

A VIEW POINT OF ISLAMIC FINANCIAL TECHNOLOGY (I-FINTECH) IN MALAYSIA

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ABSTRACT

This qualitative study aims to investigate the potential impact of financial technology (FinTech) on Malaysian Islamic Financial Institutions (IFIs) using content analysis by identify relevant Islamic FinTech (I-FinTech) literature from books, book chapters, journals, proceedings/conferences, newspaper or magazine articles, reports, and official websites. Specifically, this study assessed the threats, importance, and challenges involving FinTech to Malaysian IFIs following past research and contributed to particular aspects: the Islamic financial sector needs to manage FinTech optimisation for a competitive advantage despite the threats posed on traditional banking. Thus, IFIs should incorporate I-FinTech business models to complement millennial consumers' demand for more innovative, efficient, and accessible financial services despite specific intricacies, such as the need to integrate the technological innovations with Shariah principles. Given the necessity to develop a Shariah-adhering framework for regulators' enforcement of Islamic contracts regarding FinTech solutions, Shariah scholars and information technology experts need to collaborate in I-FinTech-oriented product and service development and evaluation. This gaps could also be empirically bridged in future research. As such, this study encourages IFIs to offer innovative technological solution in the design and delivery of financial product and services using Shariah compliant FinTech.

ABSTRAK

Kajian kualitatif ini bertujuan untuk mengkaji potensi kesan teknologi kewangan (FinTech) terhadap Institusi Kewangan Islam (IKI) di Malaysia melalui pendekatan analisis kandungan dengan mengenal pasti literatur yang relevan dengan subjek FinTech Islam (I-FinTech) dari sumber buku, bab dalam buku, jurnal, prosiding/persidangan, artikel akhbar atau majalah, laporan, dan laman sesawang rasmi. Secara khusus, kajian ini telah berjaya menganalisis ancaman, kepentingan, dan cabaran yang melibatkan FinTech dalam IKI di Malaysia berdasarkan kajian lepas dan menyumbang kepada: keperluan sektor kewangan Islam untuk menghadapi pertumbuhan FinTech agar tetap berdaya saing walaupun terdapat ancaman terhadap perbankan tradisional. Oleh itu, IKI harus mengambil peluang dengan mengintegrasikan model perniagaan berasaskan I-FinTech untuk memenuhi permintaan pengguna milenial terhadap perkhidmatan kewangan yang lebih inovatif, cekap dan mudah diakses walaupun terdapat cabaran

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tertentu, seperti keperluan untuk mengintegrasikan inovasi teknologi dengan prinsip Syariah. Memandangkan terdapat keperluan dalam membangunkan kerangka pematuhan Syariah untuk menguatkuasakan kontrak Islam dalam penyelesaian FinTech, maka para sarjana Syariah dan pakar teknologi maklumat perlu bekerjasama dalam membangunkan dan menilai produk dan perkhidmatan berasaskan I-FinTech. Jurang ini dapat diatasi dalam penyelidikan masa depan. Justeru, kajian ini mengesyorkan IKI untuk menawarkan penyelesaian teknologi inovatif dalam reka bentuk dan penyampaian produk dan perkhidmatan kewangan menggunakan FinTech patuh Syariah.

Keywords: Disruption, Importance, Challenges, I-FinTech, Malaysia

1. Introduction

This section briefly presents the I-FinTech prospects from a global perspective, history of FinTech development, and further I-FinTech definitions before elaborating on the main discussion topics. The expansion of FinTech in the financial industry has established a novel landscape involving technology and business models. The development subsequently raises questions on the impact of FinTech integration with the Islamic financial industry and prompts the examination of FinTech effects on Malaysian IFIs. As a sustainable Islamic financial hub, Malaysia has provided significant opportunities in I-FinTech ecosystem development despite the sector novelty (Salim et al., 2020). Likewise, Dinar Standard and Thomson Reuters (2018) affirmed that Islamic finance could compete within the FinTech sector against conventional finance following similar industrial opportunities.

