption using an exploratory approach to ascertain smart contract viability to support customer trust and reliability among Islamic banks in Nigeria. To support the aim, this research implemented the qualitative method in which 13 respondents were interviewed which consists domestic Islamic banks officials and conventional banks that offer non interest service window in Nigeria. The study further engaged Shari'ah board members as well as regulators as they are regarded as reliable key stakeholders in fetching reasonable information about the subject matter under investigations (Bob et al., 2002). Their viewpoints is considered vital an appropriate in collecting perceptions about Shari'ah based technology and individual viewpoints about a phenomenon (Bob et al., 2002).

Population and Sampling

The population of the study comprises Islamic banks operating in Nigeria, the regulators (CBN and SEC) and the sample of the study involves Islamic banks officials and Islamic banks Shari'ah board members. In order to gather their opinions on the viability of blockchain,

interactions with Shari'ah board governance and operators are intended for the study. The study used the in-depth interview method, which was appropriate for examining in-depth perspectives for producing comprehensive insight (Sampat et al., 2023). The study used Islamic banks Shari'ah audit and product developments Departments to collect rich information about blockchain technology (Smart contract). Purposive sampling is used in this study in conjunction with the snowball sampling technique to select the ideal study participants.

Table 1

Sample Participants and their Categories

S/N	Category of participants	Specification	Gender	Designation	Duration
P1	Bank Official	Islamic bank	Male	Head Audit	46 min
P2	Bank Official	Islamic bank	Male	Head IT	52 min
P3	Bank Official	Islamic bank	Male	Head IT	58 min
P4	Bank Official	Islamic Bank	Male	Head Audit	1hr
P5	Governance	Member	Male	Shari'ah Board	1hr
P6	Governance	Member	Male	Shari'ah Board	41min
P7	Regulator	CBN	Male	FRACE	40min
P8	Regulator	CBN	Male	FRACE	1hr
P9	Governance	Member	Female	Shari'ah Board	56min
P10	Bank Official	Conventional	Male	Non-Interest Window	45min
P11	Bank Official	Conventional	Female	Non-Interest Window	45min
P12	Regulator	SEC	Male	Risk Based Supervision	57min
P13	Regulator	SEC	Female	Monitoring	48min
	Total		13		Approximately 12 hrs

Data Collection

This study gathered data through semi-structured interviews. Interviews were formally and informally conducted due to the nature of individual career, and terms and condition preferences of the employees. The qualitative nature of the methodology gives room for the study to maintains a structure of continuous questions for the participants and provides thorough insights that are amenable to qualitative analysis (Sampat et al., 2023). Pilot study made it possible for the research to better understand and focus on the questions. The following categories of participants were interviewed. The interview took place face to face with all banks officials', except one bank which was conducted via zoom due to the nature of their schedules. Face to face interview was also conducted with members of Financial Regulation Advisory Council of Experts (FRACE), as well as the SEC officials. Officials serving as members governing Islamic Shari'ah board were also interviewed, except one who was not reachable at the point of completion of this research. As formal letter was issued to the banks

for a request to conduct an in depth interview, up to the point of completion of this research there was no respond from the management. Respondents' interviews were recorded once the participants gave their informed consent, and were reassured that their identities would be kept private, and that any information they disclosed would not be shared with third parties. The lengths of the interviews varied from 41 to 60 minutes, with an average of 48 minutes. The interviews were transcribed using Nvivo software, with the aid of axial coding and the results were stored as a PDF file for further examination.

Data Analysis

This exploratory research uses a qualitative data analysis approach to enhance current theory from data (Sattarapu et al., 2024). As mentioned earlier, the transcript was imported into Nvivo, a qualitative data analysis program, for the thematic analysis. Important themes for inter-coder reliability were found in the data. First coding the overall perspective of the respondent's conversation, then extrapolating unnecessary nodes from the transcripts. Each code was gathered and assigned into a pertinent theme. Using the software's inductive analysis feature, the operators' initial codes were produced followed by regulators. The inter-judge reliability of the results of the analysis was further compiled and found to be above 84%, indicating the study's reliability (Bapat, 2022). The results of the comprehensive interview, which was transcribed, addressed the study's research inquiries.

