Qudus International Journal of Islamic Studies (QIJIS)
Volume 12, Number 2, 2024 (PP : 213-254)
https://journal.iainkudus.ac.id/index.php/QIJIS/index
http://dx.doi.org/10.21043/qijis.v12i2.17069

FINTECH ADOPTION AND ITS INVESTMENT IMPACT IN ISLAMIC SOCIAL FINANCE: THE CASE OF ZAKAT

Mohamed Cherif EL Amri
Istanbul Sabahattin Zaim University
mohamed.amri@izu.edu.tr/ charif1982@gmail.com

Mustafa Omar Mohammed
Alqasimia University, United Arab Emirates
momar@alqasimia.ac.ae

Mohammed M.S. AlKhalili
Istanbul Sabahattin Zaim University
mohammad.elkhalili@gmail.com

Abstract

Islamic Financial Technology (I-FinTech) is rapidly evolving and expanding due to the swift advancements in computer software and machinery. I-FinTech progressively asserts its role in various applications, including computer algorithms, artificial intelligence (AI), big data analytics, robo-advisory, and social networks, to facilitate the development and advancement of digital Islamic finance. The adoption of I-FinTech has begun to enhance the benefits of Islamic social finance, particularly in the context of zakat. Zakat institutions have utilized technological advancements, including mobile devices and security technologies, to digitize their collection and distribution processes. Evidence suggests that zakat institutions can reduce operational costs, improve security, expedite payments, and facilitate better transactions by adopting finance technology. Despite significant advancements, the adoption of I-FinTech by zakat institutions encounter various challenges, including sharia

compliance, financial inclusion, digital awareness, conservative culture, trust deficits, security concerns, infrastructure limitations, regulatory issues, and impact investment considerations. Limited research has explored the challenges faced by Islamic social finance in the adoption of FinTech. However, this study employs a qualitative approach, utilizing interviews with zakat managers, IT experts, and policymakers to assess the challenges and potential for I-FinTech adoption within zakat institutions. This research identifies significant challenges faced by zakat institutions, including insufficient technical knowledge and capabilities, traditional and conservative cultural influences, lack of awareness, and a deficit of talent and expertise in the full adoption of FinTech solutions. The study presents recommendations to address these challenges, including awareness campaigns, capacity building, the adoption of modern technological solutions like blockchain and crowdfunding digital platforms, and the improvement of transparency and governance standards. The study concludes by offering recommendations for future research endeavors.

Keywords: Islamic social finance, Zakat, Fintech, Islamic Financial Technology.

A. Introduction

Zakat is one of the five pillars of Islam, a form of worship for the sake of Allah the Almighty and a religious duty upon every Muslim (male or female, young or old). Muslims become eligible to pay zakat when they own wealth beyond a certain prescribed amount called Nisab (threshold). Zakat has been mentioned in the Qur'an on more than 30 occasions, emphasizing the importance of giving away wealth to help the needy and strengthen bonds among members of the society.

Zakat means purification, growth, or increase (Al-Qardawi, 1999). This implies that zakat purifies physical and digital wealth and purifies an individual's soul from excessive love for wealth. Such purification indicates that wealth can be cleansed through zakat, leading to its increase not only

physically but also spiritually, as paying zakat results in an increase in God's blessing (barakah). This divine blessing allows wealth to grow and enables the human soul to experience inner peace and tranquility.

There are two types of zakat namely, *zakat al-fitr* and *zakat al-mal.* In the case of zakat al-mal, the amount of zakat collected should be distributed to eight well-defined categories of recipients. These categories are the poor, the needy, those employed to administer zakat, those whose hearts are reconciled to Islam, for freeing slaves, for those in debt, for Allah's causes, and for a stranded traveler (The Qur'an, 9:60). Meanwhile for zakat al-fitr, the amount collected during the month of *Ramadhan* is distributed to the poor and the needy.

Zakat was prescribed and made compulsory in the second year of the Hijrah calendar. Since then, zakat plays a vital role in promoting socioeconomic equality and fair distribution of wealth, making it an effective way to support sustainability (Atah et al., 2018). Zakat has contributed tremendously to providing a better quality of life for various segments of society. It has played a vital role in enhancing affection and cooperation among members of the Islamic community, promoting unity among Muslims as one body and fostering empathy for one another in facing difficulties and socioeconomic threats. Furthermore, zakat has significantly contributed to the development of the economic, social, and political welfare of the Islamic community (Mohammed et al., 2021). The collection and distribution of zakat have played a crucial role in minimizing the concentration of wealth among the rich and promoting its circulation among the less privileged members of society who struggle to earn a decent livelihood.

Despite these achievements, zakat institutions face several challenges, including poor governance, mismanagement, inefficiency, resource limitations, lack of transparency, and distribution. For example, studies have documented that zakat institutions suffer from limited resources (Rachman & Salam, 2018), they have transparency issues and poor governance (Aziz & Anim, 2020; Hasan et al., 2020). Furthermore, zakat institutions suffer from mismanagement of funds (Wahid, 2009; Wahid et al., 2005) and inefficiencies in collecting and distributing zakat to those in need (Yahaya & Ahmad 2018). Studies have also highlighted issues related to the delay in distribution of zakat funds. For instance, Saad and Abdullah (2014) analyzed zakat distribution practices in several Malaysian states and found that significant delays hindered the intended impact on poverty alleviation and support for the needy.