Prospects of I-FinTech in Islamic countries are promising (Wintermeyer & Basit, 2017). Redmoney (2019) affirmed that I-FinTech has started to develop rapidly worldwide, especially in Islamic countries even though it is relatively new. The involvement of non-Muslim countries, such as The United States (US) and The United Kingdom (UK) in digital businesses are also undeniable. According to IFN FinTech (n.d.), there are 40 I-FinTech operators in the UK and 18 I-FinTech operators in the US. In 2020, the I-Fintech market size within the Organisation of Islamic Cooperation (OIC) denotes \$ 49 billion and would predictably rise at a 21% Compound Annual Growth Rate (CAGR) to \$ 128 billion by 2025. Following the Global Islamic FinTech (GIFT) index, OIC countries dominate nine of the top 10 nations (90%) excluding the UK (Ahmed et al., 2021).

Meanwhile, there are 93 startup I-FinTech companies offering financial service solutions to consumers worldwide. Specifically, 65 of the 93 companies provide peer-to-peer (P2P) technology alternatives to facilitate financing accessibility for consumers and businesses while 14 counterparts enable deposits and transfers with blockchain technology. Notably, I-FinTech is dominated by Indonesia with 31 startup stakeholders apart from the rising number of I-FinTech companies under the Islamic FinTech Association Indonesia, followed by the US and UAE (Dinar Standard, 2018). Ethis Kapital (Malaysia), Nusa Kapital (Malaysia), Kapital Boost (Singapore), and Wahed Invest LLC (US) are several renowned I-FinTech companies in P2P and crowdfunding (IFN FinTech, n.d.). As the digital economy would contribute approximately 22.6% to the Malaysian Gross Domestic Product (GDP) by 2025 (Povera & Yusof, 2021), Malaysia would be an ideal regional hub as the third-largest ASEAN economy by GDP that offers a sizable market for early-stage I-FinTech startups (Malaysia Digital Economy Corporation [MDEC], 2020).

Historically, the advent of FinTech began with the introduction of credit cards in the 1950s, followed by automatic teller machines (ATMs) in banks in the 1960s, electronic stock trading in the 1970s, mainframe computers and advanced record-keeping systems in the 1980s, and internet banking and online stockbroking in the 1990s (Setiawan & Maulisa, 2019). The introduction of the Internet, World Wide Web (WEB), and online payments have led to the digital money concept and more dominance in

the 2000s with mobile banking services through smartphones in European banks. For example, PayPal utilises digital currency to process payments and money transfers in place of fiat money (Abu Bakar et al., 2020). As such, mobile banking is a crucial element in FinTech. In Juniper Research (2017), an estimated 2 billion consumers worldwide currently access banking services through smartphones, laptops, tablets, and smartwatches with a potential rise to 3 billion by 2021. In this era also introduced payment applications, mobile wallets, crowdfunding, P2P lending platforms and robo advisors. The FinTech revolution gained prominence following the 2007-2008 financial crisis and emphasises all financial service components involving consumer, corporate, and commercial segments (Arner et al., 2015).