Findings

The study's main goal was to investigate the viability of blockchain technology's adoption via Islamic banks operating in Nigeria through the perspectives of stakeholders in the Islamic banking industry. Through one-on-one interviews, the viewpoints of regulators, the Shari'ah board members and Islamic bank officials were also recorded. Three themes have emerged from thematic analysis (*Inadequate Regulation, Wider Acceptance of Technology and Viability of Blockchain Adoption*).

Inadequate Regulation

Regulation is the key component that shaped every aspects of policy making, regulators are responsible to designed policy suitable for Shari'ah compliant tools, platforms such as blockchain and smart contract has been identify as a critical factors in determining customer trust, security and reliability of information among peer to peer participants, however, intermediaries are not much interested in welcoming this new development. Albeit, Nigerian government has allowed blockchain technology in the country. One of the participant P2 mentioned that,

'The challenges we are facing with Blockchain technology in Nigeria, is that federal government has for long banned any type of transaction related to Blockchain. Until recently the ban was lifted, so with this support, we are going to be seeing new regulation in the area of crypto vis-a-vis Blockchain''. (P2)

This signifies that blockchain is been recognised by financial industry players, both Islamic and conventional financial industry, without proper regulation or guidelines associated to it. It appears that the rapidly advancing blockchain technology is a constant source of catch-up for regulators in Nigeria.

P10 opined that

'Blockchain can be better spelled out when you have the apex institution or financial regulators supports the entire blockchain proposition (P10)..... Lack of support portray the irresponsibility of regulators signifying inadequate regulation for Islamic based tech'
(P10)

P10 envisage the role of authorities such as CBN and SEC in designing policy or regulation suitable for Islamic Financial technology and its components such as blockchain and crowdfunding thus highlighting lack of support and commitment from regulator part.

One respondent P8 argued that

'The CBN established a regulatory sandbox to enable FinTechs to test new innovative products and services in real time, and it published its Framework for Regulatory Sandbox Operations in Nigeria since in January 2021'(P8)

He added that

'The sandbox ensures the reliability and stability of Islamic bank in real economy' (P8)

P8 is on the opinion that there is room for Islamic finance industry in Nigeria to present any product that are in line with Shari'ah guidelines to be tested, monitored and therefore get approval upon fulfilment of the established criteria.

'The transaction cost is no more for the banks, hidden charges will be no more because of the decentralized nature of the platform, I doubt much if banks would accept and deploy Blockchain into their system, because they are afraid of these nascent technologies' (P1)

P1 is optimistic that adopting blockchain in a form of smart contract will adversely affect banks, envisaging that banks are not always ready to go for this new innovation.

P3 an IT expert, shared his experience and express his opinion about Blockchain technology in the Nigerian banking industry at large.

"No bank is willing to deploy Blockchain platform into their operation, because Blockchain has blocked them from serving as intermediaries, as such digital ledger serves as a peer to peer transaction'(P3)

Another respondent P5 from Islamic bank express the same view with P4 that

'The smart contracts have not started. I know it is also in the central bank of Nigeria payment policy plan for 2026 or so. And I know we provided input on the smart contracts, but we have not started the adoption of the smart contract' (P5)

It is obvious that the adoption and use of smart contract is yet to take place in Nigerian financial system, however the adoption is underway. Another respondent from regulators shared his view on digital ledger technology adoption and use.

P9 attributed the issue of smart contract adoption and Islamic FinTech regulation to apex bank laxity in issuing circular to that effect.

'There is no directives to that effect from the CBN payment policy plan for the use of smart contract in either conventional or Islamic banks in Nigeria'. (P9)

P13 explain their position on digital ledger deployment in Nigeria Islamic banking system.

'At present, the digital ledger is not in use, however, we are planning to deploy digital ledger system in the near future, we awaits directives from central authority'.(P13)

These respondent are on the view that financial tools; such as Blockchain technology is not in used in the banking industry in Nigeria. Banks awaits apex banks directives and guidelines. In the same vein Islamic bank officials are aware of the need for Digital ledger platform which has features that will prevent any attempt of corrupt practices in the system, that the immutability nature of Blockchain is very important in the banking industry. However, the adoption is yet to take place.

Wider Acceptance of Technology

Wider acceptance and use of technology, one of the study themes generated has been captured through thematic analysis as captured from respondents statements that.