Similarly, Nawai and Ruzaiman (2022) noted that zakat distribution management requires reevaluation to achieve maximum performance, suggesting that improvements are essential to address the slow distribution issues. Ensuring the effective and timely distribution of zakat is crucial for maximizing its impact on poverty alleviation and community support (Ab Rahman & Mohd Din, 2015). Such improvements could enable the underprivileged members of society to become productive, thereby reducing poverty and encouraging economic growth (Al Azizah & Choirin, 2018).

Evidence suggests that financial technology (FinTech) has the potential to provide advanced solutions to institutions and organizations, enabling them to overcome various challenges and barriers. FinTech has emerged as a game-changer in

enhancing the efficiency and effectiveness of financial services and related transactions (Gomber et al., 2018). Furthermore, FinTech facilitates the flow of funds between parties involved in the transaction (Chatterjee et al., 2023).

According to DinarStandard (2022), Saudi Arabia has emerged as the leading country in terms of FinTech market size, with a total valuation of USD 26 billion in 2021, portraying a 45 percent rise over the previous year. Iran follows with assets worth USD 19.1 billion and a growth rate of 107% over the same period. The United Arab Emirates experienced a 29% growth, reaching a total asset value of USD 4.8 billion in 2021. Similarly, Malaysia's FinTech market grew by 60%, reaching USD 4.8 billion in assets. Indonesia's FinTech market saw a 44% increase, resulting in assets worth USD 4.2 billion in 2021. These five countries led the Islamic Financial Technology (I-FinTech) sector in terms of market size in 2021 [See Fig 1.].

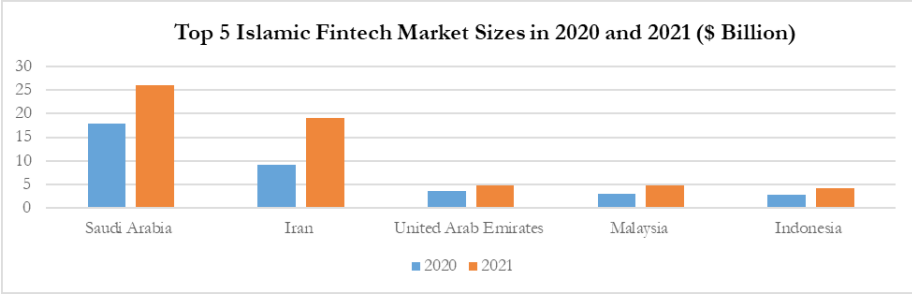


Figure 1 *Top I-FinTech Markets* (DinarStandard, 2022; 2021)

The advancement of FinTech has promoted the role of Islamic social finance, including zakat and *waqf* (Friantoro & Zaki, 2019). The full adoption of I-FinTech could introduce creative solutions and develop applications that enable zakat

institutions to reach their targeted recipients. Additionally, i-FinTech could create necessary channels to facilitate the flow of funds between the various segments of the Islamic community, including both the wealthy and the needy.

Unfortunately, the adoption of FinTech solutions by zakat institutions faces various challenges and barriers, such as a lack of compatibility with sharia financial inclusion, low acceptance of digital solutions, weak transparency and governance structures, security deficits, and the absence of legal protection regulations. These challenges and obstacles must be overcome for FinTech to significantly impact the Islamic social finance sector. Addressing these issues would enable zakat institutions to offer better solutions and keep pace with technological developments.

Several studies on zakat have demonstrated that the institutions are benefiting from the rapid development of I-FinTech and digital technologies to strengthen the collecting and distribution processes (Al Azizah & Choirin, 2018). Zakat institutions are reported to reduce operational expenses, improve governance structures, recognize faster payments, and deliver better developed products and solutions (Banna & Alam, 2020). However, many challenges, such as sharia compliance, financial inclusion, digital awareness, conservative culture, trust deficit, security, infrastructure, regulations, and impact investment (Aziz & Anim, 2020; Firmansyah & Anwar, 2019; Friantoro & Zaki, 2019; Rahmatika & Hariono, 2019) have prevented zakat institutions from fully adopting FinTech solutions.

A limited number of studies have examined and highlighted how these problems have impeded the

operations of zakat institutions and their capacity to adapt to contemporary technological trends. Moreover, several studies indicate that the comprehensive integration of FinTech and its applications by zakat institutions could significantly enhance the collection, investment, and distribution of zakat funds. However, these studies have not empirically assessed the magnitude of these problems or the capacity of zakat institutions to comprehensively use I-FinTech to improve the efficiency of zakat collection and distribution. This study seeks to investigate the problems faced by zakat institutions in fully adopting FinTech and the potential of this technology to enhance zakat collection and distribution.

The study is structured into six sections, including the introduction. Section two examines the relevant literature about the adoption of FinTech by zakat institutions. Section three examines the challenges encountered by zakat institutions in implementing FinTech solutions. Section four discusses the methodology used in this study. Section five presents and analyses the findings. Section six concludes the study and provides suggestions for future research.

B. Financial Technology (FinTech)

FinTech is a fusion of the terms financial and technology. Multiple definitions of FinTech exist. For instance, Arner et al. (2015, p. 1) characterize it as "technology-enabled financial solutions", whilst Schueffel (2017, p. 45) describes it as "the combination of technology to be applied to the financial industry to improve financial activities". Oseni and Ali (2019, p. 3) provide an additional definition stating that "fintech includes blockchain applications and other web-

based services utilized in the financial services industry as well as offline-to-online (O2O) and Internet-of-things (IoT) applications". Sanicola (2019) characterizes it as "the business of new technology that offers new and suitable financial services for both consumers and businesses". Based on the aforementioned definitions, FinTech emphasizes the integration of technology into financial services to enhance their quality.

