





Integrating AI Technologies in Interest-Free Finance: Advancing Sector Capabilities through Innovative Model Proposals

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Abstract

This study explores the intersection of artificial intelligence (AI) technologies and interest-free finance, delving into the transformative potential of financial technology advancements in this sector. The aim establishes a theoretical framework for a financial interaction model grounded in machine learning, a subset of AI technologies. This framework underpins the development of novel digital contract methods adhering to the principles of interest-free finance. Central to this investigation is conceptualising and evaluating the "Benefit Sharing Model," which utilizes machine-learning techniques. This model serves as the foundation for eight distinct digital contract proposals, offering innovative solutions for the operational challenges in the interest-free finance sector. These digital models facilitate various financial interactions, such as deposit collection and financing processes, for users within the interest-free financial system. A significant study component involves a comparative analysis of these smart contract proposals, envisioned as blockchain-based, smart, interest-free financial contracts, against existing models in the field. This comparison demonstrates the technical feasibility and applicability of these proposals and highlights their uniqueness and potential advantages. This research contributes to the diversification and expansion of interest-free financial technology applications by introducing smart contract models and exploring their practical implications. It underscores the possibilities for broadening the scope and enhancing the growth of the interest-free finance sector, marking a significant step towards integrating cutting-edge AI technologies into ethical and interest-free financial practices.

Keywords: Artificial Intelligence, Interest-Free Finance, Financial Technology, Smart Contracts, Islamic Finance



1. Introduction

A digital iteration has caught up in every sector, since the inception of the internet back in the 1990, and far-reaching implications have been for financial technologies. The advent of internet technology on a worldwide basis didn't only equalize access to information but also stimulated innovation within financial services (O'Halloran, J., & Nowaczyk, N., 2019). AI-information-based processing has evolved over time, resulting in computational methodologies transforming and the business model changing across industries significantly, mostly pertaining to finance (Smith & Johnson, 2019).

This is a technology that has made it possible for millions of miles and analyses to be collected in the form of big data. Today, globally leading corporations act as data centers and take advantage of this huge basin to achieve strategic commercial benefits (Sohangir et al., 2018). In such a situation, AI-based technologies have turned into the need for time in order to process and effectively use collected data. At the same time, although incredible amounts of information in various areas that have become accessible to a wide range of people can be considered an achievement or even progress due to their informative value, it is often difficult for us as human beings with some inherent limitations cope without modern computational technologies.

The previous statement has affected the financial sector in a major way. Modern financial technologies, notably those that incorporate AI elements into their design and functioning structures have changed the old paradigms of decision-making as far as traditional finance goes. Automation is not the end of this transformation, but it runs further to the invention of financial products and services. Cognitive computing, computer vision, machine learning, artificial neural networks and natural language processing have ushered a new paradigm in financial services through AI-based technologies. These techniques make it possible to work with large volumes of information, which is essential for making more detailed and accurate financial analyses (Aylak et al. 2021).

This paper explores a significant gap in the existing literature by proposing a novel integration of artificial intelligence technologies within the domain of interest-free finance, an area that remains substantially underexplored compared to its conventional counterparts. The fusion of AI with interest-free financial practices opens new avenues for financial product innovation and aligns with the ethical and religious principles that govern Islamic finance. As financial technologies continue to evolve, the potential for AI to enhance the transparency, efficiency, and compliance of interest-free financial instruments becomes increasingly pertinent.

This study seeks to answer the following research questions (RQ):

RQ1. How can artificial intelligence technologies be applied to enhance the operational efficiency of interest-free financial institutions?

RQ2. What role can AI play in ensuring the compliance of financial products with Shariah principles?

RQ3. In what ways can the implementation of AI technologies in interest-free finance contribute to the broader field of financial technology?

By addressing these questions, the study aims to bridge theoretical knowledge with practical applications, providing a robust framework for adopting AI in enhancing interest-free finance capabilities. This research not only contributes to academic discourse but also offers actionable insights for practitioners in the field, thereby fulfilling a dual role of scholarly and practical significance.

The use of technology in financial institutions has been quite varied and far-reaching. Leading innovations found in Fintech include digital payment platforms, investment advisory through online means such as social media, individual security of personal finance and insurance integrated with AI. In addition, such technologies as big data analytics, biometric identification verification systems, the internet of Things (IoT), cloud computing and storage devices in health management technology business infrastructure development could lead to more efficient processes on the one hand (GreenWood, 2022).

