Contents list available at: https://journal.unesa.ac.id
al-Uqud: Journal of Islamic Economics
Journal homepage: https://journal.unesa.ac.id/index.php/jie

Integrating Islamic finance principles and the digital disruptive age to support global sustainability

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Article Info

Paper type:
Conceptual Paper

Keywords:
Digital disruptive age; Economic sustainability; Islamic finance; Sustainability.

Article history:
Received: 07 January 2024
Revised: 20 April 2024
Accepted: 30 May 2024
Available online: 13 July 2024

Abstract

To support global sustainability, integrating Islamic financial principles in the digital era can drive a more just, inclusive, and sustainable financial system. It will also ensure economic equality in the country and promote the public financial ecosystem and the environment. This study aims to evaluate the significance level of incorporating the tenet of Shariah amid digital disruption in financial technology to support global sustainability by considering the elements of environmental, economic and sustainability measures. This paper employs a qualitative approach that includes a strong pedigree in various databases and reputable local and foreign journals. The paper finds that Shariah's principle can eliminate social and economic inequality by preventing economic activities that lead to injustice and oppression and ensuring that risk is shared equally in all transactions. Managers need to incorporate Islamic finance principles into their strategic planning processes, ensuring that sustainability is at the core of business decisions. By combining the ethical framework of Islamic finance with the innovative potential of digital technologies, managers can lead their organizations toward a more sustainable and socially responsible future.

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Please cite this article in APA style as:
Mahfudz, A. A., Rusyda Afifah Ahmad, Daribayeva Meruyert, & Nafi Ilman Husin. (2024). Integrating Islamic finance principles and the digital disruptive age to support global sustainability. *Al-Uqud : Journal of Islamic Economics*, *8*(2), 175–188. https://doi.org/10.26740/al-uqud.v8n2.p175-188

Introduction

Islamic financial institutions, guided by Shariah principles, play a crucial role in fostering mutual benefit within the banking and financial sector. These principles, including fairness, openness, and the prohibition of interest, are upheld in all operations. Modern Islamic financial institutions have evolved to offer a range of products and services that incorporate advanced technology while adhering to Shariah guidelines (Hidayat, 2019). The Islamic bank, renowned

ISSN: 2548-3544 (online), 2549-0850 (print)
DOI:https://doi.org/10.26740/al-uqud.v8n2.p175-188

for its profitability, distributes profits and losses among stakeholders involved in transactions, thereby fostering mutual benefit and attracting private-sector funding to support government initiatives related to livelihood and climate change. Sukuk, a financial tool often referred to as Islamic bonds, embodies Shariah principles and offers insurance policies that meet the investment and protection needs of Muslim individuals in line with their religious beliefs (Salihin, 2020). In summary, financial instruments based on Shariah principles tend to have a higher rate of success. Previous research indicates that Islamic banks have demonstrated the increasing market demand for Islamic finance (Hidayat, 2019).

According to Irawan (2021), Islamic finance and financial products must demonstrate strong performance to contribute to sustainability and stability in the industry. Financial technology (fintech) should focus on serving customers' needs and improving financial transactions to be more sustainable. As a result, Islamic finance currently showcases its capacity to support fair, transparent, and adequate financial transactions while upholding Shariah principles and promoting fairness without involving usury or speculation (Hidayat, 2019).

Additionally, the utilisation of Islamic financial products and services is significant in the functioning of a business in not only serving as a financial intermediary but also in encouraging financial inclusion. In this regard, Islamic finance plays a crucial role in supporting investment specifically in a real sector where most of the Indonesian population is involved in small and medium enterprises and produces more workforce that is in line with the principle of sustainability and growth (Paltrinieri et al., 2020). The system's commitment to financial inclusion ensures that the existing landscape of financial services is in line with the development of fintech disruption, providing opportunities for all. Moreover, today's financial integration must incorporate disruptive technologies in finance to launch new experiences for doing business with more innovative products and services (Ali et al., 2019).