Conversely, investment from an Islamic perspective entails allocating resources to assets deemed lawful (halal) according to Islamic law, while refraining from those considered unlawful (haram) (Saiti et al., 2014). Islamic social finance, viewed through an Islamic perspective, constitutes a legitimate societal investment that emphasizes the importance of investing in individuals by ensuring universal access to social welfare programs (Ali et al., 2019). Islamic social finance promotes economic empowerment via diverse social assistance mechanisms, including Islamic microfinance, waqf, *sadaqah,* and zakat, which have been implemented beyond the Islamic world (Kuanova et al., 2021), (Al-Qardawi, 1999). Zakat is essential for fostering socioeconomic equality and equitable wealth distribution, thus serving as an effective mechanism for promoting sustainability (Atah et al., 2018).

Research into the integration of I-FinTech within zakat institutions has expanded, but much of the literature remains focused on descriptive applications of this technology. Existing studies have centered on the partial implementation of FinTech within zakat institutions, while discussions on the full adoption of I-FinTech, its challenges, and its potential for enhancing zakat collection and distribution

effectiveness remain underexplored. Current literature primarily addresses the partial application of I-FinTech and the associated challenges.

C. I-FinTech for Zakat Collection

Numerous studies have investigated the adoption of various applications by zakat institutions to streamline the contribution and payment process for zakat payers. Technology-driven instruments, including mobile banking, significantly contribute to advancing financial inclusion and present new opportunities for improving the efficiency of zakat collection and distribution (Yahaya & Ahmad, 2018). Multiple methods are utilized for zakat collection, such as credit and debit cards, e-wallets, mobile banking, online banking, digital platforms, postal services, SMS payments, and salary deduction programs. In specific nations, such as Indonesia, the accessibility of mobile-based sharia-compliant FinTech for zakat is constrained (Abdillah, 2021). The adoption of FinTech in the domain of zakat in Malaysia in 2014 facilitated the payment of zakat al-fitr via the M-Fitrah service offered by the mobile telecommunications operator Celcom Axiata Berhad (Muneeza & Nadwi, 2019). The M-Fitrah service offers three payment options: SMS, WEB, and USSD/WAP. Other applications utilized by zakat institutions in various jurisdictions include digital platforms that offer zakat services, such as zakat payment for Muzaki through Baznas website in Indonesia. These studies emphasized the importance of implementing FinTech applications for zakat organizations to improve the efficiency of zakat collection and distribution.

Limited research has addressed the development of models for the collection and distribution of zakat. Rahmatika and Hariono (2019) proposed an application for zakat institutions under Baznas that assists in calculating *nisab*, distributing zakat, monitoring distribution, and preventing fraud. Baznas has improved its digital platform by developing a mobile application in collaboration with FinTech companies to streamline payment services and produce quick response codes. The efforts aim to enhance the efficiency of zakat fund collection (Hudaefi et al., 2020). Al-Riyami et al. (2014) conducted a study proposing the use of expert system technology (ES) in the domain of zakat to aid Muslims in assessing their obligation to give zakat and in calculating the annual amounts for each type of zakat owed.

In addition, Rizki (2019) proposed a management and distribution model for zakat through Islamic Financial Institutions (LKS) utilizing Peer-to-Peer Lending (P2PL) methods. The model allows for the management of zakat funds by LKS institutions, with P2PL schemes incorporated into the management of these funds. The funds are classified into two categories: consumption and production. Zakat institutions may invest in the production fund through P2PL by utilizing the management and products of LKS. P2PL investment allows for the monthly growth of zakat funds with minimal downside risk. Thus, employing a FinTech model enables collaboration between zakat and Islamic financial institutions to efficiently manage and allocate zakat funds, thereby enhancing the economy and decreasing the population of Mustahik (zakat-deserving recipients) in Indonesia.

A separate study suggests implementing the Automated Teller Machines (ATMs) for rice to aid registered poor recipients (*Asnaf* of beneficiaries of zakat) in collecting rice through a designated card issued for this purpose (Muneeza & Nadwi, 2019). The ATM user taps the special card on the machine's sensor, which dispenses 2 kilogrammes of rice through the designated collection point at the machine's base (Muneeza & Nadwi, 2019). Muneeza and Nadwi (2019) proposed the implementation of innovative solutions, including rice's ATMs, mobile applications, and technologies such as blockchain, artificial intelligence, and big data, to enhance the management of zakat in India.

Abojeib and Habib (2021) examined the potential of blockchain and smart contract technologies to enhance the governance structures of Islamic social finance institutions and to ensure adherence to sharia principles. A similar study by Muneeza et al. (2018) conducted a study examining the potential of blockchain technology in enhancing crowdfunding and addressing the challenges encountered by crowdfunding platforms in advancing financial inclusion. Blockchain technology can facilitate a tamper-proof and transparent record of zakat transactions, encompassing both collection and distribution phases (Omar & Khairi, 2021). Blockchain technology's unique characteristics and advancements can be utilized by organizations, such as zakat institutions, to improve transparency, efficiency, effectiveness, and accountability in the management of zakat funds. Blockchain technology has the potential to improve governance within zakat institutions (Beik et al., 2021). Blockchain technology has the capacity to create a digital identity for contributors and

beneficiaries of zakat. This could allow transparent oversight of fund transfers and verification of appropriate distribution.

