OPTIMIZING SHARIA PRINCIPLES THROUGH ARTIFICIAL INTELLIGENCE: A JURIDICAL-ECONOMIC INQUIRY INTO COMBATING FRAUD IN ISLAMIC FINANCIAL INSTITUTIONS

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Abstract
The main objective of this research is to examine how artificial intelligence can be used to optimise the application of sharia principles in Islamic financial institutions. The research will specifically focus on conducting juridical-economic investigations to prevent fraud. This research seeks to enhance the security of transactions and operations in Islamic financial institutions by assessing the role of artificial intelligence. It also aims to examine the ethical efficiency and compliance implications of integrating artificial intelligence with sharia principles. Additionally, the research aims to create predictive models and algorithms using artificial intelligence to identify fraud patterns that contravene sharia principles. Furthermore, it aims to establish a legal framework that facilitates the use of artificial intelligence in combating fraud within institutions. The findings demonstrate that the implementation of artificial intelligence can greatly enhance the security of transactions and operations within Islamic financial institutions. The incorporation of artificial intelligence into sharia principles enhances efficiency and ethical adherence. Additionally, the creation of prediction models and artificial intelligence algorithms effectively identifies fraudulent tendencies that contravene sharia rules. The research has several consequences, namely, the need to guarantee the security of Islamic financial services, enhance public confidence, and promote the establishment of policies that foster innovation in the Islamic financial sector. The report suggests that Islamic financial institutions should adopt artificial intelligence as a proactive measure to combat fraud. Governments might utilise the research findings as a basis for formulating policies that facilitate the incorporation of artificial intelligence in Islamic financial institutions. These proposals urge technology suppliers, Islamic consultants, and regulators to actively participate in applying research findings, guiding ethical norms, and establishing rules that promote innovation in the Islamic financial industry. Therefore, this research significantly contributes to the development of a financial ecosystem that prioritises safety, fairness, and adherence to sharia principles for the betterment of society.
Keywords: artificial intelligence, Islamic finance, blockchain, algorithms, fraud detection

INTRODUCTION

In the current epoch characterised by swift advancements in information technology, Islamic financial institutions encounter intricate predicaments pertaining to sharia compliance, security, and integrity (Abdeen et al., 2019; Oktariatas Kesumayuda, 2019). Amidst this backdrop, artificial intelligence is surfacing as a novel prospect for Islamic financial institutions to optimise their operations in accordance with sharia principles. The primary aim of this research is to discern and

assess the potential for artificial intelligence to enhance adherence to sharia principles in the context of juridical-economic investigations aimed at preventing fraudulent activities within Islamic financial institutions. Utilising artificial intelligence in the context of sharia requires cautious consideration and deliberation. Islamic financial institutions are guided by sharia principles, which necessitate strict adherence to ethical values and the equitable execution of all transactions. In the context of Islamic finance, this study therefore seeks to bridge the divide between advanced technology and religious norms.

The primary objective of this study is to conduct a juridico-economic investigation, given the significant risk that fraud poses to the viability and standing of Islamic financial institutions. By utilising sharia principles and employing a multidisciplinary approach, this study aims to develop comprehensive strategies to combat fraud.

The primary aims of this research are as follows: to assess the effectiveness of artificial intelligence in enhancing the security of operations and transactions of Islamic financial institutions; to examine the consequences of integrating AI with sharia principles on the operational efficiency and ethical compliance of such institutions; and to develop predictive models and AI algorithms for identifying fraudulent patterns that contravene sharia principles.

This research assumes a critical role in addressing the intricate challenges that Islamic financial institutions encounter in the realm of artificial intelligence technology advancement. By leveraging artificial intelligence, this study seeks to enhance compliance with sharia principles in all transactions, constituting a progressive measure designed to promote greater adherence to ethical and moral values. This interest stems from the fact that Islamic financial institutions must also contend with swift technological advancements in addition to the escalating complexity of the fraud threat. Through a comprehensive juridic-economic analysis, this study significantly contributes to the fight against fraud in Islamic financial institutions by investigating the potential of artificial intelligence.

This research places significant emphasis on juridic-economic investigations due to the grave concern that fraud poses regarding the integrity of Islamic financial institutions. Through an exhaustive examination of the economic and legal dimensions of fraud, this study endeavours to formulate a comprehensive approach that is not only efficacious but also consistent with the tenets of sharia. Furthermore, by placing emphasis on operational efficiency, the study offers valuable insights that substantiate the notion that incorporating artificial intelligence can enhance the overall functionality of Islamic financial establishments, thereby yielding advantages that permeate the entirety of the Islamic financial system.