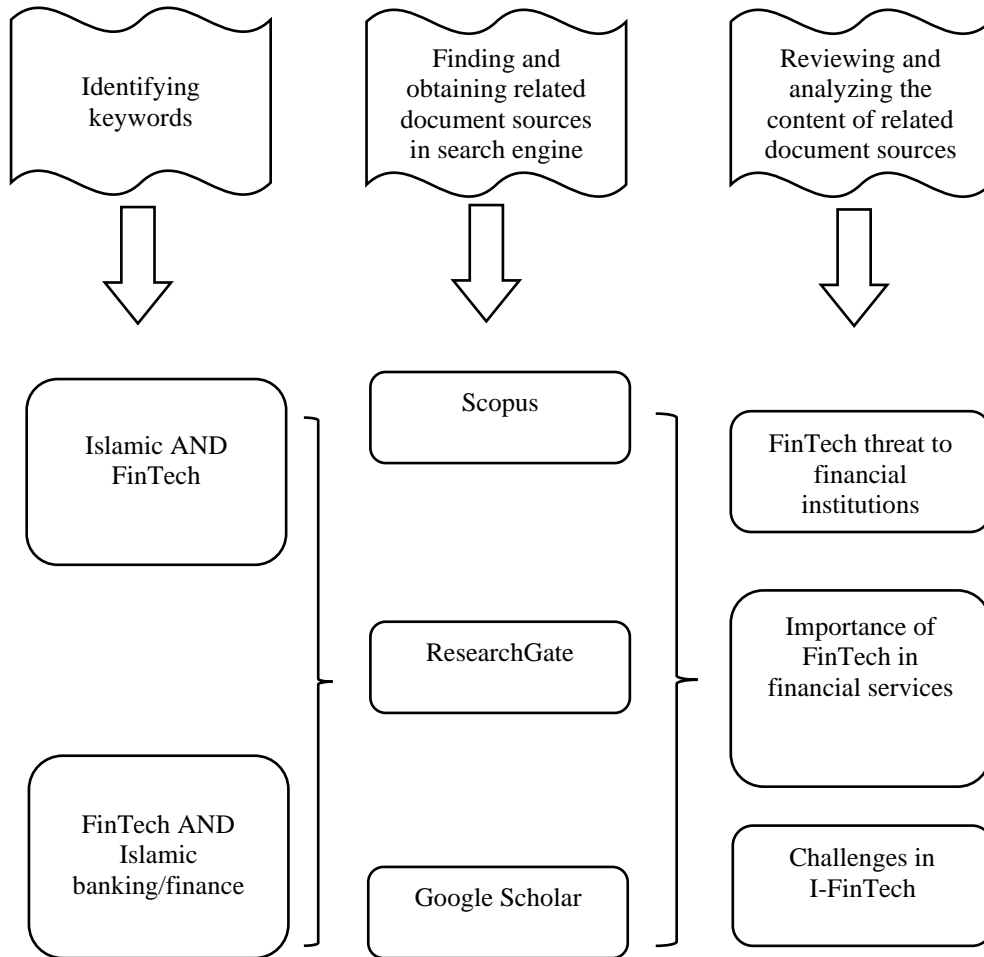
Essentially, FinTech (derived from the words ‘finance’ and ‘technology’) is also known as destructive innovation to substitute traditional financial service management (Zalan & Toufaily, 2017). Meanwhile, I-FinTech denotes an innovative technological solution in the design and delivery of Shariah-compliant financial products and services. The differences between I-FinTech and conventional FinTech involves Shariah compliance, transparency, and mutual benefits (Kelana, 2018). This highlights that the main stance of I-FinTech is to uphold Shariah principles while maintaining integrity and transparency in every transaction (Rahim et al., 2019) and ensuring fairness between contracting parties so that there is no *riba* (usury), *gharar* (uncertainty) and *maysir* (gambling) element (Muhammad et al., 2013). Firmansyah and Anwar (2019) emphasised that I-FinTech would be deemed Shariah-compliant with adherence to its principles. Shariah compliance generally implied the adherence of all transactions, activities, and processes to Shariah rules despite the product outcome similarity to conventional counterparts. Rasyid et al. (2017) stated that the Shariah aspect should be emphasised by the regulator and the company that provides an application of FinTech to ensure the ‘*maqasid*’ of consumer property is protected. Laldin (2017) recognises FinTech as conveying the objectives of *maqasid* Shariah because it is contributing to human civilisation in order to provide a good order of life. Based on Alamad (2017), innovative Islamic finance approaches offer legitimate (halal and Shariah-compliant) financial products and services developed in good faith to benefit society, thus implicitly indicating human servitude to God.

The novelty of FinTech induced short-term adverse impacts and long-term benefits. Although technological applications have caused disruptions by redefining processes, methods, and complexities, FinTech has implicitly induced positive impacts on people’s lives. Thus, the aforementioned intricacies require resolution to manipulate positive FinTech contributions and alleviate adverse impacts as modern life is inextricably linked to technological development. This study sought to address the research questions involving the impact of FinTech development on Malaysian IFIs. The study discussion is organised as follows: Part One presents the research introduction while Part Two highlights the methodological approach. Parts Three, Four, and Five discuss the research findings for the FinTech threat to financial institutions, importance in financial services, and challenges in I-FinTech, respectively. Part Six concludes the study. The author acknowledgement and bibliography sections are presented at the end of this article.

2. Research Methodology Approach

The content analysis approach was utilised by reviewing relevant FinTech literature (Kothari, 2004). Following Sahu (2013), document sources are crucial to facilitate the entire content analysis process. Notably, content analysis could be quantitative and qualitative in nature. Figure 1 illustrates an overview of the document source identification processes, such as the identification of keywords (Islamic AND FinTech; FinTech AND Islamic finance/banking) and search engines (Scopus, ResearchGate, and Google Scholar) to determine and obtain relevant and credible document sources (Jain, 2019). The final process involves reviewing and analysing document content for appropriate themes (Drisko & Maschi, 2016) related to the FinTech impact on IFIs (Figure 1). Overall, the related documents involved 15