Machine learning plays a pivotal role in using AI in the realm of finance, whereby algorithms are put through rigorous training using specific data supplements, and this helps these entities to generate important decision outputs independently. This technology has not only gone a long way toward turning financial forecasting, risk analysis, bankruptcy prediction and more from handicrafts into scientific disciplines but also provides solid technical foundations that coexist in harmony with traditional econometric methods (Alpaydın, 2014).

In the context of interest-free finance, due attention in recent years has been paid to artificial intelligence-based technologies. Especially relevant is the opportunity to perform several data analyses on ML-based methods that may imply financial decisions through analysis of correlations among correlated information. This issue is particularly relevant in light of the practice of interest-free financial transactions, which are regulated according to principles that differ from traditional finance systems (O'Halloran & Nowaczyk, 2019). The machine learning algorithm designed in this study for the proposed "Benefit Sharing



Model” is specific to interest-free economic transactions, and it comfortably adheres to several principles underpinning such an operation.

In Islamic law, the concept of interest-free finance does not allow for economic activities that lead to an imbalance between an individual and his or her social structure, such as transactions with usurious charges. Anywhere in the world, financial organizations cover themselves with common names such as “Islamic banks”, “participation banks”, or rather interest-free financial institutions and observe these guidelines. Institutions succeed in different formations, namely those established on an Islamic banking license, conventional banks that provide windows without capturing interest issued by consumer employees, and subsidiaries participating in venture capital activities as well as for free business (Alamad, 2020).

These historical models of Islamic finance, without interest can be largely considered as financial innovations which catered for the societal security needs during those times. These models require reinterpretation for further financial innovativeness. When creating financial products that are free from interests, one should pay attention to the main purpose of shariah, which is based on the context and spirit rather than merely contractual wording (El-Gamal, 2006).

On the other hand, the interest-free finance segment has its challenges, including a structural deficit of funds for the long term and mismatching between like ends. These problems force the creation of methods that can more correctly calculate sharing formulas between risk and profitability, considering various impact factors. This necessity also points to the significance of improving financial engineering tools, which are interest-free-oriented in terms of interest-free finance principles at an ecosystem level (Al-Bashir, 2008; Alamad, 2020).

In the present study, a new model that offers to deal with these challenges, the “Benefit Sharing Model”, will be suggested. The model aims to improve financial engineering techniques' effectiveness through AI-based technologies in interest-free finance. The focus here is to institutionalise the use of contemporary computational techniques while remaining true to ancient ethical principles. As such, this will promote change and innovation in the field.

2. Literature Review

The convergence of artificial intelligence (AI) and interest-free finance represents a burgeoning field of study, blending advanced technological paradigms with ethical financial principles. This extended literature review delves into the depth of research on AI's role in finance, the unique attributes and challenges of the interest-free finance sector, and the innovative integration of AI within this realm.

The transformative impact of AI on the financial industry is profound and multifaceted. Researchers like Williams and Patel (2020) and Johnson and Zhao (2018) have explored the broad applications of AI in areas ranging from algorithmic trading to customer service automation. The effectiveness of machine learning and data analytics in enhancing risk management, fraud detection, and predictive analytics has been widely acknowledged (Brown, 2021; Smith, 2019).

Interest-free finance operates on principles distinct from conventional finance, especially within the Islamic financial framework. Challenges in product development and liquidity management have been noted (El-Gamal, 2006; Alamad, 2020; Al-Bashir, 2008), emphasizing the need for innovative solutions that comply with Islamic principles.

The application of AI in interest-free finance is an emerging research area. Studies by O'Halloran & Nowaczyk (2019) and Aylak et al. (2021) demonstrate AI's potential to offer sophisticated tools for financial analysis and Shariah-compliant product design. The emergence of AI in Islamic finance, particularly the pioneering nature of the Benefit Sharing Model, is highlighted by Alam et al. (2021).

The integration of AI in interest-free finance raises important questions about ethics and Shariah compliance. The work of researchers like Greenwood (2022) and Khan (2023) highlights the need for AI tools that are transparent, ethical, and Shariah-compliant.

Recent studies have focused on emerging technologies like blockchain and their potential in interest-free finance. Researchers such as Wilson & Abdullah (2024) and Farooq & Patel (2022) have explored how blockchain and smart contracts could revolutionise Islamic financial transactions, offering transparency, security, and compliance. The originality of the Benefit Sharing Model's concept was confirmed through comprehensive database searches, indicating its uniqueness in the realm of interest-free finance (Gazali et al., 2020). Recent advancements in AI have sparked significant interest in their application across various sectors, including finance. However, their integration into interest-free finance, particularly within the context of Islamic banking, presents a unique set of challenges and opportunities that have not been thoroughly explored in



the existing literature. This study extends the review of pertinent literature by incorporating foundational and recent works that examine the intersection of AI and Islamic finance, thereby filling a notable gap.