This research exerts an influence not only on operational aspects but also on the domain of Islamic financial innovation. Through the identification and implementation of artificial intelligence solutions that adhere to the principles of Shariah, this research paves the way for groundbreaking developments that may

contribute to the advancement of the Islamic finance industry. Further, this study aims to establish a connection between religious values and technological advancements, thereby fostering an environment conducive to technological progress and ethical standards.

This study primarily examines the sustainability and reputation of Islamic financial institutions. Through the enhancement of transaction security measures and the mitigation of fraudulent activities, this research not only bolsters the long-term viability of Islamic financial institutions but also aids in the cultivation of a favourable reputation—a critical element in preserving public confidence. In conclusion, the implications of this study's legal framework development for the formulation of regulations that promote innovation and assure adherence to sharia principles are significant. Therefore, this study not only offers profound understandings and practical remedies to the obstacles encountered by Islamic financial establishments, but also significantly contributes to the advancement of a more secure, streamlined, and value-aligned Islamic financial sector.

An anticipated substantial scholarly contribution to the domains of artificial intelligence and Islamic finance is anticipated from this research. Through an examination of the correlation between artificial intelligence and the optimisation of sharia principles, this study possesses the capacity to offer novel perspectives on addressing financial obstacles in the digital age. Furthermore, it is anticipated that practical policies and recommendations that Islamic financial institutions can adopt will enhance compliance with sharia principles and security.

The publication is organised into multiple primary sections. These include a juridical-economic investigation that scrutinises the economic and legal dimensions of fraud in Islamic financial institutions, case studies showcasing practical applications of artificial intelligence in combating fraud, and recommendations and conclusions that may serve as a roadmap for future endeavours in Islamic financial institutions. It is anticipated that this research will yield sustainable and innovative solutions to the problems of fraud in Islamic financial institutions, thereby establishing an environment that is more secure, equitable, and compliant with sharia law.

METHOD

This study's research methodologies comprise two primary approaches: an exhaustive literature review and a juridic-economic investigation. To begin with, this research employs a comprehensive literature review methodology to investigate artificial intelligence, sharia principles, and fraudulent activities within Islamic financial institutions. This study seeks an in-depth understanding of the concept and application of artificial intelligence in the context of Islamic financial institutions, the ethical principles and sharia law that underpin Islamic financial institutions, and frameworks for detecting and preventing fraud through a literature review of credible and verified sources. Furthermore, this study employs a juridical-economic

inquiry framework to examine the economic and legal dimensions of fraudulent activities within Islamic financial institutions, with a specific emphasis on how they relate to sharia principles. By conducting an exhaustive examination of the regulations and laws that regulate Islamic financial institutions, this study investigates not only the economic repercussions of fraudulent activities but also the lawful means of their prevention and response.

The inquiry consists of an examination of fraudulent incidents that have transpired and the legal measures implemented by Islamic financial institutions in reaction to such occurrences. Understanding the legal and economic ramifications of fraud in Islamic financial institutions while gaining a comprehensive understanding of how artificial intelligence can be effectively utilised to enhance the security and compliance of sharia principles is the objective of this study, which combines these two approaches. This methodology empowers scholarly investigations to deliver comprehensive and pertinent findings amidst the intricate obstacles encountered by Islamic financial institutions.

RESULT AND DISCUSSION

Integration of Artificial Intelligence With Shariah Principles

The convergence of Sharia principles and artificial intelligence has ushered in a period of profound change in the realm of Islamic finance(Abbas & Hafeez, 2021; Al Shehab & Hamdan, 2021; Yuspin et al., 2022). Amidst the ongoing evolution of artificial intelligence technology, a pivotal inquiry emerges: In what ways can these technological advancements be harmonised with the ethical principles and religious values that underpin Islamic financial institutions. This comprehensive analysis of integration is crucial in order to direct our progress towards achieving concordance between technological advancement and compliance with Sharia principles.

Artificial intelligence technologies, encompassing natural language processing, machine learning, and various other computational intelligence systems, possess substantial potential to enhance Islamic financial institutions' operational and service efficiency(Andrade & Tumelero, 2022; Hsu & Lin, 2023; Obayya et al., 2022). This integration involves more than mere mechanical application of advanced technology; it also entails careful consideration of its implications for sharia principles, such as impartiality, sustainability, and justice. It is imperative that technological advancements and the ethical objectives of Islamic finance congruence.

Prior to proceeding, it is critical to ascertain precise domains within Islamic financial institutions that could benefit from the implementation of artificial intelligence. One of these responsibilities pertains to the risk assessment and investment portfolio selection process, which must be conducted in adherence to sharia principles. Sophisticated data analytics can be utilised by artificial intelligence to assist in the selection of Sharia-compliant investments, thereby enhancing fund management's adherence to regulations and rigour.