Islamic finance is a system founded on the teachings of the Quran and Sunnah, alongside the analysis of these religious texts by knowledgeable scholars. The structure of Islamic finance comes in different forms and became a civilisation that remained unchanged for 14 centuries. Nevertheless, the landscape of Islamic finance has changed in the last 30 years. Today, Islamic finance is regarded as one of the most essential financial instruments for enforcing the Islamic legal system and serving as a measure for the future growth and advancement of Islamic law. In the last ten years, it has been documented that Islamic finance works well in some countries (mainly Muslim and non-Muslim nations) and can support the country's economy. This is evidence that Islamic finance has paved the way for the world to be convinced of its role as alternative finance and an inseparable part of global initiatives on environmental issues through risk diversification and contribution to global financial stability. Today, Islamic finance is an inseparable part of the global financial ecosystem. Some countries like Indonesia, Malaysia, and others follow a dual monetary system, where the financial system is also structured as a dual financial system (Kholis, 2017).

One of the main characteristics of disruptive technology is the ability to produce a more efficient market with more innovative and affordable products for the customer. Fintech disruption is regarded as a shock (early stage) that wreaks new financial paradigm in the existing environment, redesigning business strategies and creating new market segments. At this juncture, Artificial Intelligence (AI) shows its significant role in advancing existing technology, including the Internet of Things (IoT) and other digital technology. Another characteristic is the large scale, which means disruptive technology can grow fast and reach anyone or any institution (Quispe, 2023). Indonesia, as most of the financial institutions use fintech, experienced a disruption in fintech in their financial transaction and changed their strategy of operation that produced new untapped opportunities, ameliorated their efficiency level, and better new customer experiences (Ali et al., 2019). Meanwhile, as fintech becomes more disruptive, new challenges arise that, in turn, influence many environmental issues such as climate change and decarbonisation. It will also change the lifestyle of human beings, as stated by Makassar et al., (n.d.). Therefore, this paper aims to unlock the analysis of the essentials of incorporating the Shariah principle amid digital expansion to support global, environmental, economic, and social sustainability initiatives.

Literature Review

The digital disruptive era

Bank Indonesia (2018) defines e-money according to Law 20/06/PBI/2018 as a way to meet the monetary value criteria, which is the primary purpose of financial customer deposits. Second, store value is one of the functions of money through electronic transactions like electronic payment transactions. Third, electronic money as a financial product of financial institutions is not considered a bank deposit product. E-money proves to be a safer innovation that can be used for payment or transactions. One of them is the emergence of non-cash payment modes. In Islamic law, non-cash transactions are regulated QS. Al Baqarah/2:282, it has been explained that Allah Almighty said:

> *"O believers, if you do not give money for a fixed time, you should write it down"*

The power of disruptive technology has wholly transformed the industrial system. Innovation and advancements in technology such as artificial AI, blockchain, and the IoT have resulted in significant transformations in products, consumer and producer behaviour, and increased the value of products. Disruptive technology has proved to have many untapped opportunities, created significant efficiency, quality of customer experiences, and financial inclusion, and improved the industry's agility to massive changes. Given this, banking products depend entirely on disruption in financial products to transform themselves and to make more innovative products as part of business strategy in a very competitive and challenging market (Ali et al., 2019).

There are several aspects of the disruptive digital era. First, new technologies like AI, IoT, Cloud, extensive data sharing, and blockchain have brought the industry into a new business landscape with the latest products and experiences for customers. Second, business model changes, and traditional companies are often forced to change and adapt their strategies to remain significant in the modern era of technology. For example, physical stores must adapt to e-commerce and invest in the online shopping experience (Firmansyah & Susetyo, 2022).

The disruptive digital age brings excellent opportunities but significant challenges. Companies and individuals must be flexible and open to change, constantly learning and adapting to the ever-changing environment. Many disruptive technologies suit banking and finance. Fintech puts the market industry into a new business environment experience, such as digital payment, P2P lending, and robo-advisory. Additionally, AI is used in sophisticated data analytics, chatbots, and systems to detect illegal transactions and improve operational efficiency and customer experience. Blockchain is also famous as a digital currency like Bitcoin, which offers secure, quick, and scalable transactions with better infrastructure costs. Furthermore, IoT also plays a role in payments and security, with connected devices enabling more accessible and automated transactions. Biometrics such as fingerprint or face recognition are adopted for identity authentication and secure financial transactions (Syakarna, 2023).