Researchers such as Alam et al. (2021) have made significant contributions in this domain and are exploring the operational enhancements AI can bring to Islamic financial products and services. Furthermore, the Technology Acceptance Model (TAM), originally proposed by Davis (1989), offers a relevant theoretical framework for understanding the adoption of AI technologies in Islamic finance. TAM's constructs—perceived usefulness and perceived ease of use—are particularly pertinent in assessing the acceptance of technologically advanced, Sharia-compliant financial solutions among both providers and consumers.

Moreover, incorporating AI into Islamic finance is not just a technical integration but also involves significant compliance with Shariah principles, which necessitates a thorough review of both technical and ethical guidelines. Studies by Khan (2023) and Greenwood (2022) delve into these aspects, highlighting the need for AI tools that are not only effective but also adhere strictly to Islamic ethical standards. These works underscore the importance of ensuring that AI applications in interest-free finance not only enhance efficiency but also uphold the moral and ethical values fundamental to Islamic finance. By critically analyzing these contributions, this literature review aims to provide a comprehensive backdrop against which the innovations of this study can be positioned. This enhanced review contextualizes the integration of AI in interest-free finance within the broader technological advancements. It highlights the unique considerations that must be addressed to align these technologies with Islamic financial principles.

3. Methodology

This study adopts a qualitative and comparative research methodology, focusing on the integration of artificial intelligence in the interest-free finance sector. The methodology is structured into several key components: We applied some academic methodological approaches in this study. We primarily utilized "qualitative analysis" and "comparative analysis." We also considered document analysis, literature review, and other relevant methods during this process. The methodology can be described as follows:

This entailed an extensive review of academic papers, industry reports, policy documents, and Shariah compliance guidelines. The aim was to get a detailed awareness of the present condition in which AI is availed about Islamic finance and also what types of procedures are instituted on its program so far as emotional aspect.

Interviews and public records, as well as institutional reports, generate our data. In this regard, each case is considered by the process of implementation and the specific details that include challenges met during it and outcomes obtained because of practice in corporate sector adherence to the Islamic financial commandments.

Thematic analysis was used which allows us to produce an integrated interpretation of data obtained in interviews with the participants in focus groups and case studies. We cross-case and cross-interview compare findings to highlight common themes, unique issues or struggles, and best practices. This methodology seeks to attain an in-depth analysis of the role played by AI within interest-free finance, focusing on its Shariah compliance and financial, ethical nature with a forward look at policy from practice.

In this study, current policies and legal systems considered regarding AI adoption in the interest-free finance industry comprising national global financial regulations as well as directives connected with Islamic financing. In this sector, we delve into the morality considerations surrounding AI applications, touching on application privacy policy transparency issues and ensuring that they do not breach any Islamic ethical requirements. We engaged Shariah scholars and Islamic finance experts in this study to evaluate the compatibility of AI applications within the framework of Islamic finance. Their assessments focused on determining whether the use of artificial intelligence solutions for financial services aligns with the relevant ethical and legal standards as prescribed by Islamic law. The study utilized qualitative research methods, including case studies, to identify key emerging trends in the application of AI within the interest-free finance sector. This approach ensures a comprehensive understanding of how these technological innovations can be harmoniously integrated with the principles of Islamic finance. Furthermore, the study offers strategic recommendations to financial institutions, policymakers, and AI developers on the optimal utilization of AI technologies. These suggestions emphasize the importance of developing solutions that are not only Shariah-compliant but also uphold the highest standards of moral and ethical responsibility. By doing so, the study aims to guide stakeholders towards implementing AI in a manner that aligns with the ethical principles of Islamic finance while also advancing technological innovation.



A key aspect of our methodology involves the collection of primary data through interviews and focus groups. Participants were selected based on a purposive sampling strategy, targeting financial experts, Shariah scholars, and technologists from a variety of institutions that are pioneers in integrating AI within Islamic finance. This diversity ensures that the findings are comprehensive and reflect a wide range of perspectives and practices within the industry. Additionally, structured interviews were conducted using a semi-formal questionnaire designed to extract detailed information on the current applications of AI in interest-free finance, the challenges encountered, and the potential for future integration. The questions were formulated to elicit qualitative insights and quantifiable data essential for the comparative analysis.