An additional benefit of integrating artificial intelligence is that it can produce a reporting system that is more transparent and efficient (Demertzis et al., 2023; Dong et al., 2023; Wang et al., 2023). Islamic financial institutions possess advanced data analysis capabilities that enable them to effortlessly monitor and disclose their financial activities in adherence to the principles of Sharia. This not only enhances the transparency for stakeholders but also fortifies the ethical standards and responsibility of these financial establishments.

Nevertheless, the integration of artificial intelligence into the functioning of Islamic financial institutions must be accompanied by a profound comprehension of the fundamental tenets of sharia. Experts in sharia law, technology development, and Islamic finance must work closely together to ensure that any implementation of artificial intelligence complies with the ethical and moral requirements of Islam. This encompasses the development of algorithms capable of detecting and evading investments that violate sharia principles, in addition to the verification of the integrity of the data utilised by artificial intelligence systems to prevent any unwarranted contamination.

The implementation of AI technology in Islamic financial institutions may be perceived as a calculated manoeuvre aimed at enhancing client support. For instance, chatbot systems powered by artificial intelligence can provide consumers with Islamic financial education and respond to their inquiries in real time. This practice not only enhances customer relationships but also contributes to a broader comprehension of Islamic principles as they pertain to finance.

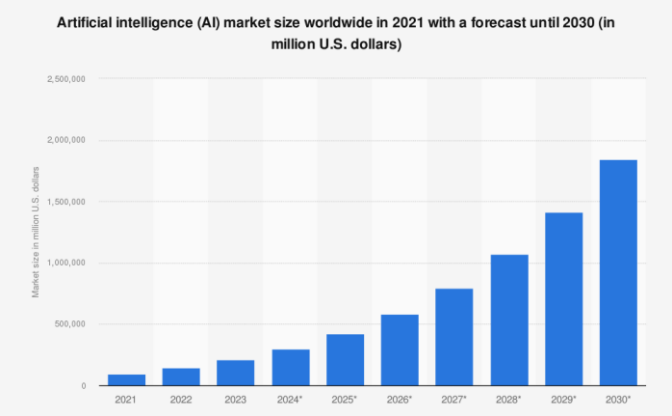
Despite the potential benefits that the integration of artificial intelligence may bring, there are obstacles and dangers that must be considered. Managing concerns regarding data privacy and security is a significant obstacle, particularly given that Islamic financial institutions frequently deal with extremely sensitive data. Data protection and security should therefore be of the utmost importance throughout the entire integration process.

The significance of comprehending and harmonising artificial intelligence with sharia principles is further underscored by the moral and social accountability of Islamic finance, which extends beyond the mere attainment of business objectives. This alignment is crucial for ensuring that Islamic financial institutions' sustainability is evaluated not only economically, but also morally and ethically.

The incorporation of sharia-compliant artificial intelligence into Islamic financial institutions is a pivotal progression in enabling technology to concurrently accomplish ethical and commercial objectives. By comprehending and valuing Islamic principles throughout the integration process, Islamic financial institutions have the ability to establish a harmonious milieu that harmonises ethical customs with technological advancements. This fortifies their standing as pivotal participants in the perpetually evolving realm of finance.

Artificial Intelligence and Financial System Development

The next decade is anticipated to witness substantial growth in the artificial intelligence (AI) market, according to a report by Next Move Strategy Consulting. It is anticipated that the AI market, presently valued at approximately $100 billion U.S., will experience a twentyfold growth by 2030, culminating in a value of nearly two trillion U.S. dollars. The anticipated expansion is projected to encompass a wide range of sectors, including research, analytics, supply chain, marketing, and product development. These industries anticipate the incorporation of artificial intelligence into their operational frameworks. The development of mobile applications, the implementation of chatbots, and image-generating AI are significant developments that will shape the future of AI.



Source: Next Move Strategy Consulting (Graph by Statista)

A significant advancement in the field of artificial intelligence is the emergence of generative AI, which became widely recognised following the introduction of ChatGPT 3.0 in 2022. This achievement signifies a substantial advancement, presenting an unprecedented outlook on the potential of generative artificial intelligence. The notable upswing in interest regarding generative AI is apparent in the trends reported by Google, which demonstrate a swift progression from 2022 to 2023. This increased interest is consistent with platforms' ongoing efforts, such as ChatGPT, to introduce updated versions of chatbots and the development of other generative AI programmes. It is anticipated that this trend will continue.