Implementation of financial technology (Fintech) in the Islamic finance sector

Fintech is defined as innovation in technology that aims to transform and enhance existing financial practices into more sophisticated experiences and efficiency. In the Islamic financial industry, fintech has shaped and brought the industry new advancements in financial transactions that align with the tenets of Shariah (Morandini et al., 2020). Notably, using Fintech in Islamic financial products wreaks new challenges (Jamaruddin & Markom, 2020). Fintech can transform the Islamic finance sector, creating many new prospects for growth and advancement (Hasan, 2023). To meet these challenges, Islamic financial institutions must obey the principles of Shariah, guarantee customer convenience, and maintain the financial system's stability (M. Ali et al., 2021). Appropriate and progressive regulations are also needed to ensure fintech safety and security. In addition, understanding, awareness, and knowledge of fintech are essential for the public to quickly understand the advantages and risks associated with banking products when using fintech (Fianto et al., 2020).

There are many ways in which fintech can be proved to be part of the Islamic financial industry. First, financing products such as Islamic P2P platforms that connect the customer and funders will make the transaction easier to comply with the Shariah principle. Second, digital banking allows everyone to carry out transactions virtually without going to the office (branchless) bank. The products that can be used are savings and investments (Syakarna, 2023). Anindyastri et al. (2022)'s research on Islamic banks throughout Indonesia demonstrates that mobile banking significantly enhances the financial performance of these institutions. This new technology allows consumers to put their money in instruments such as Sukuk and shares that comply with Shariah laws. Hence, customers can utilise mobile apps or online platforms to handle financial transactions. Additionally, Shariah-compliant InsurTech has contributed to creating insurance products that adhere to Shariah principles, such as life, health, and general insurance, without usury or excessive uncertainty. It is crucial to have a good understanding of financial matters to execute transactions effectively. These platforms help individuals grasp Islamic finance's fundamental principles more efficiently, increasing their knowledge and loyalty to Shariah principles.

The utilisation of fintech in Islamic financial products has increased customer access to services that follow Shariah principles, aiding Muslim customers in managing their funds following their religious beliefs without any uncertainty about compliance. Nevertheless, similar to fintech in general, it is crucial to understand the possible dangers and challenges that may arise during the execution of the project (Gani, 2023). Many problems exist in financial products, including the importance of data security and privacy and varying legal issues from one country to another (Ali et al., 2021). On the other hand, despite the challenges presented by fintech, advancements in financial transactions, such as Bitcoin, can improve convenience and relevance in today’s society. Additionally, these technologies have the potential to enhance the quality of life and eliminate predatory lending practices (Irawan, 2021).

The presence of technology in finance has ushered in a new era of financial transactions and fund management. Research in Turkey suggests that the emergence of new technological products and services will take over the banking sector, fundamentally transforming future business practices. One area of fintech experiencing continual expansion is fintech e-money services, enabling individuals to engage in financial transactions without needing physical currency (Gün, 2020).

Despite this advancement, Islamic banks encounter fresh obstacles while transitioning to electronic transactions that adhere to Shariah principles. There has been a notable rise in the growth and use of electronic transactions in Indonesia. A rise in consumer intention in digital and electronic transactions in May 2020. This was reflected in electronic money (EU) transactions in May 2020, which increased by 17.31 per cent. In addition, the volume of digital banking transactions increased by 30.33%. This remarkable development shows the public’s concern and demand for digital communications, especially during the Covid-19 pandemic. The money supply increased from 2.34%, equivalent to IDR744 trillion in June 2020 (Bank Indonesia, 2020).

Previous research has shown interest in fintech from the perspective of Maqasid Syariah. This compatibility is obtained by fulfilling the principle of preserving property and benefit. However, many illegal operations were recorded that were offered to the customer without proper procedures set out by the regulator and without adherence to the Shariah ruling. Fintech in Islam is allowed as a means of payment that complies with the Shariah tenet. However, general e-money follows Maqasid Syariah and is obtained by maintaining registered assets and their benefits. However, according to the law of transacting with e-money is *mubah* (permissible) based on the Shariah maxim "*Al ashlu fil mua'malati al ibahah hatta yadullu ad-daliilu ala tahrimiha*". However, this maxim is only limited to electronic money, which aligns with Shariah principles that align with the fatwas of the Indonesian Shariah Council. Conventional electronic money is considered to violate Shariah principles. That is why Muslim consumers are requested not to consume any element of Riba, uncertainty, and gambling, which harm all parties involved.