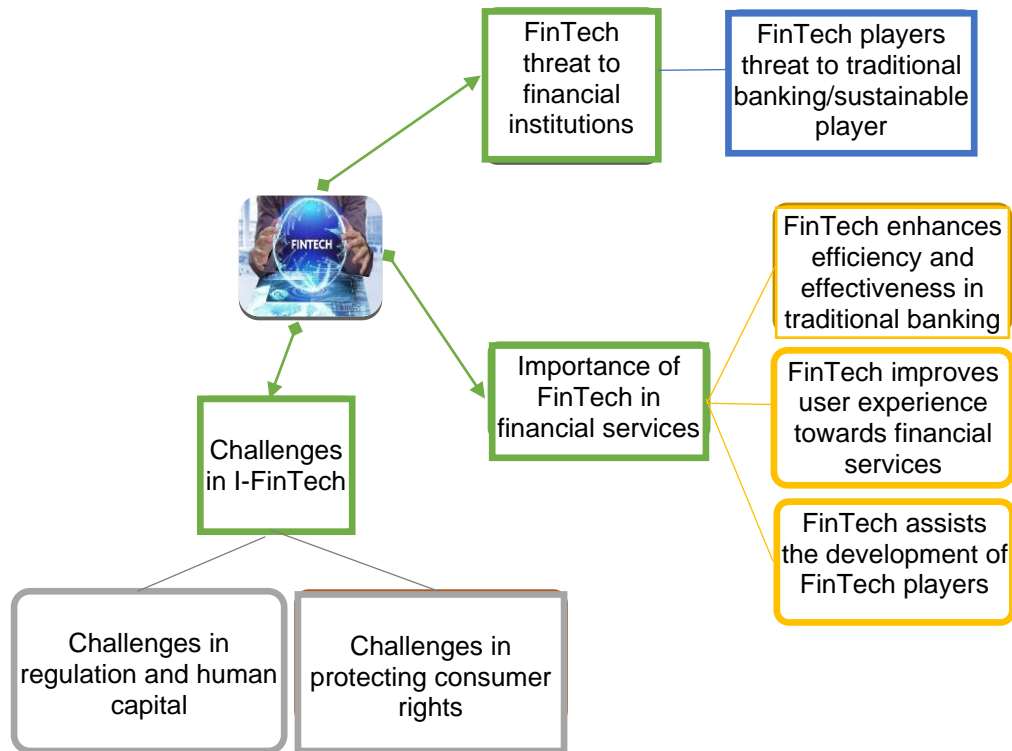
journals, 9 proceedings/conferences, 13 reports, 3 chapters in the book, 2 books, 12 newspaper or magazine articles and 12 official websites. Although the employed databases might not contain all the relevant past literature (some data could have been omitted), the probability is small as the study documents were obtained in line with all the prescribed processes. As such, the scoping is sufficient for this literature review despite not having full coverage.



Source: Mohamad and Ab Rahman (2014).

Figure 1: Document source Identification Processes

The first, second, and third themes denote FinTech threats to financial institutions, the importance of FinTech in financial institutions, and I-FinTech challenges (see Figure 2). The FinTech threat is based on the threat of FinTech stakeholders towards traditional banking. Additionally, FinTech significantly influences financial services in terms of optimising traditional banking efficiency and effectiveness, users' financial service experiences, and the development of FinTech players. The aforementioned challenges encompass regulation, human capital, and the protection of consumer rights. A detailed elaboration on each theme division would be duly presented.



Source: Diagram prepared based on analysis of literature review.

Figure 2: Threats, importance and challenges in I-FinTech.

3. The FinTech Threat to Financial Institutions

The financial service sector encountered change-oriented disruptions following the emergence of radical innovation or the ‘FinTech’ revolution, thus adversely impacting the current market. In other words, FinTech threats induce a paradigm shift in progress-oriented perspectives despite the destructions following operational changes. The FinTech threats instigate short-term adverse disruptions to current traditional markets albeit with long-term benefits, specifically on partially-explored segments by banks (duly discussed in FinTech importance).