Academic circles are becoming increasingly cognizant of AI trends. Artificial intelligence (AI) has been marked by its ever-evolving nature, as scholars strive to stay abreast of swift technological progress. Historically, in North America, a significant proportion of Ph.D. recipients with expertise in artificial intelligence (AI) have pursued professional careers in the industrial sector, thereby limiting their potential contributions to academia. Traditional academic discourse on AI has experienced delays as a consequence of the time-consuming character of the scientific method. As more publications emerge on the subject of AI, however, this

can be interpreted as an indication of a departure from previous tendencies and increased scholarly involvement in the ever-changing artificial intelligence domain.

The convergence of artificial intelligence with Sharia values compels us to engage in profound introspection regarding the ethical and moral implications of technology implementation within the framework of Islamic finance (Giovanola & Tiribelli, 2023; Gonçalves et al., 2023; Paraman & Anamalah, 2023; Perko, 2023). In addition to integrating artificial intelligence into financial management, the establishment of an environment that fosters technological advancement and adherence to sharia principles is crucial for the development of a secure, equitable, and Islamic-compliant financial system.

Prior to proceeding, it is critical to comprehend the Islamic values that form the bedrock of Islamic finance. These values are founded upon principles including impartiality, fairness, and transparency. Aligned with this, the integration of the artificial intelligence concept should be such that it reinforces rather than contradicts the aforementioned values. Therefore, the fit analysis commences by contemplating the manner in which these technologies can participate in decision-making procedures that adhere to elevated ethical standards and are impartial, devoid of bias.

Ensuring the security of the financial system is a fundamental goal within the framework of Islamic values. The integration of artificial intelligence into these security systems has the potential to enhance detection and prevention mechanisms in order to thwart fraudulent or suspicious activities(Ambeth Kumar et al., 2022; Buyuktepe et al., 2023; Rodrigues et al., 2022; Sood et al., 2023; Vetrivendan & Kumar, 2023). It is imperative to conduct thorough analysis in order to ascertain that the algorithms and artificial intelligence methods in use are consistent with the fundamental principles of integrity and protection that underpin Islamic finance. The implementation of this technology should instil confidence in the parties involved that financial transactions can be executed securely.

Non-discrimination and impartiality are fundamental principles in Islamic finance. In this instance, the implementation of artificial intelligence must be executed with caution so as not to inadvertently foster or perpetuate discriminatory practices, particularly with regard to resource allocation and credit determination. Match analysis ought to assess the ramifications of artificial intelligence algorithms on the principles of equity and impartiality in the allocation of funds, guaranteeing that each determination executed by the system does not infringe upon these intrinsic values.

Aligned with the tenets of transparency in Islamic finance, the suitability assessment should additionally explicate the degree to which artificial intelligence can furnish insight and visibility into the process of decision-making. Frequently, artificial intelligence-dependent systems are intricate and challenging for humans to comprehend. Consequently, endeavours must be undertaken to elucidate the

decision-making process of algorithms in a transparent manner, so that interested parties may comprehend and react to the integrity and accuracy of every transaction.

Fit analysis must additionally incorporate the notion of sustainability when developing financial systems in response to the challenges posed by artificial intelligence technology. In this context, sustainability entails contemplating the long-term adoption and maintenance of these technologies so as to prevent any detrimental effects on the Islamic finance ecosystem. Ensuring the seamless integration of artificial intelligence into the current financial framework is of utmost significance, as it establishes a sustainable and secure financial foundation while also promoting innovation.

Conforming to sharia principles that prioritise social accountability, fit analysis must take into account the societal ramifications of artificial intelligence technology. The manner in which these technologies can facilitate financial inclusion, empower communities, and benefit individuals must be a primary concern. Constructing this conformance additionally entails guaranteeing that technological advancements do not exclude any specific society or contribute to social inequalities.

The significance of education and public awareness regarding the principles of Islamic finance is a critical element within the framework of this research. This notion embodies the acknowledgment that in order to optimise sharia principles within Islamic financial institutions via artificial intelligence, an all-encompassing and efficient educational endeavour is required. Consequently, artificial intelligence technology can be utilised to educate the general public on the fundamentals of Islamic finance.

To begin with, this strategy may entail the creation of educational applications powered by artificial intelligence. Developing an application that offers user-friendly and interactive educational resources pertaining to the financial implications of Islamic principles is possible. By leveraging artificial intelligence technology, the application can be customised to suit the unique requirements of each user, thereby delivering a learning experience that is both more pertinent and individualised.

Furthermore, the implementation of intelligent chatbots may prove to be a successful approach. In order to deliver information to users in a direct manner, Islamic financial institutions may incorporate chatbots into their websites or online platforms. Chatbots endowed with artificial intelligence capabilities are capable of furnishing users with prompt and accurate responses pertaining to the principles of Islamic finance, thereby facilitating the enhancement of their comprehension.