Utilising artificial intelligence (AI) in Islamic financial products

Notably, AI has become a critical factor in Islamic banks' taking the right path. AI is used in Islamic finance to utilise algorithms and mimic human-like behaviour through computer calculations that follow commands in computer language. The utilisation of AI in Islamic finance offerings can be observed in the decision-making processes of Islamic banks, where it efficiently analyses data and evaluates risks to detect potential default risks (Patimah & Maulana, 2023). AI can rapidly and comprehensively analyse data, allowing Islamic banks to make informed business decisions more precisely and uncover previously unnoticed business opportunities (Syakarna, 2023). The use of artificial intelligence (AI) has had various positive and negative impacts. AI can enhance the decision-making process and provide novel customer experiences through the integration of digital technology in business transactions (Syakarna, 2023). However, implementing AI in financial inclusion also has drawbacks.

First, there is worry about how AI will impact unemployment, even though it can streamline operations and enhance productivity. Introducing AI could result in jobs being automated, leading to displacement as AI systems take over tasks once handled by humans. This change can trigger job loss and disturb societal conventions. As AI assumes control of repetitive tasks and positions using robotic technology, the demand for human labour dwindles, potentially posing difficulties in upholding living standards. Numerous companies are looking to substitute less skilled workers with AI technologies capable of executing duties more efficiently (Syakarna, 2023).

Second, due to the heavy reliance on AI, personal data protection becomes a significant concern. AI technology must incorporate robust mechanisms to safeguard against potential cyber-attacks or malware. AI introduces the risk of unauthorised access and security breaches, raising worries about potential misuse. For example, the emergence of deepfake videos can spread false information and shape public opinion (Syakarna, 2023).

Third, there is a concern regarding bias and accuracy when utilising AI technology. A significant issue is the presence of bias in decision-making processes driven by AI systems. Since these systems learn from historical data, they have the potential to uphold current prejudices and disparities within the data, leading to unjust outcomes. If the underlying data contains biases, the AI system will also reflect those biases. This may lead to bias and unjust actions against specific demographics. For instance, if an AI algorithm undergoes training with biased information that discriminates against a particular racial or ethnic group, the algorithm’s decisions and recommendations may mirror those biases. Additionally, the accuracy of AI

ISSN: 2548-3544 (online), 2549-0850 (print)
DOI:https://doi.org/10.26740/al-uqud.v8n2.p175-188

technology is not always guaranteed. For instance, ChatGPT provides users with information from the internet, which is not always reliable or accurate. Acknowledging that not all information found online can be trusted is essential. Therefore, AI has assisted Islamic financial institutions in improving efficiency and offering better customer services while pointing out the challenges that customers need to comprehend (Timur & Timur, 2023).

Fourth, according to Syakarna (2023), the Islamic financial industry stands to benefit from AI in various ways. AI enables efficient and quick processing and analysis of big data, helping Islamic finance companies understand market patterns, consumer actions, and potential hazards. Furthermore, AI risk management can improve the accuracy and speed of risk identification, particularly in managing risks associated with Shariah-compliant financial products and identifying suitable investment opportunities while avoiding haram sectors. AI can also facilitate data analysis for better decision-making in business, including asset performance forecasting, identifying potential investments, and optimising investment portfolios. Moreover, AI-driven product development allows Islamic financial institutions to design products that align with Shariah principles, enabling banks to manage customer data to tailor products accordingly actively.

Fifth, customer experiences such as Chatbots and AI-based virtual assistants can help Islamic financial institutions provide faster responses and meet customers' expectations. In addition, AI can be designed to serve customers better, faster, and more accurately to meet their financial goals. Sixth, AI can detect fraud or suspicious transactions and efficiently work with the whole integrity principle.

However, using AI in Islamic financial practices should consider ethical issues, compliance with Shariah rulings, and accountability for the impact of social and economic atmosphere while adopting fintech (Syakarna, 2023).

Financial industry challenges to disruptive technologies

Several disruptive technologies can change how the financial sector functions fundamentally. Fintech refers to the incorporation of technology in financial products and services, such as digital transactions and payments, P2P banking, and robo-advisories. AI utilises an algorithm to compute and produce financial products and services that are similar to the human brain and adopted in analysing banking data. To provide decision-making, AI has the potential to substitute human beings with virtual assistants. Since its inception, blockchain technology has been used to conduct the data verification process in a decentralised financial system, ensuring transparency, security, and efficiency. The IoT facilitates the connection between data and computers, enabling smart contracts to monitor and evaluate a bank’s assets and data through real-time calculations. These technologies are considered disruptive in the financial industry. As fintech evolves, Islamic banks anticipate improving their operational capabilities and accessibility to reduce customer production costs (Muchran & Harryanto, 2019).