Furthermore, blockchain-based automation may optimize zakat collection by reducing intermediaries and improving process efficiency (Omar & Khairi, 2021). Meanwhile, Ahmad and Salleh (2018) proposed the concept of Islamic micro-crowdfunding utilizing FinTech applications. The authors contend that micro-level crowdfunding is more efficient than traditional crowdfunding due to the familiarity between donors and contributors. The study indicates a demand for micro crowdfunding aimed at small collections within a brief timeframe, noting the absence of FinTech applications that address this segment. A model of this nature would benefit zakat institutions.

The aforementioned studies have analyzed various models and schemes employed and proposed for zakat collection, including donation-based crowdfunding and peer-to-peer lending P2PL facilitated through digital platforms, payment gateways, websites, and applications. Several studies have examined the use of innovations such as zakat chatbots, which are powered by artificial intelligence technology. These innovations supplant zakat officers and offer detailed information regarding zakat and its calculation methods, while also addressing various customer enquiries. zakat institutions have the potential to leverage FinTech for zakat collection, given the robust capabilities of information technology in the 4.0 era (Friantoro & Zaki, 2019).

D. Theory of the Technology Acceptance Model (TAM) for FinTech in Zakat

The theory The Technology Acceptance Model (TAM) is a conceptual framework that elucidates the factors influencing individuals' utilization of information systems. The concept posits that users' behavioral intentions, influenced by the perceived usefulness of technology in task execution and its perceived ease of use, will motivate users to engage in the function (Sukmawati et al., 2022).

Multiple studies have been conducted to investigate users' behavioral intentions concerning perceived usefulness and perceived ease, while also incorporating the variable of customer innovation; notable contributions include research by Ichwan and Ghofur (2020). The analysis indicates that the TAM partially and simultaneously affects the decision to pay zakat via Fintech Gopay, based on the elements influencing technology usage acceptance. Sukmawati et al. (2022) expanded on prior research, demonstrating that, in addition to perceived ease of use, perceived usefulness, attitudes, and intentions significantly affect the acceptance and utilization of financial technology services for non-cash ZIS payments. Rohmah et al. (2022) noted that perceived ease of use and customer innovation influence behavior, whereas perceived usefulness does not impact acceptance. Conversely, Shaikh et al. (2020) identified that all three factors affect perceptions.

Aristiana (2019) investigated the factors influencing the use of digital platforms, revealing that the primary factor is their role as a means of payment. In contrast, Ninglasari (2021) investigated the determinants of online zakat intention among Muslim millennials. The findings indicated

that perceived usefulness and convenience of use are significant factors influencing this generation. The decision to adopt FinTech for zakat payment was notably influenced by perceived behavioral control, subjective norms, and attitudes. The initial trust, ease of use, expected effectiveness, and perceived effort related to the adoption of FinTech for zakat distribution by recipients are essential factors (K. Ahmad & Yahaya, 2023).

E. The Challenges Encountered by Zakat Institutions in Adopting FinTech.

Limited research has addressed the challenges encountered by zakat institutions, particularly regarding their adoption of FinTech solutions. Previously, many of these challenges were examined regarding the limited adoption of FinTech by zakat institutions. Moreover, there is a scarcity of works that have empirically validated these challenges. This study analyses the challenges encountered by zakat institutions adopting FinTech and assesses the magnitude of these challenges should zakat institutions fully adopt FinTech solutions. The primary challenges include: 1) sharia compliance, 2) financial inclusion, 3) digital awareness, 4) conservative culture, 5) trust deficit, 6) security, 7) infrastructure, 8) regulations, and 9) impact investment.

Compliance with sharia (Islamic law) presents a significant challenge to the growth of I-FinTech, as it raises concerns regarding the compatibility of adopted solutions with Islamic legal standards. Zakat institutions may encounter challenges with the complete adoption of FinTech solutions, as management and staff may find it difficult to assess the

compliance of these solutions with Islamic rulings. Kamaruddin et al. (2023) identified six primary challenges zakat institutions encounter in integrating Fin Tech. The study identifies cost as the primary challenge. Zakat institutions encounter considerable financial difficulties in the enhancement and implementation of new technological systems. The second challenge pertains to public acceptance and awareness. The public's acceptance of FinTech, especially regarding digital literacy and user adoption, presents a challenge for zakat institutions. The third challenge pertains to governance issues, as zakat institutions operate under the authority of their respective State Islamic Religious Councils (SIRCs).

Consequently, all decisions, including the adoption of FinTech, require approval from their parent organization. Concerns have been expressed about the incorporation of sharia and spiritual culture elements within FinTech systems. Digitizing customary features, such as handshakes during the *'Aqd* (contract), serves as a pertinent illustration. The fifth challenge in FinTech adoption for zakat institutions is risk management, specifically in anticipating potential issues and achieving optimal capital-risk allocation. The final challenge involves transformation and productivity. While the alteration of corporate culture due to FinTech adoption presents concerns, it can be addressed by partially digitizing the FinTech environment and incorporating some human input. The challenges illustrate the complexities of integrating FinTech into zakat organizations' operations and underscore the necessity of addressing financial, cultural, and governance factors for due diligence.

On the other hand, Rabbani et al. (2020) noted that FinTech solutions and blockchain technology can lower operational costs and enhance transparency; however, sharia compliance concerning cryptocurrency and blockchain presents a significant challenge for Islamic finance. To emphasize the same, Hasan et al. (2020) identified sharia compliance as one of the major challenges for the growth of I-FinTech.