The creation of online learning platforms that are AI-powered may prove to be an effective solution. Through the use of simulations, videos, and learning modules, the platform can assist users in comprehending the sharia's principles as they pertain to financial transactions. By integrating artificial intelligence into this

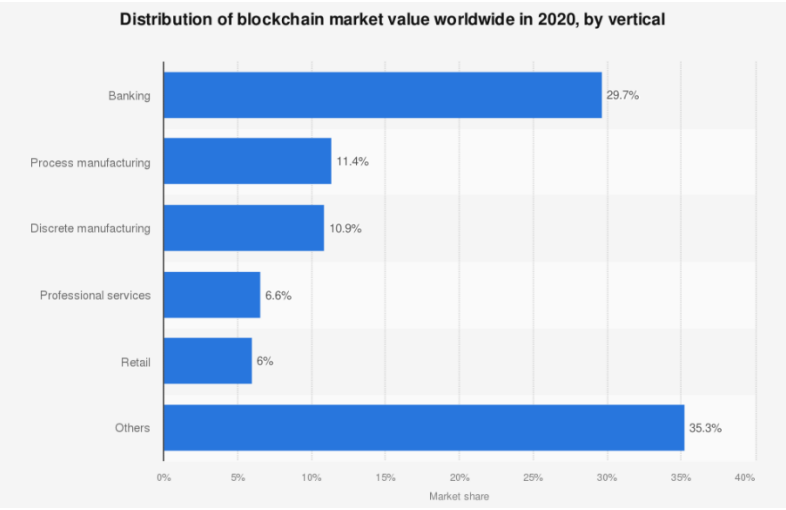
platform, more targeted content can be presented and the adaptive learning process can be facilitated.

This methodology not only underscores the application of artificial intelligence to enhance the functioning of Islamic financial establishments, but also presents the public with an inventive and easily comprehensible educational approach. It is anticipated that the implementation of this technology will enhance public comprehension and consciousness regarding the tenets of Islamic finance, thereby establishing a more robust groundwork for adherence to and implementation of Islamic values in financial transactions.

Blockchain Technology And Islamic Financial Security

Global revenue distribution on the blockchain market was nearly 30 percent concentrated in the banking sector in 2020, representing a significant market share. Conversely, manufacturing processes account for 11.4 percent of the total expenditure on blockchain solutions on a global scale. This trend signifies an anticipated pattern of ongoing expansion in worldwide expenditure on blockchain solutions over the forthcoming years.

Fundamentally, blockchain technology functions as a decentralised ledger system, which promotes confidence and certainty among trading counterparts, particularly in the context of cryptocurrency transactions. An illustration of this can be seen in the domains of Bitcoin and Ethereum, where blockchain functions as the foundational technology that enables the secure transmission of these digital currencies, thereby fostering trust in financial transactions. Blockchain technology offers a significant degree of confidence by virtue of its capacity to mitigate fraudulent activities, expand financial accessibility, and curtail operational expenditures. Consequently, it facilitates the optimisation of international payments and settlements, thereby offering the global financial sector the opportunity for significant change.



Source: International Data Corporation (IDC), (Graph by Statista)

The relationship between Bitcoin and blockchain is symbiotic, as blockchain technology functions as a structured database composed of interconnected "blocks" of data that form an uninterrupted and interconnected sequence. This interconnection of data sets, or "chaining," is the fundamental principle underlying blockchain. Blockchain technology is particularly noteworthy for its function as a ledger for Bitcoin transactions, thereby generating an interconnected framework that evolves with the progression of each transaction. As evidenced by the substantial growth in the global user base of blockchain wallets in recent years exclusively, Bitcoin's surge in popularity is consequently intricately tied to the expanding significance of the Bitcoin blockchain. This highlights the interconnected nature of the development of blockchain technology and Bitcoin, wherein the progress and acceptance of one have a substantial impact on the course of the other.

The incorporation of blockchain technology into artificial intelligence as a fundamental component significantly enhances the protection of Islamic financial transactions(Kim, 2022; Rjoub et al., 2023; Singh et al., 2023; Ye et al., 2023). Within this paradigm, blockchain functions as a decentralised underpinning that guarantees the system's overall dependability and resilience. Almost entirely impervious to infiltration and manipulation, these distributed databases establish a dependable framework that ensures transparency and compliance with sharia principles.

A key benefit of blockchain technology is its capacity to meticulously document transactions, enabling the monitoring of resources and assets in adherence to Islamic tenets. The implementation of smart contracts within the framework of blockchain technology enhances the automation of Islamic rule enforcement, leading to expedited and precise implementation. This may involve the distribution of profits or zakat payments, thereby assuring uniform adherence.