Methodology

This research uses library research methods as part of a qualitative approach, collecting information from various trusted sources, such as databases and leading online journals, both within and outside the country. This paper analyses how the integration of Sharia financial principles in the digital era can drive a financial system that is fairer, more inclusive, and supports global sustainability (Nickels & Davis, 2020).

In this context, library research is essential in shaping research problems, designing appropriate data collection methods, and placing studies in broader scientific discourse (Nickels & Davis, 2020). This paper uses a qualitative approach based on library research by reviewing more than 30 articles related to integrating sharia financial principles in the digital era, which can be a driver of a fairer, more inclusive, and sustainable financial system. This research aims to evaluate the significance of applying Sharia principles amidst digital disruption in fintech to support global sustainability by considering environmental, economic, and sustainability action elements. This survey includes empirical analysis, comparative analysis, and recommendations and suggestions from several theoretical works (Fazal & Chakravarty, 2021). This approach allows this paper to build on the existing knowledge base and contribute meaningful new insights that could significantly impact the field (Ruger et al., 2022).

The article collection process was carried out using the following method: the search began by identifying broad perspective articles and then continued with two main steps: first, assessing the content of the articles found and second, refining the selection criteria (Raco, 2010). The five primary databases used to collect articles include Emerald Management Premier, Springer Link e-journal, Science Direct, JSTOR, Wiley Online Library, and Google Scholar. Apart from this, some major reference books have also been added to discuss specific points.

Results and Discussion

Financial industry compliance with Shariah Principles

Islamic banking is experiencing rapid growth in markets with a majority Muslim population and in other regions (Muhammadd et al., 2019). The banking system mentioned operates without charging interest for financing, instead relying on a model of sharing profits and losses. According to standard practices, all Islamic banking products and services offered to the customer must comply with the Shariah principles, particularly in ensuring the absence of usury. Furthermore, an Islamic bank is expected to provide quality services to the customer, and satisfaction is the priority. Therefore, this paper assesses how a customer perceives Shariah compliance related to its banking services (Ahmed et al., 2022).

This perfect religion of Islam certainly has clear rules (*manhaj alhayat*) aimed at regulating all matters of human life sourced from the Quran and Hadith. These rules ensure that people are happy, like keeping the faith, soul, intellect, wealth, and descendants called *adhdharuriyyah al-khams* or *maqashid al-shari'ah* (Alkhan & Hassan, 2021). Five elements of Shariah objectives that must be inherent in human life, namely preservation of religion *(hifz al-din),* preservation of soul *(hifz al-nafs),* preservation of intellectual *(hifz al-'aql),* preservation of wealth (hifz al-mal), preservation of descendents *(hifz al-nasl)* (Ilmiah & Islam, 2023).

Indonesia has a majority Muslim population, and it is a vast market for penetration of Islamic finance. By bringing religious logs, Islamic bank marketing will be more readily accepted by Muslims. The emotional market, especially religious factors, is a critical instrument for penetrating the market of Islamic banking products among Muslim communities. Muslim consumers demand Shariah compliance in every product and service, and it is not confined to formality and institutional aspects; individual consideration should be the priority (Ilmiah & Islam, 2023).

Adherence to Shariah principles in a technology-based financial system is essential to Islamic economics. Shariah's tenet, which encompasses the prohibition of usury, uncertainty, and gambling, aims to hinder unjust practices, creating fairness and transparency in their financial system (Muhammad et al., 2013). When implementing disruptive technology, pay attention to the system that sets up the transaction, which must align with legal and Shariah rulings. The significance of compliance with Shariah principles in a disruptive technology-based financial system cannot be underestimated. In Islam, electronic money must be a part of a contract under Shari'a. Fiqh scholars elaborate that the two sides must have a clear intention. For example, I gave you this thing as a gift. The connection and compatibility of offer and acceptance (*ijab* and *qabul*) for the contracting parties does not imply the status of the legal