Poor financial inclusion, characterized by the lack of access and unequal opportunities to zakat funds for the needy, results from the low levels of education and competency among impoverished individuals, thereby diminishing their knowledge and awareness of available digital solutions. This highlights the challenges in acquiring and financing essential equipment and technologies to facilitate more responsible and sustainable access to zakat funds. This challenge is more evident in the development of the collection process than in the distribution process due to the identified barriers. Numerous studies indicate the significance of integrating FinTech solutions within zakat institutions to enhance financial inclusion. Yahaya and Ahmad (2018) demonstrated the effectiveness of digital solutions, including mobile banking, in enhancing financial inclusion across various countries. Their paper asserts that enhancing the efficiency of zakat distribution channels can facilitate financial inclusion and significantly aid in poverty alleviation. Moreover, limited studies indicate a year-on-year improvement in zakat collection processes, whereas the distribution process does not exhibit comparable advancements (Al Azizah & Choirin, 2018).

The existence of conservative cultures and societal groups in Muslim countries that refrain from utilizing technologies, often due to a lack of trust and conservative ideologies, has hindered the comprehensive adoption of FinTech solutions by zakat institutions. Furthermore, various threats including fraud, cyber crimes, virus attacks, and security breaches may pose significant challenges for zakat institutions in effectively integrating new FinTech into their operations. Additionally, inadequate IT infrastructures, internet connectivity issues, public trust deficits, and negative perceptions of technological solutions are significant barriers to the comprehensive adoption of FinTech solutions within zakat institutions. Friantoro and Zaki (2019) conducted a study utilizing a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis to evaluate the application of financial technology in the collection of zakat in Indonesia. The analysis identifies internet connection problems, IT infrastructures, public trust, negative perception, lack of regulations and sharia compliance frameworks, and low knowledge of information technology as the primary issues and challenges confronting zakat institutions.

Conversely, limited research has highlighted the problems associated with inadequate governance and insufficient transparency. Aziz and Anim (2020) emphasized the necessity for zakat institutions to maintain transparency in their management, particularly regarding financial disclosures to stakeholders. Likewise, Wulan et al. (2018) emphasized the necessity for zakat institutions to establish an IT internal audit function when implementing digital financial

solutions, as this would facilitate the operation of these institutions under transparent structures and procedures.

Zakat institutions encounter challenges due to the lack of suitable laws, appropriate rules, standardized regulations, and governance frameworks from both the industry and governments. These deficiencies hinder the full adoption of FinTech solutions and impede the enhancement of credibility and transparency. Numerous studies have identified the absence of suitable legal regulations as a significant obstacle to the implementation of FinTech solutions within Islamic financial institutions. Firmansyah and Anwar (2019) identified the lack of adequate regulations as a primary challenge for I-FinTech and Islamic financial institutions. Governments should implement supportive regulations for the I-FinTech sector. Furthermore, Ulya (2019) examined the lack of legal protection regulations for zakat in the context of donation-based crowdfunding in Indonesia. The existing regulations classify crowdfunding solely as an investment mechanism aimed at profit generation, neglecting the non-profit nature of donation-based crowdfunding. Similarly, Diyah (2019) emphasized the necessity of formulating regulatory policies that bolster social capital crowdfunding initiatives in Indonesia and internationally, thereby enhancing community participation in charitable activities.

F. Research Methodology

This research employs a qualitative method utilizing semi-structured interviews to explore, gather, analyses, and present the results of the collected data. Miles and Huberman (1994) assert that qualitative research is frequently regarded

as the most effective approach for discovery and exploration in new areas. The target population comprised zakat managers, IT experts, and policymakers. The sample size consists of 11 individuals recognized as experts possessing extensive knowledge in the study area. (Graneheim et al., 2017) argued that individuals involved in a study should possess relevant experience with the phenomenon being examined to establish credibility in their discourse.

It also employs a purposive sampling in conjunction with snowball sampling, a decision informed by the exploratory nature of the study (Neuman, 2007). Purposive sampling is suitable for selecting cases that provide significant insights and necessitate thorough investigation for a comprehensive understanding (Neuman, 2007). Snowball sampling proved effective as it facilitated referrals to an internal network of experts, thereby aiding in the identification of key individuals in the field.

The interview questionnaire primarily included open-ended questions, allowing respondents to articulate their opinions and thoughts without constraint. The questionnaire comprised three distinct areas of interest. This study aimed to examine the degree of adoption of FinTech by zakat institutions. The second area involved examining the challenges faced by zakat institutions in fully adopting FinTech, while the third area focused on exploring and assessing the potential of FinTech to enhance the effectiveness of zakat institutions. Table 1 presents the interview questions.

Table 1 *Interview Questions*

Question Number	Interview Questions
1	To what extent have zakat institutions fully adopted FinTech?
2	In your opinion, do you think the adoption of Fintech would allow zakat institutions to lower operational cost, enhance security, realize faster payment, provide better transactions, and enhance efficiency and transparency in the collection, investment, and distribution of zakat funds?
3	What are the existing and potential challenges that zakat institutions face and are likely to face in adopting Fintech?
4	To what extent do you agree that zakat institutions are unable to fully adopt FinTech, due to a weak financial inclusion, lack of digital awareness, conservative culture, trust deficit, security deficit, infrastructure, absence of legal protection regulations, and a lack of impact investment?
5	To what extent would the challenges of adopting FinTech impact zakat collection, investment, and distribution?
6	What are the new areas of Fintech that zakat institutions need to explore to enhance zakat collection, investment, and distribution?
7	What other suggestions can you provide to zakat institutions to fully adopt FinTech in order to enhance their efficiency in zakat collection, investment, and distribution?