In addition to interviews, extensive document analysis was conducted. This included a review of recent publications, white papers, and case studies pertaining to AI in Islamic finance. The selection criteria for these documents focused on their relevance to AI applications in financial technologies, their contribution to understanding Shariah compliance in digital transactions, and their impact on operational efficiencies within Islamic banks and financial institutions.

The data gathered from these diverse sources were analyzed using thematic analysis, which allowed for the identification of recurring themes and patterns. This method is particularly suited to qualitative research where complex interactions and behaviours are studied. The analysis was supported by software tools designed for qualitative data analysis, ensuring rigorous data handling and accuracy in the thematic identification process.

4. As an Innovative Model for Interest-Free Finance: The Benefit Sharing Model

The Benefit Sharing Model embodies a transformative approach in interest-free finance, leveraging artificial intelligence (AI) technologies to overcome existing inefficiencies and promote a more equitable distribution of financial benefits. This model, rooted in the principles of justice and mutual benefit, seeks to surpass the limitations of traditional interest-free financial instruments, such as murabaha, advocating instead for partnership-based models.

This innovative approach champions the strategic use of AI and big data to bolster efficiency within the interest-free finance sector. The integration of AI technologies in the Benefit Sharing Model signals a shift towards more dynamic and effective financial instruments applicable across various Islamic financial contracts. The model utilizes a comprehensive set of data, incorporating a range of financial metrics and indicators, to inform its AI algorithm. This diverse data integration facilitates nuanced financial analysis and decision-making, augmenting the model's overall effectiveness.

The foundation of the Benefit Sharing Model lies in the concepts of “maqâsîd-ı şeria” (the objectives of Islamic law), justice, benefit, and the avoidance of interest. It demonstrates both theoretical and practical viability, marrying traditional Islamic finance principles with contemporary technological advancements. Surden (2019) highlights the growing role of AI in legal interpretation and argumentation, a concept that resonates with the idea of *ijtihād* (independent reasoning) in Islamic law. This model reinterprets *ijtihād*, traditionally reliant on a limited set of factors, as a process that encompasses a broader data analysis through AI.

Overall, the Benefit Sharing Model offers a progressive fusion of AI into interest-free finance, potentially enhancing efficiency, fairness, and compliance with Islamic financial principles. Its emphasis on extensive data utilization and AI technologies positions it as a trailblazing model within the sector.

4.1. The Data Set Groups of The Benefit-Sharing Model

The Benefit Sharing Model employs a sophisticated machine-learning algorithm designed for effective data analysis and processing. Unlike traditional programming algorithms, which operate on binary "yes" or "no" logic, machine learning algorithms learn from data, continuously refining their ability to process information (Alpaydın, 2020). This adaptability allows them to perform complex computations in decision-making processes, efficiently handling various variables.

This capability mirrors the concept of autopoiesis (Kılıç, 2020), a form of intelligence that evolves from continual information processing, akin to the human brain's ability to process diverse data types and produce independent decisions. Unlike statistical methods that simulate data sets to produce outputs, machine-learning algorithms discern patterns and connections within data, enabling them to make inferences about previously unseen situations (Kruse et al., 2013; Alpaydın, 2020).

The Benefit Sharing Model's algorithm is built on this advanced computational approach. It's designed to handle operations based on multivariate parameters, with the effectiveness of the algorithm hinging on the quality of data sets fed into it. The



algorithm is trained using various data set groups, which helps it learn the interconnectivity between these sets, thereby enhancing its future computational performance.

The data set groups utilized in the Benefit Sharing Model Algorithm are:

- Constant Functions Data Sets
- Variable Functions Data Sets
- Financial Decision Outputs
- System Memory Database

These data set groups are detailed in Figure 1 and Table 1. The algorithm is tailored to specialize in specific fields and sectors by feeding relevant data sets. For accurate decision outputs, all influencing elements included in the model are meticulously detailed in Table 1. These elements are categorized into sub-sections and presented in tables under corresponding headings. The weight values in Table 1 are sample values, emphasizing the model's flexibility.

A key aspect of this model is its ability to conduct multi-data computations tailored to specific objectives using machine learning. Ensuring the algorithm is supported with precise data throughout the training process is crucial for its efficacy. The capacity to adapt data sets in line with objectives, to incorporate up-to-date and real-time information, and to learn from errors highlights the dynamic nature of the machine learning algorithm in this model. Consequently, the data sets and their impact weight values are designed to be adaptable to align with the evolving needs of the algorithm.