Identity protection, blockchain technology offers a decentralised and secure approach to identity management, which is a significant area of emphasis(Guggenberger et al., 2023; Mostafa et al., 2023; Prasad & Rekha, 2023). By doing so, the potential for identity theft can be reduced, thereby instilling greater assurance in each transaction. In the interim, the integrity of every transaction is safeguarded by the permanent and immutable nature of the information documented in blocks, which further enhances the authenticity and transparency of transactions.

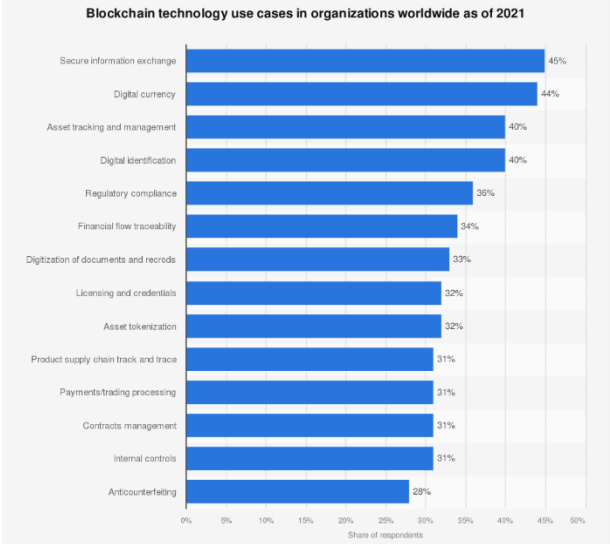
The integration of artificial intelligence into blockchain technology not only enhances compliance with sharia principles but also optimises operational efficiency while mitigating the potential for human error(Agrawal et al., 2023; Hemdan et al., 2023; Moore et al., 2023). By utilising precise data-driven decision making and process automation, it is possible to attain elevated performance standards while mitigating the potential for errors. Islamic financial institutions can thereby effectively and expeditiously deliver services while upholding the ethical and moral tenets that form the foundation of Islamic finance.

Through the integration of blockchain technology and artificial intelligence, Islamic financial institutions can establish a robust framework that ensures the security of transactions and supports long-term expansion. It is not sufficient to establish a secure and reliable environment for stakeholders; the future of Islamic finance must also be innovative and consistent with its core values.

Blockchain technology assumes a pivotal position in facilitating financial transparency and accountability in accordance with Islamic principles. Through the decentralised storage of data across the network, blockchain establishes an environment in which all concerned parties are able to access and validate information. A blockchain's data is immutable and secure to an exceptionally high degree, instilling confidence that each recorded transaction is precise and resistant to manipulation. Smart contracts have the capability to autonomously carry out Shariah regulations, including but not limited to profit distribution and zakat payments, thereby guaranteeing uniform adherence. Monitoring in accordance with Shariah principles is made possible by the transparent and real-time tracking of assets and funds; decentralised identity and validation and tracking enhance the security and accountability of each transaction. The auditable characteristics of blockchain enable third parties to conduct independent audits and verifications, thereby simplifying the process of verifying each transaction and data modification. Blockchain establishes a solid groundwork for fostering confidence among stakeholders in Islamic finance through its unwavering commitment to transparency, security, and accountability across all facets of its functioning.

A significant proportion of participants (45%) in 2021 stated that their organisations are actively engaged in the development of secure information exchanges as the principal application of blockchain technology. This specific application is gaining prominence as the most prevalent and extensively implemented use case within the technological domain. The emphasis on secure information exchange highlights the industry's acknowledgement of blockchain technology's capacity to furnish a resilient and tamper-resistant structure for transmitting sensitive data in a secure manner.

Furthermore, asset monitoring and management, as well as digital currencies like Bitcoin and Ethereum, are emerging as prominent and prevalent applications of blockchain technology. The utilisation of blockchain technology within the domain of digital currencies is indicative of its essential function of enabling secure and transparent transactions within the cryptocurrency sector. In contrast, the flexibility of blockchain applications in guaranteeing transparency and traceability across diverse industries and supply chains is exemplified through asset monitoring and management.