The aforementioned questions received validation from a senior and experienced professor in the Department of Islamic Economics and Finance at Istanbul Zaim Sabahattin University (IZU). The Professor is an expert in instrument

validation for this research type, as noted by Sandelowski (1998), who states that "outsider experts can help researchers ask better questions of their data, lead them to new ways of analyzing data." The interview questionnaire was distributed to each selected interviewee via email, allowing them to respond to the questions freely and determine what they considered appropriate. Their responses contributed to the research preparation, problem identification, solution discovery, and recommendation formulation.

G. Results and Analysis

This section provides an analysis and findings of the qualitative data collected to explore the challenges faced by zakat institutions in adopting I-FinTech, as well as examining the prospects of current and proposed FinTech models and applications. This section comprises two sub-sections: the first sub-section examines the profiles of the targeted interviewees or experts, while the second sub-section analyses the opinions of the experts based on the qualitative data collected.

a. Profile of the Experts

Table 2 presents the backgrounds of the interviewed experts. The table presents data on gender, position, and institution. The experts are designated as E1 through E11 to maintain anonymity.

Table 2 *Profile of the Experts*

Experts	Gender (M-F)	Position	Organization
E1	M	General Secretary	International Zakat Organization (London, UK)
E2	M	Assistant Professor	College of Sharia, Kuwait University
E3	M	Manager	Sharia Unit, Zakat Collection Centre, Religious Council of Federal Territory, Kuala Lumpur, Malaysia
E4	M	Consultant / Specialist	International Shariah Research Academy for Islamic Finance (ISRA)
E5	M	Executive Director	Islamic Finance Advisory & Assurance Services (IFAAS)
E6	M	Researcher	International Shariah Research Academy for Islamic Finance (ISRA)
E7	M	CEO / Founder	Fineopolis Consulting and founder of Crowdsadaqah
E8	M	Director of Sharia Affairs	Kuwaiti Zakat House, Kuwait
E9	M	Head of Utilization Division	Zakat Utilization Division , Amil Zakat National Agency or Badan Amil Zakat Nasional (BAZNAS), Indonesia
E10	F	Management	Center for Internationalization of Zakat Kedah, Malaysia
E11	M	Head of the Community Support Services Department	Dubai Islamic Bank

The interviewed experts exhibit diverse experiences and backgrounds, as indicated in Table 2 above. There are ten males and one female. The data and insights provided by experts are regarded as a significant resource, given their competencies and specialization in zakat and I-FinTech. This sub-section presents the findings and analysis of the qualitative data obtained from the interviews.

b. Results and Analysis of the Qualitative Data

The qualitative data collected were categorized into three themes aligned with the interview questions. The themes include: "FinTech Adoption by zakat Institutions," "Challenges Zakat Institutions Face in Fully Adopting FinTech," and "The Potential of FinTech in Enhancing the Effectiveness of Zakat Institutions." Table 3 outlines the identified themes along with their respective interview questions. The findings are organized according to these three themes.

Table 3 *Main Themes and Their Corresponding Interview Questions*

Main Themes	Interview Questions
FinTech Adoption by Zakat Institutions	To what extent has the zakat institutions fully adopted FinTech?
	Why do you think the adoption of Fintech would allow zakat institutions to lower operational cost, enhance security, realize faster payment, provide better transactions, and enhance efficiency and transparency in the collection, investment, and distribution of zakat funds?
	How does the adoption of FinTech impact zakat collection, investment, and distribution?

Challenges Zakat **Institutions Face in Fully Adopting FinTec**h	What are the existing and potential challenges that zakat institutions face and are likely to face in adopting Fintech?
	To what extent do you agree that zakat institutions are unable to fully adopt FinTech due to a weak financial inclusion, lack of digital awareness, conservative culture, trust deficit, security deficit, infrastructure, absence of legal protection regulations, and a lack of impact investment?
	To what extent would the challenges of adopting FinTech impact zakat collection, investment, and distribution?
Potential of FinTech in Enhancing Effectiveness of Zakat **Institution**s	What are the new areas of Fintech that zakat institutions need to explore to enhance zakat collection, investment, and distribution?
	What other suggestions can you provide to zakat institutions to fully adopt FinTech in order to enhance their efficiency of zakat collection, investment, and distribution?

c. FinTech Adoption by Zakat Institutions

To enhance the clarity of the findings, this theme was subdivided into three sub-themes aligned with the three related questions [Table 3 above]. The three sub-themes are: 1) full adoption of FinTech by zakat institutions, 2) the merits of FinTech for zakat institutions, and 3) impact of FinTech on zakat institutions. With regards to the main theme, all the experts (n=11) are unanimous that zakat institutions are increasingly adopting I-FinTech solutions. However, their perspectives on the three sub-themes exhibit limited variation.

For the first sub-theme, all experts (n=11) concur that zakat institutions, particularly the prominent ones, are progressing towards complete adoption of I-FinTech. Their views were supported by presented evidence. The application of I-FinTech in zakat collection processes is increasing in depth. Zakat institutions utilize various digital channels and solutions, including online banking, e-wallets, QR codes, and credit and debit card payments, to enhance the collection process (E3, E4, and E9). This complements the utilization of digital online platforms and crowdfunding platforms to collect zakat funds (E6). Expert E10 outlined the strategies implemented by her institution to enhance collection and distribution processes, as well as the development of an in-house system to assist zakat payers in making payments and accessing pertinent information.