'Any financial tool capable of facilitating and accomplishing the offering of financial services in a Shari'ah compliant way is acceptable' (P8)

P8 was astonished by the way Fintech is penetrating Banking industry, envision Shari'ah compliant financial tool wider acceptance through Islamic banks.

One of the respondents (P13) mentioned that.

'The future prospect for Islamic bank in Nigeria is dependent on the use of modern technology, and acceptance is dependent on the services offered; it requires more sophisticated financial tools such as smart contract to validate and strengthen the reliability of transaction' (P13).

Respondent P8 view financial technology as a tool that aligned with Shari'ah principles

'Obviously, there is no any ruling based on Shari'ah that says you should not adopt it, as long as there is no impermissibility when you apply. So, I believe that any technology that comes, not only Blockchain technology, will be accepted' (P8).

His perception was based on the Shari'ah perspective of the use of smart contract tool, although the tool is not been deployed, however, his stand was that if it were to be deployed recently, there would be no any objection from the Shari'ah scholars perspective.

P1 responded to the question related to the Islamic banks preparedness to adopt smart contract as a blockchain platform.

'Technology has spark competition among banks in Nigeria; the bank that provide better online services take a large share of the market. However, the introduction of Islamic FinTech,

has taken a new dimension, Islamic banks are now presenting their customers with product and services that are in line with Shari'ah guidelines'' (P1).

P5 express his opinion about the acceptance of digital ledger by the Islamic banks in Nigeria. *'Technology is redefining banks in this digital era, it has become necessary for Islamic banks to deploy the use of this new platform (Islamic FinTech), otherwise, they cannot compete with all this new emergence digitally driven neo banks' (P5)*

Digitally driven neo banks in Nigeria are at the fore front in the provision of digital financial services, as they exclusively provide their services online to a wide range of users. Advancement in technology has disrupted Islamic banking operation, thus leading to competition among participants. Almost all banks adopt and adapt to FinTech tools, the only obstacle revolve around its Shari'ah based compliant and validity.

Viability of Blockchain Adoption

One respondent P4 states the features of Blockchain

'The decentralized system give users the ability to create value and authenticate information without the threat of been corrupted, so it is a viable tool' (P4)

The respondent is referring to the features of Blockchain when deployed by Islamic banks as it relies on the Peer to Peer network and decentralized distributed database which is in contrast to centralized database that is in use presently.

P9 opined that

'Traditional Islamic financial institutions such as non interest banks must embraced FinTech solutions to enhance their operations and customer experiences, so that they can actively compete in the financial technology driven ecosystem'. (P9)

P9 is on the viewpoint that Islamic banks must embraced these new nascent technologies so as to effectively compete with new starts up, otherwise they are prone to be left behind.

An Islamic bank official stated that

'We cannot be able to resolve the issue of sequence compliance in terms of financing a particular Islamic finance product without these technologies, financial and human capacity as well as regulatory issue is our major concern' (P13)

In addition to issues of financial and human capacity, another issue was foreseen by another respondent in the banking industry

P7 stated that

'As I said earlier, if you look at it, almost 80% or more of the contracts that Islamic banks use in Nigeria, they use the contract of Murabaha, more than 80%. Some even go as much as 90% of their financial portfolio based on the contract of Murabaha'(P7)

Smart contract is perceived as a financial tool that might yield positive resolution by way of consensus between parties in financial contract such as *Mudharaba*, which account for more than 80% of the contract sealed between banks and customers.

P2 also stated that

'Majorly during the review process you will observed that, absence of digital ledger (Smart contract) during the review process has resulted in Islamic banking operators feeling less effective, because our effort was to ensure our customer satisfaction and trust' (P2)

One participant (P6) responded that

'So, I believe financial technology such as digital ledger is a viable tool, a way forward for all Islamic institutions in Nigeria and even beyond. So, obviously, regulations are underway to assist and improve the efficiency and effectiveness of service delivery among Islamic financial institutions in Nigeria' (P6)

P6 acknowledged the potential of digital ledger in ensuring the effective service delivery across all sector of the economy, however, indirectly lamenting the non- existence of proper regulation on blockchain technology in the country.