Source: Deloitte, (Graph by Statista)

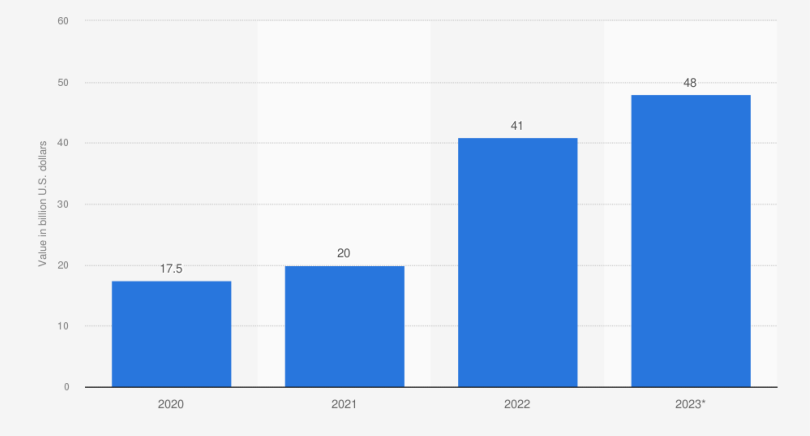
The wide range of applications exemplifies the flexibility and extensive influence of blockchain technology throughout various industries. In addition to serving as a fundamental technology for digital currency transactions, blockchain has emerged as a fundamental component in tackling security and integrity concerns that pertain to asset management and information exchange. As more organisations investigate and adopt blockchain solutions, the adaptability of the technology to accommodate diverse use cases establishes it as a disruptive influence in the contemporary business environment, reshaping the manner in which data is exchanged, transactions are executed, and assets are managed.

Development Of Sharia Fraud Detection Algorithms

Global losses attributable to online payment fraud in the e-commerce sector are projected to increase from the previous year to 41 billion US dollars by 2022, according to estimates. It is anticipated that this amount will further increase to 48 billion US dollars by 2023.

The surge in fraudulent activities within the e-commerce sector can be attributed to global movement restrictions implemented in response to the COVID-19 pandemic. This unprecedented surge in e-commerce activity presented opportunistic fraudsters with ample opportunities to exploit the situation. Globally, the pandemic is having an effect on attempts to commit fraud in electronic commerce. Three-quarters of online retailers encountered a net increase in fraudulent assaults in 2021, relative to the period preceding the health crisis. In contrast, the impact of this phenomenon varied across regions, as Asia-Pacific and Latin America experienced a greater percentage of e-commerce revenue being compromised due to fraudulent activities during that particular year.

Value of e-commerce losses to online payment fraud worldwide from 2020 to 2023(in billion U.S. dollars)



Source: Juniper Research

"Friendly fraud" refers to one of the most prevalent forms of e-commerce attack. When a customer completes a purchase with his or her debit or credit card on purpose and then disputes the transaction with their bank for a refund, this is known as "friendly fraud." In the year 2021, approximately forty percent of global online retailers disclosed instances of this particular form of assault. While the percentage of authorised orders that ultimately result in friendly fraud is comparatively lower in North America when compared to other global regions, this approach is responsible for approximately 30 percent of the fraud losses encountered by online merchants exclusively in the United States.

An approach that employs artificial intelligence technology to identify patterns of behaviour that violate sharia principles in a financial system or transaction is the development of sharia fraud detection algorithms. The algorithm utilises machine learning techniques and data analysis to identify and comprehend indicators of fraudulent activities that incorporate sharia-compliant practices, including usury, gharar, and maysir. As an illustration, algorithms of this nature may be implemented within the Islamic finance sector to oversee banking, investment, or trading activities that may encompass practices considered to be contrary to the principles of sharia law.

Prior to developing this algorithm, a comprehensive comprehension of the sharia principles underlying fraud pattern recognition is required. Subsequently, sharia-compliant historical transaction data is employed as a training set to instruct algorithms regarding authentic transaction patterns. Subsequently, the algorithm conducts an analysis on real-world transactions through a comparison between the identified patterns and the previously examined patterns. In the event that any inconsistencies or fraudulent activities are detected, the system will issue a warning or initiate a report to the relevant authorities.

Sharia specialists, artificial intelligence specialists, and financial practitioners must collaborate on the development of algorithms for detecting sharia deception. The aforementioned procedure entails ongoing refinement and iteration to enable the algorithm to detect progressively intricate patterns of deception as time passes. Additionally, a mechanism for continuous evaluation and monitoring must be implemented to guarantee that algorithms designed to detect sharia fraud are accurate and effective. Therefore, the implementation of this algorithm has the potential to contribute positively to the preservation of integrity and adherence to sharia principles across a range of financial activities.

In the context of Islamic financial institutions, the development of sharia fraud detection algorithms is not merely a theoretical concept; it can also be implemented practically. Case studies or practical implementations of these algorithms offer a comprehensive outline of the ways in which artificial intelligence technology can be utilised to guarantee adherence to Islamic principles throughout routine financial activities. An illustrative case study pertains to the implementation of Islamic fraud detection algorithms within the realm of Islamic banking transactions.