In alignment with the first sub-theme, all experts (n=11) concur that the advantages of I-FinTech include improved financial and operational efficiency for zakat institutions; technology facilitates a transparent framework and robust governance structures. Experts agree on the potential of FinTech to enhance security, mitigate money laundering, expand accessibility, and expedite payments and transfers. Experts have acknowledged that the full adoption of i-FinTech's innovative solutions would enhance the channels and procedures for collection, investment, and distribution. Moreover, it was stated that by fully implementing FinTech solutions, zakat institutions could decrease operational costs by eliminating travel and transportation expenses

associated with collecting and distributing zakat funds. Furthermore, these solutions will decrease the likelihood of misplacement and non-disclosure of zakat funds. These solutions would enable zakat managers and payers to access data and facilitate the swift and secure allocation of funds to the intended beneficiaries.

In relation to the third sub-theme, all experts (n=11) concur that the positive effects of i-FinTech surpass its negative effects. Expert E3 posits that FinTech solutions provide benefits including real-time managerial information, reduced processing time, lower operating expenses, enhanced inter-organizational communication, improved interactions with existing and potential customers, and greater access to expert knowledge. He stated that this approach would expedite and simplify the distribution of zakat, enhancing its effectiveness and reducing bureaucratic obstacles, which are currently significant challenges in the process.

Similarly, expert E4 confirmed that FinTech influences managerial effectiveness, innovation, and accountability, thereby fostering trust within the community. The significance of FinTech in delivering data and real-time information to comprehend and address the financial behavior of both zakat payers and recipients was also highlighted. Expert E7 stated that:

> The full adoption of Fintech will enhance the effectiveness and efficiency of zakat institutions. Firstly, its use will increase zakat collection because the technology instills confidence between donors and beneficiaries; democratizes charity and creates convenience for small zakat

> donors. Secondly, the adoption of Fintech lowers the operational costs of fund collection and disbursement. Thirdly, this technology adoption will provide a sustainable competitive advantage for zakat institutions over other charity players. Finally, the technology will address the digital transformation challenge and create a "paradigm shift" to accommodate the needs of the new generation of donors that are digital natives. (E7, Personal communication, April 27, 2024)

d. Challenges Faced by Zakat Institutions in the Full Adoption of FinTech

This theme, similar to the preceding one, was categorized into three sub-themes corresponding to the three relevant questions [Table 3], to enhance the presentation of the findings. The three subthemes are: 1) Challenges faced by zakat institutions in adopting FinTech, 2) readiness of zakat institutions for full FinTech adoption, and 3) challenges that zakat institutions may encounter in achieving complete FinTech integration. Experts (n=11) generally agree that zakat institutions encounter challenges that would be exacerbated by the complete adoption of I-FinTech. The challenges, however, would differ according to the available expertise, infrastructure and software quality, awareness levels, community IT culture, safety and security measures, and the various types of risks involved. The perspectives of experts regarding the various challenges are delineated across three sub-themes.

Experts discussed the challenges faced by zakat institutions in adopting FinTech within the first sub-

theme. Experts E1, E10, and E11 indicated that zakat institutions face challenges in locating technicians to create suitable digital solutions and programs, primarily due to a shortage of in-house IT experts and a limited range of available programs and software. Zakat institutions encounter challenges concerning security and safety in the payment and distribution of zakat funds, particularly when large sums are involved. Additionally, there is a low level of knowledge and awareness, coupled with a traditional community culture that lacks sufficient background and experience in utilizing advanced technologies. Furthermore, there is a notable lack of readiness and willingness within the community to adopt the available technological solutions. Experts E4 and E8 examined the challenges associated with FinTech risks encountered by zakat institutions. The identified risks primarily stem from technological failures linked to inadequate technical capabilities and integrity, as well as virus attacks, hacking, operational risks, fraud-related risks, technological risks, transaction risks, and data leaks, among others.

Furthermore, an expert (E11) highlighted the challenge of sharia compliance, emphasizing the necessity for periodic reviews of sharia provisions. This practice allows zakat institutions to identify new solutions and expand investment channels for zakat funds. Additional challenges include the insufficient knowledge and professional experience of zakat officials and scholars regarding FinTech, indicating that the adoption of FinTech represents a "paradigm shift challenge" rather

than merely a "operational or technological challenge" (E5 and E7). However, the necessity for improved and suitable legal standards and regulatory frameworks by the government for the adoption of blockchain technology in both financial and non-financial institutions presents additional challenges (E9 and E11).

Regarding the second sub-theme, the majority of experts (n=7) recognize that certain challenges may impede the readiness of zakat institutions to completely implement I-FinTech. Experts E3, E4, and E10 assert that conservative and traditional cultural practices pose significant challenges to the implementation of modern FinTech solutions intended to supplant traditional methods of collecting and distributing zakat funds. Additional challenges include a lack of qualified experts and talent, as well as inadequate infrastructure (E9). Another expert (E7) has articulated his perspective regarding the preparedness of zakat institutions for the complete adoption of I-FinTech:

> For full Fintech adoption, zakat institutions need firstly to have more developed and clear processes and standards on the collection, management, and disbursement of zakat. Since these processes and standards do not exist or are not largely in operation, Fintech adoption is hard to imagine, knowing that technology is generally built on clear and efficient processes and procedures. However, adoption varies; it can be faster / weaker in one area compared to another. Payment solutions would be the easiest Fintech to adopt, as they need less internal processes and organizational capabilities. On the other hand, transparency and blockchain-based technology may be harder. (E7, Personal communication, April 27, 2024)