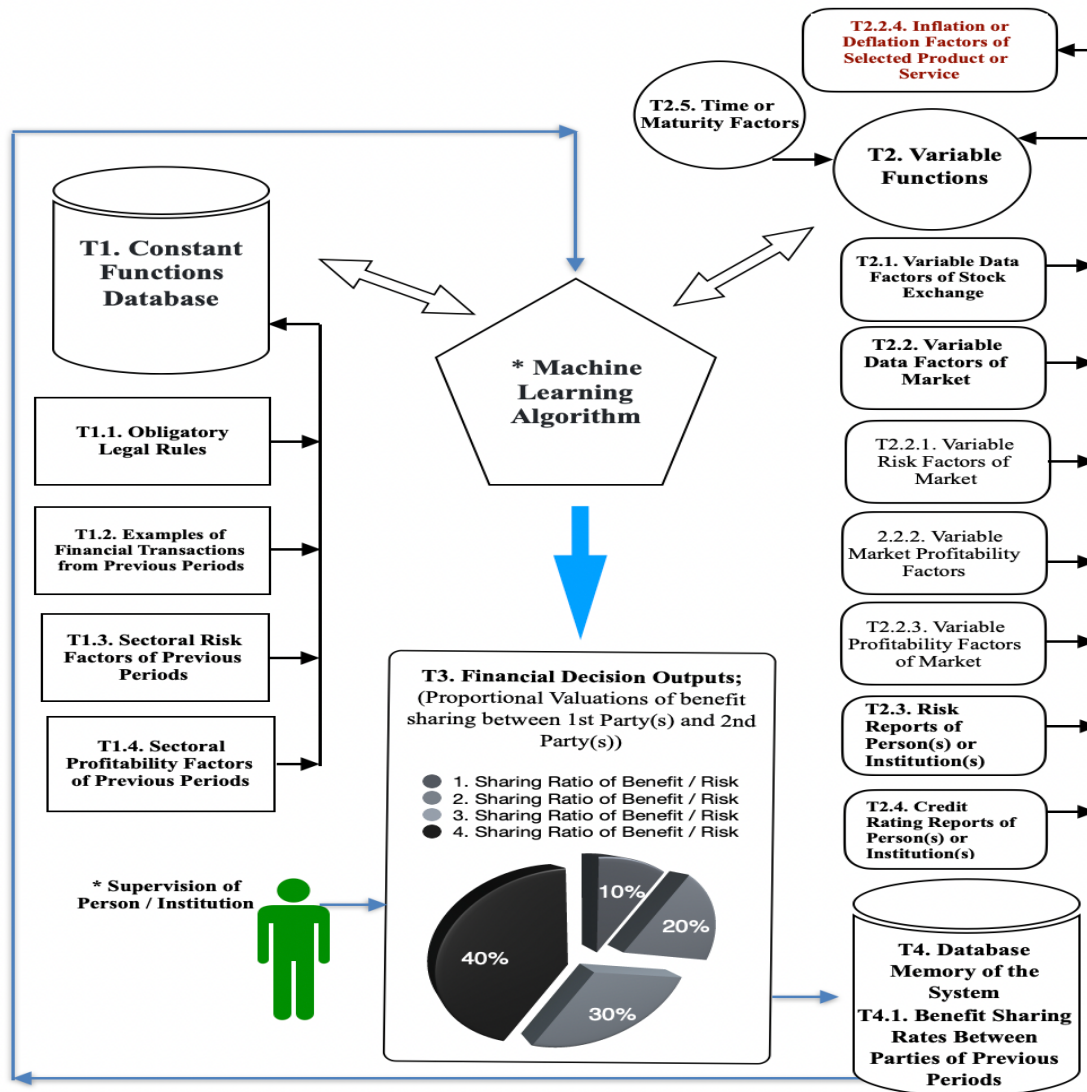


Figure 1. Dataset Groups of The Benefit Sharing Model (Sample). Source: Authors' elaboration



	DATA SET GROUPS (SAMPLE) (To Be Included in the Machine Learning Process)	Effect of Weight Ratio (%)
	Data Set Groups	101,12
T1.	Constant Functions Database	32,40
T1.1.	Obligatory Legal Rules	10,00
T1.2.	Examples of Financial Transactions from Previous Periods	10,00
T1.3.	Sectoral Risk Factors of Previous Periods	6,20
T1.4.	Sectoral Profitability Factors of Previous Periods	6,20
T2.	Variable Functions	63,62
T2.1.	Variable Data Factors of Stock Exchange	5,60
T2.2.	Variable Data Factors of Market	29,7
T2.2.1.	Variable Risk Factors of the Market	5,6
T2.2.2.	Variable Market Profitability Factors	9,00
T2.2.3.	Variable Profitability Factors of Selected Product(s) / Service(s)	6,00
T2.2.4.	Inflation or Deflation Factors of Selected Product(s) / Service(s)	9,10
T2.3.	Risk Reports of Person(s) or Institution(s)	5,5
T2.4.	Credit Rating Reports of Person(s) or Institution(s)	16,12
T2.5.	Time or Maturity Factors	6,70
T3.	Financial Decision Outputs (Benefit Sharing Ratios Between Parties)	2,50
T4.	Database Memory of The System	2,60