The rapid rise of FinTech players’ reputation in the digital revolution has inevitably threatened the current financial service industry. Traditional Islamic financial practices would be inept in the next decade due to incompetence with the current market development in terms of innovation and technology (Laldin & Djafri, 2019b). Based on Jahic and Jahan (2019), the occurrence instigates short-term disruption to traditional operations with more accessible and appropriate digital service facilities for firms and consumers (Engku Abdullah et al., 2018). As such, FinTech players could provide innovative products or services, such as mobile technology at faster and more effective rates. The engagement cost is also relatively lower (only a fraction of bank expenses) following zero limitations from old technologies and stringent regulations (Dinar Standard, 2018). The disruptions have affected Islamic banking in terms of market structure and the transformation of digital banking. It has redefined financial services-oriented business models and the adoption of innovative technologies and customers’ experiences (Islamic Financial Services Board [IFSB], 2020). The advancements do not entirely disrupt traditional IFI operations given the application of technologies capable of integrating physical and digital environments together (Dinar Standard, 2020). Additional digital strategy implementations are challenging as IFIs need to integrate the course of novel customer decisions and technological

innovations with Shariah principles. As such, novel innovation aspects resembling FinTech requires in-depth consideration (Laldin & Djafri, 2019a).

A total of 40 FinTech companies are involved in payments, 12 in crowdfunding, 38 in wallets, 15 in lending, 38 in wealthtech, 11 in Know-Your-Customer (KYC) or regtech, 15 in blockchain or cryptocurrency, 16 in insurtech, 17 in remittance or foreign exchange (FX), six in the marketplace, six in proptech, eight in AI or big data, and six in I-FinTech. The highest percentage of FinTech stakeholders are engaged in the payments and wallet segments at 19% (Fong, 2019). For example, PayHalal (2016) is a *Shariah*-compliant payment gateway software application certified by Amanie Advisors in collaboration with multiple Islamic banks and halal traders. Amanie Advisors is one of the *Shariah*-adherent advisory firms headquartered in Malaysia that offers Islamic financial settlement services: advisory and consulting services, training and research, and *Shariah*-compliant framework development to institutional and corporate clients (Amanie, 2020). PayHalal accounts only facilitate halal service and goods transactions and comply with the Payment Card Industry Data Security Standard (PCI DSS). For example, PayHalal will process the user's payment instrument such as credit cards, Islamic debit cards, electronic wallets (e-wallets) and other payment instruments when an online electronic commerce (e-commerce) transactions is performed to allow or reject customer purchases. The adopted processes resemble point-of-sale (POS) when making payments at halal restaurants. Notably, PayHalal does not process high-risk products or services, such as non-halal goods, gaming, gambling, crowdfunding terrorism, betting, alcohol, drug paraphernalia, e-cigarettes, firearms, pornography, travel to Israel, jihad activities, debt collection, and diet programmes. Customers' payment details are securely stored and encrypted to protect sensitive information pre-bank processing.

4. Importance of FinTech in Financial Services

The FinTech is beneficial in multiple aspects, specifically in financial services, despite being perceived as a destructive innovation. Much discussion emphasises conceptual FinTech connections to optimise traditional banking, user experience, and startup company development. In this vein, FinTech development holistically and positively impacts financial institutions, consumers, and startup companies.

The FinTech enhances efficiency and effectiveness in traditional banking

Islamic financial operators are required to incorporate the FinTech revolution into product and service offerings for competitive advantage and organisational sustenance (Laldin & Djafri, 2019b). As FinTech innovations potentially offer more significant and long-term profit despite cost effects, the need to minimise costs, increase profits, and attract customers have induced banks to accept digital services (World Economic Forum, 2012). Following Pollari (2016), the aforementioned innovations require technology experts' collaboration with specific parties in introducing alternatives to traditional financial services. The FinTech-oriented solutions are offered by novel startup financial management services that are established to complement digital users' requirements (Engku Abdullah et al., 2018).

Based on Jahic and Jahan (2019), digital disruption could occur through multiple means: (i) digitising current traditional banking service operating models by omitting the need for agents and (ii) digitising sales by omitting physical stores and providing payment systems and mobile banking with *Shariah*-compliant internet banking platforms (Laldin & Djafri, 2019a). The advent of digitised banking services through mobile and internet banking have minimised traditional channel investments (Payza, 2019). Chishti and Barberis (2016) contended that most banking system users are smartphone owners who employ their gadgets as transaction tools, thus elevating FinTech utilisation and altering the traditional banking landscape that was previously reliant on face-to-face communication.