ISSN: 2548-3544 (online), 2549-0850 (print)
Volume 08 Issue 02, July 2024 DOI:https://doi.org/10.26740/al-uqud.v8n2.p175-188

standing of the contract. It can be void or accepted. This offer and acceptance represent all contracting parties' good faith or mutual willingness, with honour, dignity, transparency, and fair transaction (Solihin, 2021). According to *Fiqh Muamalah*, both parties must be willing to accept profit and loss principles. In this regard, literacy of Islamic principles during disruptive technology implementation must be enhanced to ensure stakeholders' better awareness, understanding, and knowledge (Hidayat, 2023). Therefore, understanding *Fiqh Muamalah* (Islamic financial transaction) is mandatory to increase their level of knowledge (Lailatul et al., 2022).

Meanwhile, the study by Ahmed et al. (2022) shows that the United Kingdom, Malaysia, and Indonesia are ranked in the top five in the Global Islamic Fintech Index (GIFT). GIFT contains the states that meet the criteria of the market development of the Islamic fintech ecosystem. Although adherence to Shariah ruling is the fundamental principle of any law, the main challenges for implementing Islamic fintech are the need for more supervision and low adherence to Shariah principles. The Islamic fintech ecosystem requires the Shariah Supervisory Board, Islamic fintech regulatory standards, and other supporting rules and policies. Compliance with the principle of Shariah is mandatory once fintech is viewed as a way out for Islamic finance. However, this should apply to the common practice of commercial activities and be subject to the principles or standards of financial transactions (Ilyas et al., 2020).

There are several examples of Islamic fintech regulatory standards. First, the Islamic Financial Services Act (IFSA) 2013 is the sole reference and standard for legal issues related to digital transactions in specific countries such as Malaysia. The United Arab Emirates (UAE) is leading in allowing all fintech companies to actively participate in finding financial solutions using technology in a more flexible regulation. Second, the Central Bank of Bahrain (CBM) regarded financial inclusion as an inseparable part of crucial policy in its sandbox. At this juncture, the bank offered crowdfunding, crypto assets, and open banking regulation widely to cater to financial inclusion objectives in the country. Third, Malaysia's SAC (Shariah Advisory Council) members play a significant role in boosting the Islamic financial industry ecosystem. The SAC has regulated fintech in Islamic financial institutions, and Islamic financial institutions must have expertise in technology to avoid hurdles and obstacles in implementing fintech. However, the existing rule should comply with Shariah rulings to adopt fintech through positive law.

The role of Shariah adherence in the use of technology and implementing a sustainable global economy

Shariah adherence's role in applying fintech is critical to ensuring business reputation in the market (Rabbani et al., 2020). The presence of fintech can be viewed with several products and services available in Islamic banks. Islamic banks can offer digital financial products for consumer transactions, such as online transactions, third-party fund transfers, deposits, remittances, and other financing services, with greater ease and speed by utilising fintech (Wardani & Basri, 2020). Fintech can address efficiency and communication challenges with customers, improve customer access to financial products in a remote area or rural society and improve the scrutiny of adherence to Shariah principle (Nordin & Zainuddin, 2023). However, there are new challenges that Islamic financial institutions must consider, including personal data protection and privacy, cybercrime, and any illegal transactions such as anti-money laundering, as well as legal and Shariah resolution in the event of a legal dispute. According to Hamadou et al. (2024), Islamic bank stakeholders can be motivated to increase their investment in cybersecurity to inform their clients about the significance and application of AI technology and to urge the government to establish policies concerning the ethical regulation of AI technology. It is worth noting that the Islamic financial industry must resolve all challenges in disruptive technologies to ensure stability and favourable growth (Syakarna, 2023).

Using AI in Islamic financial products poses some opportunities and challenges that must be considered. One of the key opportunities is AI's ability to improve efficiency and accuracy in data analysis, decision-making, and risk management. AI has the advantage of Islamic banks in maximising its potential to penetrate the business, particularly to ameliorate the status of credit scoring to maintain the trust of investors or depositors and, at the same time, ensure its Shariah principle. In addition, using AI can lead to new customer experiences to fulfil their expectation using new technology. AI can leverage customer experience that meets their expectation using technology tools to replace the institution and act on behalf of the bank to perform virtual services (Hiyanti et al., 2019).