Table 1. *Dataset Groups of The Benefit Sharing Model (Sample)*. Source: Authors' elaboration



5. Use of the Benefit Sharing Model in the Interest-Free Finance Sector: Digital Model Proposals

The market, a fundamental economic entity, serves as a platform where buyers and sellers engage in the exchange of goods and services, encompassing various financial markets like money and capital markets. In the realm of interest-free finance, adherence to Shariah principles introduces complexities, necessitating financial instruments that meet both ethical and religious standards. This often leads to debates about the suitability of specific financial tools under contemporary conditions (Ahmed, 2020).

Fintech firms have revolutionized the financial sector with innovative technology, facilitating swift credibility evaluations, risk analyses, and broad market penetration. These advancements are particularly significant in interest-free finance, where ethical considerations and Shariah compliance are paramount (Jensen & Harlow, 2021; Alam et al.). Fintech has led to the creation of agile financial models that align with the ethical-moral parameters of interest-free systems (Greenwood, 2022).

Technological advancements have led to the development of digital and smart contracts, especially relevant in the interest-free finance sector. These blockchain-supported agreements offer enhanced transparency and security while adhering to Shariah principles, marking a departure from traditional financial contract structures (Farooq & Patel, 2022; Wilson & Abdullah, 2024).

The Benefit Sharing Model presents a responsive approach within the digital landscape of interest-free finance. It proposes a reinterpreted and restructured version of classical financial instruments using modern technology. Grounded in AI, cloud computing, and blockchain technology, the model addresses ethical concerns and introduces a reengineered technical solution (Khan, 2022; Farooq & Patel, 2022). Its primary objective is to leverage cutting-edge technologies to enhance legal and financial effectiveness while upholding Islamic financial principles and ethical standards (Greenwood, 2022; Wilson & Abdullah, 2014).

Incorporating the Benefit Sharing Model into digital platforms is a pivotal step in the field of interest-free finance. It addresses current challenges while opening avenues for innovation and development. The model's adaptability to evolving technologies like AI and blockchain heralds a future of efficient, secure, and ethical financial transactions compliant with Shariah law. Its implications extend beyond the present, offering insights and a foundation for future research in ethical, technology-based finance.

6. Digital Interest-Free Financial Model Proposals Based on Smart Contracts

For the technical infrastructure of interest-free finance models based on smart contracts to be operational, parties involved in financial interactions need to connect to the relevant platform. This design, termed the system interface, enables users to interact within the system. The digital model proposals, emerging from the application of the Benefit Sharing Model to various interest-free finance instruments, are accessed and interacted with through this system interface. Additionally, the blockchain platform, essential for creating smart contracts, forms the technical backbone of the model. Users initially access the system interface to evaluate the terms and conditions of smart contracts. The Benefit Sharing Model plays a crucial role in this agreement process by offering the parties the most suitable benefit and risk ratios. Once an agreement is reached, the parties engage in financial interaction through the execution of smart contracts.

The implementation of the Benefit Sharing Model utilizes cloud computing services, including 1. Infrastructure as a Service (IaaS), 2. Platform as a Service (PaaS), and 3. Software as a Service (SaaS). However, recording and operating these technical capabilities via smart contracts are facilitated using blockchain technology. In this context, the technological foundation of the model proposals in this section is envisaged as a hybrid method (Blockchain as a Service, BaaS) that integrates cloud computing technical infrastructure with blockchain systems.

Users connecting to the relevant platform to utilize one or several interest-free financial model proposals can engage in financial interaction through the system interface. This interface can be designed with various features to be informative, directive, and managerial based on the characteristics of the financial model used and the demands and expectations of the user parties. Next-generation financial technology companies have made significant strides in designing interfaces that can analyze customer profiles and provide optimal guidance in decision-making processes. These interfaces are crucial operational layers between the users and the model (Sankar, Amudha, Madhavan, & Lamba, 2021). This area, particularly in the context of robo-advisory like portfolio optimisation, continues to grow in importance (He, Romanko, Sienkiewicz, Seidman, & Kwon, 2021: 2).