Discussion

The major benefits of blockchain in enhancing financial services experiences such as smart contract cannot be overlooked. The study have recognised; Regulation lapses, Acceptance of new innovation and Viability of blockchain adoption in non-interest financial institutions in Nigeria. Islamic banks officials have perceived customer satisfaction as paramount in the present era of Industry 4.0, therefore, smart contract is an essential tool to further enhance contractual arrangement thus satisfy both the interest of the banks and that of customers amicably. Signifying the viability of Shari'ah based smart contract. Lamenting the large scale of Muslim population who are ready to patronize Islamic banks operation in Nigeria, and is encouraging. Despite the potential benefits, banks are reluctant to deployed blockchain onto their platform leaning on the non-existence of regulation specific for Islamic tech gadget. Lack of readily available financial tool that are in line with Shari'ah guidelines to process and execute transaction is discouraging. However the inadequate regulation and the lack of commitment from the regulators side to designed regulation that will support Shari'ah based tech is alarming. Although regulators are of the opinion that the regulatory sandbox is designed to regulate all form of innovation and that regulators welcome all innovation. Regulatory Sandbox has been identify as key component that stabilised the Nigerian Islamic banking industry. However, blockchain technology seem to make regulatory agency redundant. The findings of the study proves that regulators are reluctant to deployed policy that cater for Islamic based tool such as smart contract. This is similar to the findings of (Rawat et al., 2020) that Blockchain renders the regulatory agencies obsolete.

Security, and integrity in Islamic Banking sectors of the economy have been attributed to blockchain technology deployment. This is in line with the findings of (Agrawal & Mishra, 2021) that all sectors are in need to deploy the advantages and conveniences that blockchain technology provides. Conveniences in terms of traceability, security, and transparency bolster

its reputation as the most valuable technology for reducing fraud in business settings. This is also similar to the findings of (Idehen & Mayor, 2021) that blockchain mitigates fraud in business organisations especially for corporate bond transfer.

Conclusion

Nigeria payment policy plan is designed to champion smart contract in 2026. Thus, utilizing blockchain technology in a Shari'ah based regulated environment; envisaging the viability of Shari'ah based contract. This development would improve economic activities while lowering risk and cost of Islamic banks operation through proper transaction sequence. The regulatory sandboxes championed by both CBN and SEC is likely to contribute to Islamic bank stability as well as the Blockchain technology if properly utilized, this will help mitigates the issues of probable financial misconduct in the finance industry. The study concludes that there exist no regulation for Islamic financial contract such as smart contract, and Islamic banks are reluctant to deploy the use of blockchain technology due to absent of stringent regulation for the platform. Shari'ah board members contributes to the development of technology based tools, however, they do not facilitate regulation of blockchain technology in the Islamic industry in Nigeria.

Recommendation

This study recommends that Islamic banks should conduct more thorough research on technological solutions in order to create cutting-edge Shari'ah compliance products that meet societal demands and fulfil the *Maqasid al-Shariah*. Artificial intelligent and robo advisory should also be deployed in the transaction sequence to prevent malicious act. Secondly, introducing Shari'ah based smart contract regulation and promoting Islamic FinTech innovation must be balanced by the regulatory bodies. In order to address the growing advantages of Islamic finance, regulatory authorities should review and update current regulations and make sure Islamic banks have the necessary compliance mechanisms in place to promote Islamic finance activates. Transparency is one of the issues to be addressed in crowd funding activities, such as *zakat* and *waqf* collection through Islamic banks to make the process trustworthy. Blockchain as a distributed ledger technology can ensure the transparency, security, and integrity in fund-raising activities by leveraging Blockchain features such as immutability, verifiability, and security. Further research can be conducted in the areas of financial technology such as metaverse in a circular economy so as to guarantee and enhance the development of Islamic finance ecosystem.

Contribution of the Study

Previous research has concentrated on the conventional aspect of blockchain technology to comprehend the views of stakeholders. However, this study provides new perspective on the viability of blockchain adoption by Islamic banks; by examining the perception of regulators, bank officials, and their Shari'ah board members from a Shari'ah perspective. A Shari'ah based conceptual and theoretical dimension of UTAUT is added to the body of knowledge by the study's dimension in Nigeria, an emerging economy that is implementing blockchain in a regulated environment. This study fills in a gap in the body of knowledge surrounding the viability of blockchain technology in Islamic financial ecosystem.

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