The third sub-theme focuses on the challenges that zakat institutions would face in fully adopting FinTech. Most of the experts believe that the existing challenges would spill over to the phase of full adoption. However, some of them see these new challenges as temporary and may only slow down the adoption of FinTech by zakat institutions for a specified period, but eventually, these challenges will not hinder the ability to fully adopt these technological solutions. For example, expert E2 opines that these challenges would not affect the collection process, but it may affect the distribution process, and expert E6 also supports this view, saying:

> The challenge in distribution is higher because of the financial inclusion, and if zakat institution is working with the poor who are not included in the financial system, it would be hard to reach them online and distribute funds, because you have less data on their financial transactions. On the investment side, there are fewer challenges because zakat institutions can invest and transfer their funds to other institutions with limited challenges and barriers. Regarding the collection processes, there are challenges that we have already discussed and talked about. (E6, Personal communication, April 29, 2024)

Conversely, expert E7 posits that the successful adoption of full FinTech necessitates the establishment of clear operational guidelines, procedures, and governance standards.

e. The Potential of FinTech in Enhancing Effectiveness of Zakat Institutions

This theme was further categorized into two sub-themes based on the two questions corresponding to the theme [Table 3]. The two sub-themes are: 1) new areas of FinTech to enhance the effectiveness of zakat institutions, and 2) recommendations for zakat institutions to comprehensively integrate FinTech solutions. All the experts (n=11) expressed various views on the new areas of FinTech that zakat institutions should explore to enhance their collection, investment, and distribution procedures. These new areas can be enhanced through investments in specific sectors, creation of new forms of wealth, capacity building and the change in the business and technological environment, among others. The various views of the experts are presented in the two sub-themes below.

For the first sub-theme, the opinions of the experts were solicited for new areas of FinTech to enhance the effectiveness of zakat institutions. One of the experts (E1) proposed to zakat institutions to develop electronic programs using satellites for agriculture and animal husbandry. The electronic programs can be used to monitor the production from agriculture and livestock to determine their types, quantity, and zakat ability. The programs will assist both the donors and zakat managers in the collection and distribution of zakat. Another expert (E3) proposed that zakat institutions adopt new forms of zakat table wealth that is easy to deal with electronically.

This would require the institution to provide and explore more solutions for the collection and distribution of the new wealth. This view is shared by the expert E4, who proposed the idea of creating and providing new zakat products, such as food banks and research grants. Conversely, numerous experts (E5, E6, E7, E9, E10, and E11) advocate for the adoption of blockchain technology, crowdfunding platforms, digital channels, and easily accessible statistical tools. The expert E6 discussed the capacity of these technologies to deliver a robust database. However, he pointed out that blockchain solutions may not meet the requirements of all zakat institutions, indicating a necessity for the development of more tailored and suitable models and solutions.

The experts were solicited for recommendations regarding the full adoption of FinTech by zakat institutions in the second sub-theme. Most experts (n=6) recommend that zakat institutions implement additional training courses for their staff, particularly in sharia, and involve IT experts to improve their understanding of both sharia and IT. This will facilitate the integration of zakat institutions with FinTech providers. Experts E5 and E7 urged that zakat institutions adopt diverse technologies and solutions, including blockchain technology, crowdfunding platforms, and improved digital payment systems. An additional expert (E9) emphasizes the necessity for robust and adaptive leadership that remains receptive to ongoing changes in the business and technology landscape. Leadership should facilitate the development of young talents, enabling them to

enhance their capabilities in adopting FinTech to advance zakat institutions. Expert E10 proposed the necessity of educating and raising awareness within the community, particularly among the younger generation, regarding FinTech solutions.

H. Conclusion

Zakat institutions are increasingly implementing advanced financial technology solutions to enhance their financial and operational performance. FinTech enhances financial efficiency, lowers operational costs, promotes transparency, improves governance, and streamlines payments and fund flows among zakat institutions, zakat payers, and beneficiaries. While FinTech offers promising advancements and effective solutions for enhancing the collection, investment, and distribution of zakat, numerous challenges and obstacles continue to impede the comprehensive adoption of these technologies by zakat institutions. The challenges encompass insufficient technical knowledge and capabilities, traditional and conservative cultural norms, a lack of awareness, and a deficiency in talent and expertise.

This study's findings indicate that the challenges identified are temporary, and while short-term prospects for overcoming them exist, most cases necessitate long-term solutions. However, this depends on the collaboration among all relevant stakeholders in the Zakat-FinTech ecosystem, including regulators, zakat managers, scholars, and IT experts. It is essential for them to advance and create a supportive environment for the implementation of FinTech solutions

by zakat institutions. Based on research findings, it suggest that zakat institutions should fully adopt I-FinTech. The recommendations encompass awareness campaigns, capacity building, the implementation of modern technological solutions like blockchain, the improvement of transparency frameworks and governance standards, and the creation of digital platforms such as crowdfunding to engage a broader segment of society.

The effective implementation of zakat can significantly enhance the socioeconomic welfare of Muslims and reduce the disparity between the affluent and the impoverished. This requires systemic integration between FinTech solutions and zakat institutions to enhance efficiency and decrease associated costs. This integration would encourage stakeholders to develop new models and suitable channels for the efficient collection, investment, and distribution of zakat funds, notwithstanding the various challenges. Future research may build upon the findings and limitations of this study when investigating zakat institutions in the context of the complete adoption of FinTech solutions. The current study is limited by its reliance on qualitative methods; however, future research may benefit from the incorporation of mixed methods. Secondly, this study primarily concentrates on zakat. Other components of Islamic social finance, including waqf, sadaqah, and SRI Sukuk, present significant opportunities for future research.

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