This approach, using the Benefit Sharing Model data sets as the base algorithm and designed according to the technical capabilities of the smart contract model, is evaluated based on four fundamental model differentiation criteria. These are: 1.

Participation Models Based on Smart Contracts, 2. Smart Contract-Based Bey' (Sale) Models, 3. Smart Contract-Based Ijarah (Rent) Models, and 4. Smart Contract-Based Savings Models. These models have been assessed with two different sub-headings within each category. Parties wishing to access Interest-Free Financial Models Based on Smart Contracts can benefit from this model through the system interface. As shown in Figure 2, this interface is the application software that facilitates the delivery of the model's technical capabilities to the user parties. The addition of the term "smart" to the titles of classic interest-free financial applications refers to each model proposal being designed based on blockchain-based smart contract models.

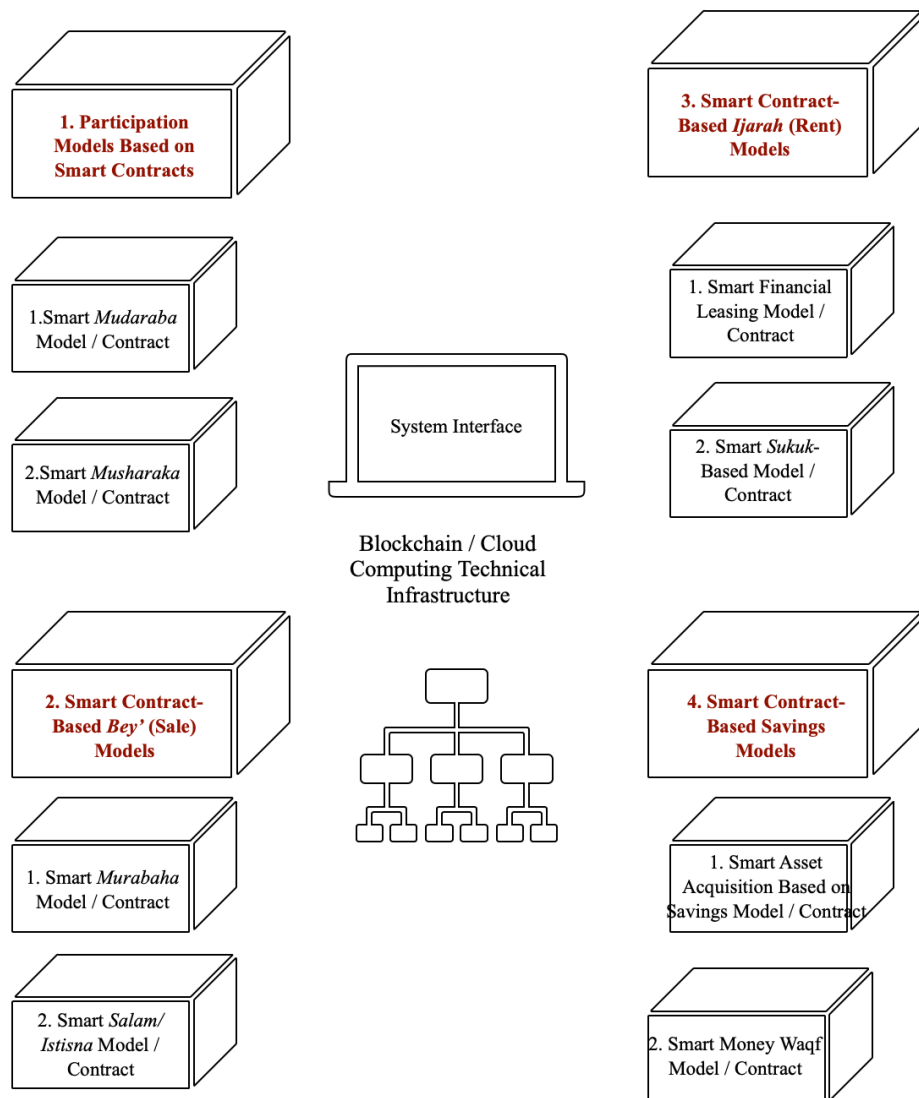


Figure 2. *Smart Contracts System Interface of the Benefit-Sharing Model. Source: Authors' elaboration.*



7. Conclusion

This study has thoroughly examined the integration of artificial intelligence technologies into the interest-free finance sector, focusing particularly on the Benefit Sharing Model. This model distinguishes itself as adaptable and versatile, well suited for a range of digital platforms, cloud computing systems, and blockchain technologies, all customized for interest-free finance. It addresses various challenges faced by the sector, offering innovative solutions for contracts and transactions that have been subject to criticism. By incorporating advanced technologies, the model enhances the efficiency and effectiveness of financial instruments and processes, thereby enriching the overall capability and capacity of the sector.