FinTech denotes positive contributions to the Islamic financial industry by evolving and innovating

Islamic financial products and services and eliminating credit intermediaries, thus leading to potentially high returns and low prices. Additionally, the development of equity financing platforms following musharakah and mudharabah that did not gain popularity in traditional IFIs environments were successfully implemented with P2P financing and crowdfunding (Islamic Banker Association, 2017). Six Malaysian Islamic banks, such as Bank Kerjasama Rakyat Malaysia, Affin Islamic Bank, Bank Muamalat Malaysia Berhad (BMMB), Bank Islam Malaysia Berhad (BIMB), Maybank Islamic, and Bank Simpanan Nasional (BSN) launched an Investment Account Platform (IAP) in 2016 that utilises equity crowdfunding concepts to directly manage investor funds for entrepreneurs (Eza, 2017). As a cross-border channel of multiple currencies connecting to regional and global economies, the IAP is offered to investors through the investment account (IA) supported by IFIs. Based on the 2017 Bank Negara Malaysia (BNM) report, the IAP investment ratio over the total ordinary financing reflected 11.7%. The three successful projects under IAP are Kobimbing (BIMB), Perak Transit Berhad (BMMB), and ICT Zone (Affin Islamic Bank) with an estimated profit of 6% and above annually and a maximum project duration of five years (Investment Account Platform [IAP], 2020). Notably, all six Islamic banks successfully listed 12 project offers worth RM 184 million for multiple business purposes as of August 2019 (Ministry of Finance Malaysia, 2020).

The FinTech improves user experience towards financial services

Based on Laldin and Djafri (2019a), people require innovations that enable smooth and efficient task completion without concerns regarding personal information leakage parallel to Islamic hermeneutic principles that promote efficient task performance. Commercial transactions under *maslahah* (public interest) are also duly emphasised (A.Oseni, 2019). Resultantly, FinTech catalyses technological evolution in the financial service sector for novel product innovation despite risks from borderless transactions that require monitoring (Truong, 2016). In other words, digitisation enhances current financial practices and users' transaction experiences.

Mobile banking denotes a popular digital technology involving fund transfer facilities and mobile phone payments to facilitate money transfers from urban employees to rural households owing to extensive 4G network coverage, low-cost data, and efforts to provide 5G coverage. Malaysia ranked top among (i) the 139 nations (followed by Italy, China, and Chile); and (ii) came first among developing Asian countries polled in the 2019 Network Readiness Index under the World Economic Forum (International Monetary Fund [IMF], 2020). The high penetration rates of mobile phones successfully promote mobile banking as a means of making and receiving payments with zero infrastructure costs. For example, the utilisation of a Quick Response (QR) payment code potentially minimises the need to employ a POS terminal system (Lee & Khaw, 2018). Population-wise, the mobile banking penetration rate reflected 66.8% in May 2021 compared to 55% in May 2020. Local financial transactions with mobile banking also increased with a total of 125.8 million transactions (worth RM 64.11 billion) in May 2021 compared to 86.2 million transactions (worth RM 33.43 billion) in May 2020 (Bank Negara Malaysia [BNM], n.d.).

The FinTech assists the development of FinTech players

Notably, FinTech is a technology-based financial service that functions as an optimal risk management tool, facilitates transaction and trading activities, and offers opportunities to optimally increase novel business development (Rumondang, 2018), such as P2P loan channels (Barberis & Arner, 2016). In line with Laldin and Djafri (2019a), FinTech is also perceived as an ideal tool for startup companies with various innovative ideas for money and employment generation through new business opportunities and the development of on-demand and e-commerce services (Ahmed, 2019). Moreover, Magnuson (2018) implied that most newly-established startup and venture capital companies employ network technology development and big data analysis to disrupt current financial services.

FinTech players have presented multiple innovations to various fields, thus facilitating novel startup

companies to obtain investments for financial market penetration and directly offer customer services. The variance is advantageous for FinTech in allowing FinTech players to reach a set of inadvertently-disregarded users by the investment management industry and ensuring significant benefits: more access to capital, fairer loan standards, better investment advice, and safer transactions. Individuals or small and medium enterprises (SMEs) who are not eligible to obtain financing from traditional IFIs through digital platforms could alternatively employ crowdfunding and P2P financing counterparts (Islamic Banker Association, 2017). Specifically, P2P and crowdfunding platforms offer higher return rates compared to fixed deposit investments with lower volatility than stocks or unit trust funds. Investors could also diversify funding opportunities with a broader platform and relatively lower rates (Hui, 2017).