To begin with, this algorithm can be utilised to analyse banking transaction data, including financing, deposits, and fund transfers, in the context of Islamic financial institutions. An instance of this is the programming of algorithms to detect dubious transaction patterns associated with usury, a practice that is strictly forbidden under sharia law. Historical transaction data, which has undergone validation by Islamic specialists, can serve as a foundational resource for instructing algorithms on transaction characteristics that adhere to the principles of Islamic finance.

Sharia fraud detection algorithms must possess the capability to identify indicators of fraudulent activity that incorporate usury, gharar (uncertainty), and maysir (gambling) elements in their practical implementation. The algorithm must additionally take into account the intricacies and context of Islamic financial transactions that involve mudharabah and musharakah instruments. By possessing an extensive comprehension of Sharia principles, algorithms have the potential to serve as a valuable instrument for aiding Islamic financial institutions in upholding their operational integrity.

The application of sharia fraud detection algorithms may analyse contract documents and financial agreements utilising natural language processing technology. It is possible to programme algorithms to evaluate the adherence of clauses and words in documents to sharia principles. This can facilitate the identification of inconsistencies or ambiguity in financial contracts that potentially encompass activities that violate sharia law.

Algorithms for detecting sharia-compliant fraud can be implemented in financial risk monitoring. Potential indicators of fraud, such as substantial alterations in transaction patterns or customer behaviour, can be detected through

the programming of algorithms. Machine learning methodologies enable algorithms to acquire knowledge and adjust to ever-changing financial environments.

When implementing this algorithm, consideration must also be given to data security and privacy. Islamic financial institutions are obligated to maintain compliance with relevant data privacy and security regulations while utilising these algorithms. Information security and customer data protection policies are crucial to the successful implementation of sharia fraud detection algorithms.

Constant monitoring and evaluation are essential components of sharia fraud detection algorithm implementation. Information security teams, Islamic experts, and artificial intelligence specialists are required by Islamic financial institutions to ensure that algorithms continue to be effective and relevant in light of new technological and financial developments.

The practical deployment of sharia fraud detection algorithms within Islamic financial institutions facilitates the progression towards a more transparent, equitable, and sharia-compliant financial system. Through the utilisation of artificial intelligence, Islamic financial institutions have the capacity to fortify their oversight mechanisms and augment public confidence in their Islamic-values-aligned financial services.

CONCLUSION

The study describes, from a juridic-economic standpoint, the actual implementation, impact analysis, and development of predictive models utilising artificial intelligence to identify sharia-compliant fraud. This study provides a substantial contribution towards addressing the intricate challenges that Islamic financial institutions encounter amidst the swift advancement of information technology. The research primarily centres on the utilisation of artificial intelligence to optimise sharia principles. It presents novel approaches to enhance transaction security, thwart fraudulent activities, and guarantee compliance with ethical and moral standards in all financial dealings. This study establishes a robust framework for constructive change in the Islamic finance industry by harmonising cutting-edge technology with the Shariah-compliant values of integrity, openness, and protection. In addition to fostering innovation in the Islamic financial sector, this study lays the groundwork for the creation of regulations that facilitate the ethical and efficient implementation of artificial intelligence technology. Therefore, this study not only investigates potential areas of integration between technology and Islamic finance, but also offers guidance for future advancements to address the intricate dynamics of the constantly changing financial landscape.

The findings and consequences of this study have significant ramifications for numerous stakeholders involved. The assurance of security and adherence to sharia principles in financial services is provided to the public by the research findings, thereby fostering greater confidence in Islamic financial institutions. Governments have the ability to utilise research outcomes as a basis for formulating regulations that facilitate the incorporation of artificial intelligence into Islamic financial

institutions. This, in turn, can contribute to the establishment of a more secure and reliable financial milieu.

The integration of artificial intelligence solutions into Islamic financial institutions has the capacity to enhance transaction security and reputation, while also potentially reducing administration expenses and costs related to fraud management. Furthermore, the application of this research will involve the active participation of other pertinent stakeholders, including technology providers, Islamic consultants, and regulators. Their contributions will encompass fostering the creation of targeted resolutions, offering ethical counsel, and formulating regulatory frameworks that promote innovation within the Islamic financial industry. Furthermore, apart from offering concrete advantages in combating fraudulent activities, this research has the potential to stimulate additional advancements within the Islamic financial industry, thereby fortifying the sector's standing as a frontrunner in the creation of financial solutions that adhere to Islamic principles. Therefore, the findings of this study yield a wide-ranging beneficial effect, establishing a financial environment that adheres to sharia principles, ensures security, and promotes fairness, all for the benefit of society.

DECLARATIONS

Conflict of interest: The authors declare that they have no conflict of interest.
Ethical Approval: This article does not contain any studies with human participants or animals performed by any of the authors

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