The literature indicates significant potential for AI technologies to reshape and advance the interest-free finance sector. However, this integration requires careful navigation to ensure adherence to both technological and ethical standards, particularly those of Shariah compliance. Future research should continue exploring these intersections, focusing on innovative, ethical, and compliant AI solutions.

The transformative role of Fintech in interest-free finance, particularly in terms of Shariah compliance, was explored, highlighting the pivotal advancements in digital and smart contract technologies. The Benefit Sharing Model uses these technologies to offer enhanced transparency and security, aligning with Islamic financial principles. Central to this model is the aim to achieve high social benefit (*maslaha*). The model is structured to foster fast and secure financial relationships, balancing mutual interests and risks between stakeholders on both the supply and demand sides of financial relations. Thus, it contributes significantly to the development of innovative, interest-free financial products. Incorporating these fundamental principles into the computation and analysis process through machine learning underscores the study's primary claim: facilitating interest-free transactions and producing accurate financial forecasts. This model is applicable to all Islamic financial contracts, providing a comprehensive solution in the field.

In its digital implementation, the Benefit Sharing Model signifies a major advancement in redefining interest-free finance. It restructures classical financial instruments using modern technologies such as AI, cloud computing, and blockchain, addressing current challenges and opening doors for future innovation and development. A key advantage of The Benefit Sharing Model is its adaptability to different contract types within the interest-free finance sector. This adaptability allows parties in financial interactions to operate without the need for intermediary financial institutions. Consequently, the model can be applied across various domains such as crowdfunding, peer-to-peer (P2P) financial interactions, business-to-business (B2B), business-to-consumer (B2C), and customer-to-customer (C2C) transactions within the burgeoning interest-free finance sector.

The study's exploration into digital interest-free financial models based on smart contracts provided insights into operationalising these technologies. The system interface and blockchain platform are integral to this approach, facilitating user interaction and smart contract management.

Moreover, the implications and applications of the Benefit Sharing Model have a profound positive impact on the interest-free finance ecosystem. It ensures the compatibility of Islamic finance instruments with new and future financial technologies, enhancing the sector's ability to meet evolving financial needs while adhering to Islamic principles.

In conclusion, the Benefit Sharing Model emerges as a significant advancement, offering a forward-looking approach to financial transactions in alignment with Islamic finance principles. The model enhances the sector's current capabilities and lays a foundation for its sustainable growth and adaptation to future technological innovations. This approach sets a new standard in the industry, paving the way for continued innovation and research in ethical, technology-based finance.

The application of the "Benefit Sharing Model" within interest-free financial institutions has been transformative, enhancing operational efficiency and compliance with Shariah principles (Khan, 2023). The integration of AI has enabled nuanced risk assessments and real-time product customization, which is critical for adapting financial services to meet dynamic customer needs while adhering to Islamic ethical standards (Alam et al., 2021).

This study's findings have broad implications that ripple across academic fields, industry practices, and societal norms. Academically, the research catalyzes further exploration into the application of AI within traditional financial systems, suggesting an interdisciplinary approach combining technology, finance, and ethics (Williams & Patel, 2020). Practitioners can apply the "Benefit Sharing Model" to develop Shariah-compliant financial products that adhere to Islamic principles and compete effectively in the global market (Greenwood, 2022).

The societal benefits of this research are significant, particularly in fostering financial inclusivity by aligning modern financial practices with Islamic ethical standards, potentially increasing financial participation among Muslim communities (Ahmed, 2020). Such inclusivity is pivotal for promoting wider economic stability and growth (El-Gamal, 2006).



The integration of AI in interest-free finance necessitates ongoing research into its long-term impacts, particularly concerning consumer trust and regulatory frameworks (Farooq & Patel, 2022). Future studies should assess the implications of AI on customer satisfaction within Islamic banks and explore necessary regulatory innovations to support the sustainable adoption of AI technologies (Johnson & Zhao, 2018).

In conclusion, the “Benefit Sharing Model” enriches the discourse on AI within interest-free finance, providing a foundation for subsequent technological and financial innovations. Continued exploration of this intersection is essential, ensuring that technological advancements remain congruent with interest-free finance's ethical mandates, reinforcing the commitment to justice and equity (Kılıç, 2020; Surden, 2019).

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