However, the use of AI intelligence in finance also faces particular challenges. One of them is the availability of adequate and quality data. AI needs relevant and representative data to train algorithms (a systematically written set of instructions or steps used to resolve logical or mathematical issues with the assistance of a computer) and produce accurate predictions. Therefore, there must be enough financial data to allow the technology to handle online financial transactions. Besides, there are many challenges concerning Shariah's compliance with AI in their products and services. Proper and mutual understanding are essential for Islamic financial institutions when they integrate AI and Islamic legal frameworks to have proper decision-making for any product of AI, particularly regarding Shariah's legal standing. Additionally, attitudes towards AI significantly mediate the relationship between perceived benefits and the intention to adopt AI in banking services (Rahman et al., 2023).

In addition, security, privacy, and other forms of individual data protection must be a priority for any Islamic bank. AI plays an essential part in safeguarding personal information. Therefore, Islamic financial institutions must ensure the security of data. As such, Islamic financial institutions must guarantee the safety and security of all data. Suitable regulations should address these challenges, and a transparent framework must be established for employing AI in Islamic banks. Collaboration with the government as a regulator and Muslim Scholars is necessary to ensure that AI is utilised to maximise benefits while adhering to Shariah principles, particularly regarding data security (Hiyanti et al., 2019).

Disruptive technology can increase the accessibility of Islamic financial services for marginalised communities, particularly in areas where equity financing is the primary focus of financial products. Incorporating innovative technology in the banking and financial industry aims to bring about transformation in financial services. Disruptive financial technologies allow people residing in rural or isolated areas to access financial products tailored to their requirements. This represents a key benefit of incorporating disruptive technology in the banking industry, as individuals previously considered unbankable can now access financial services (Ascarya, 2021). Nowadays, these communities have simplified banking and financial products through digital and other fintech platforms. Consequently, individuals have begun to perceive banking and financial products in a new light, with Islamic financial institutions now able to provide affordable and easily accessible services and products. Fintech can assist these impoverished communities by offering services such as small loans, insurance, and funding for agriculture in rural regions (Husman & Sakti, 2021). Changes in financial technologies play a vital role in attracting customers to Islamic finance, especially those residing in rural areas, by offering banking and financial services that comply with the prohibition of Riba (Syakarna, 2023).

The rise of new technology has significantly enhanced the availability of Islamic financial services for underprivileged communities, allowing them to adhere to Shariah principles in managing their finances and benefit from an increasingly interconnected economy.

ISSN: 2548-3544 (online), 2549-0850 (print)
Volume 08 Issue 02, July 2024 DOI:https://doi.org/10.26740/al-uqud.v8n2.p175-188

Nevertheless, ensuring that the adoption of technological advancements aligns with Islamic principles and effectively addresses concerns regarding privacy and security is essential. Disruptive technologies undoubtedly substantially influence the overall functioning of Islamic banking and finance. Some technological tools used in Islamic banks include automated data processing, data analytics, and artificial intelligence, improving banking efficiency and performance at a reasonable cost while delivering superior services to specific customer segments (Y. Hidayat, 2019).

Islamic banks can enhance their products and services by utilising advanced technology. This will enable them to better cater to the needs of their customers, ultimately attracting new clients and reducing production costs while satisfying foreign market demands. Embracing technology will also empower the Islamic finance sector to compete more efficiently in today's fiercely competitive business landscape. However, integrating new technologies must adhere to Shariah principles to avoid potential risks and challenges. Implementing AI and other innovative platforms fosters continuous innovation to fulfil customer requirements. Adopting disruptive technology is crucial in showcasing cutting-edge, sophisticated products that align with customer preferences (Syakarna, 2023).

The advancement in fintech has allowed financial institutions to develop digital platforms to improve customer service by providing easier access. For instance, P2P financing allows individuals and SMEs to access financial resources easily. Additionally, online transactions make banking operations more convenient for customers who have trouble accessing traditional banking services. New technologies in finance are causing changes that lead to better and cheaper products. For example, the use of robo-advisory and AI to give customers new experiences leads to customer loyalty as their affordability increases compared to previous services (without AI and fintech) and enables customers to obtain knowledge and information on investment products that were difficult to access (Financial Services Authority, 2020).

Thirdly, disruptive technologies also facilitate the creation of customised financial products and services designed to align with each person's unique requirements and choices. Customers can easily comprehend the different products and services available through advanced data analysis. This allows Islamic banks to better understand their customers' behaviour and create tailored products and services that meet their specific financial needs. For example, Islamic financial institutions can offer deposit products or financing options that align more closely with their customers' goals, risk profiles, and behaviour.

To summarise, the effects of fintech innovation on financial inclusion have been predominantly positive. By revamping financial technologies, Islamic banks can provide improved services to individuals who have limited access to traditional banking services, all while keeping costs to a minimum. However, introducing new technologies may also bring forth new challenges that Islamic banks must address. Therefore, Islamic banks must remain informed, knowledgeable, and proactive in understanding how fintech can be effectively utilised (Syakarna, 2023).

Additionally, implementing new technologies greatly impacts how customers interact with Islamic banks. The utilisation of technology within Islamic banks will create unique customer experiences that are easily discernible, allowing for direct interaction with the bank and mutual benefits. Fintech provides customers with the advantage of accessing products and services more conveniently, faster, and cost-effectively. Certain fintech products enable customers to conduct digital payments and other transactions with increased comfort and convenience, eliminating the need to visit the bank physically. This transaction method will enhance customers' access to financial products, especially for those residing in rural or remote areas (Zouari, 2021). AI has simplified customer communication between customers and Islamic banks, allowing for more personalised assistance. AI-powered Chatbots can swiftly respond to customer inquiries and offer immediate solutions to their issues. Furthermore, AI can function as a tool to monitor and assess customer behaviour and preferences, enabling Islamic banks to enhance their services and tailor their products according to their financial objectives.

Furthermore, advanced data analytics have empowered Islamic financial institutions to deliver a more individualised and targeted customer experience. By utilising data and information, Islamic banks can leverage technology to improve their offerings and provide customers who purchase goods and services that align with their financial objectives and needs. Additionally, through data analysis, suspicious transactions can be identified, and security risks in financial transactions can be minimised (Zouari, 2021). However, it should be acknowledged that disruptive technologies also present several challenges in improving the customer experience. It might happen to specific customers who need to become more familiar with recent technology and are uncomfortable with the products and their complex technology. In this regard, Islamic banks must prepare different approaches with literacy and support to accept and adapt to these changes. In conclusion, the effect of disruptive technologies on the customer experience in Islamic banking and finance is positive overall. With fintech, AI, and data analytics, Islamic banks should be aware of new customer experience and their adaptation to recent technology that is faster, transparent, and affordable. Nevertheless, Islamic banks must adapt to these changes and address challenges in creativity, innovative products, and disruptive technology (Madani, 2021)

Conclusion

Financial technology disruption plays a significant function within Islamic financial organisations, leading to the development of innovative products that are more accessible and efficient. Fintech advancements in Islamic banks allow for the provision of better services, such as digital transactions, under Shariah principles and in a simpler, faster, and more affordable manner. Collaboration between stakeholders and regulators is essential to ensure the effective use of AI while adhering to Shariah principles. Disruptive technologies can produce more efficient and cost-effective products and services for Islamic financial institutions. By leveraging disruptive technologies, Islamic banks can offer more efficient and affordable financial solutions that align with their goals. Utilising data analysis, Islamic banks can gain insights into their financial behaviour, including risk-taking, financial preferences, and spending habits, to optimise their financial management. Since this study only reviewed several previous research conceptually, further research can empirically explore the theoretical underpinnings of how Islamic finance principles inherently support sustainability. Empirical research can also delve into the conceptual links between the Maqasid al-Shariah (objectives of Islamic law) and the United Nations Sustainable Development Goals (SDGs).

Author Contribution

Akhmad Affandi Mahfudz: Creating and Designing analyses; Reviewing the draft; Writing paper

Rusyda Afifah Ahmad: Creating and performing analysis; Writing paper

Daribayeva Meruyert : Review of the draft, literature review, and result discussion, all authors have read and agreed to the published version of the manuscript

Nafi Ilman Husin: Creating and writing paper, TranslatorTrisno Wardy Putra: Literature review, data collection, translator

Declaration of Competing Interest

Author declare that have no conflict of interest

ISSN: 2548-3544 (online), 2549-0850 (print)
DOI:https://doi.org/10.26740/al-uqud.v8n2.p175-188

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