For example, MicroLEAP is a Malaysian FinTech company that offers an Islamic and conventional P2P microfinance platform with the Securities Commission (SC) approval in October 2019. For Islamic, it offers fundraising alternatives with Islamic investment notes under commodity murabahah. Other Shariah contracts, including wakalah (agency); and gharamah (late payment fee) are also utilised for charity purposes. MicroLEAP provides financing between RM 1,000 and RM 50,000 to issuers and facilitates investors' micro-business investments from as low as RM 50. Masyref Management House, an Islamic financial management company specialising in Islamic banking, finance, and asset management, is the Shariah advisor of microLEAP that ensures the compliance of microLEAP operations with Shariah principles; and SC Shariah Advisory Council (SAC) resolutions. Masyref is also a licensed Shariah advisor under SC and Shariah panel for the Malaysia Digital Economy Corporation (MDEC) (MicroLEAP, 2021).

5. Challenges in I-FinTech

The financial industry acknowledges the presence of FinTech threats and simultaneously strives to seek workable countermeasures given the essentiality of this disruptive technology. This section discusses the I-FinTech challenges as follows:

Challenges in regulation and human capital

A.Oseni (2019) emphasised the development of a novel and legal framework for digital Islamic banks for optimal development and competition in an increasingly competitive industry with significant stakeholders. Thus, governmental support is highly necessary for offering functional regulations to the I-FinTech sector (Saksonova & Kuzmina-Merlino, 2017). As authorities or regulators need to emphasise Shariah-compliant aspects in FinTech operations and practices to ensure Muslim users' confidence in service utilisation, a regulatory I-FinTech framework is crucial to address consumer protection issues and market behaviours. Innovative implementations are strongly encouraged in Islamic finance to substitute the sole reliance on conventional products.

In Malaysia, MDEC is a government-owned entity responsible for developing the local digital business ecosystem, offering networks to venture capital investors, and supporting halal economic businesses through Shariah certification. The Islamic economic growth would assumably increase to USD 3 trillion by 2021. The MDEC also released the Islamic Digital Economy (IDE) Guide (Mi`yar) as a reference for the digital economy community such as startups, venture capital and supporting ecosystem players who wish to engage in business operation, products and services in Shariah-compliant or halal segment and Islamic venture capital. However, it only serves as a guide that must be read in conjunction with other guidelines issued by the SC, BNM and others (MDEC, 2019). The BNM also offers regulatory support through the Financial Technology Regulatory Sandbox Framework. The sandbox was specifically developed to (i) ensure the execution of FinTech-related rules and regulations and (ii) directly enable the performance of innovative FinTech experiments by private companies in authentic situations within a specified period under regulatory control. The sandbox also supports innovations with the potential to (i) optimise financial service risk management, (ii) improve access, efficiency, quality, and security of

financial services, (iii) bridge existing gaps, within to explore novel investment or financing opportunities in the Malaysian economy for an equilibrium between initiatives to promote innovation and protect consumer interests and the preservation of financial stability. As startup companies are required to facilitate the diversification of current financial services in complementing market needs (BNM, 2016a).

Additionally, the SAC of SC endorsed the permissibility of investments and trades using digital currencies and tokens on 4 June 2019. Four registered digital asset operators, namely, Luno Malaysia, MX Global, SINEGY Technologies, and Tokenize Technology obtained SC approval to manage digital asset exchanges by following the Guidelines on Digital Assets 15 January 2020, Capital Markets and Services (Prescription of Securities) (Digital Currency and Digital Token) Order 2019, and Guidelines on Recognised Market (Securities Commission Malaysia, 2021). The SC also licensed FinTech operators under the following segments: digital investment manager (Akru Now, BH Global Fintech Solutions, GAX MD, Raiz Malaysia, StashAway Malaysia, UOB Asset Management, and Wahed Technologies), digital broker (Rakuten Trade), and online distributor (iFAST Capital). Further licensing for registered market operators are under the following segments: crowdfunding equity (Ata Plus, Crowdplus, Crowdo Malaysia, Ethis Ventures, Eureeca SEA, FBM Crowdtech, Fundnel Technologies, Leet Capital, MyStartr, and Pitch Platforms), P2P financing (B2B Finpal, Bay Smart Capital Ventures, Capsphere Services, Crowd Sense, Ethis Kapital, FBM Crowdtech, MicroLEAP, Modalku Ventures, Moneysave (M), Peoplender, and QuicKash Malaysia), and e-services (TNG Digital and Versa Asia) (Securities Commission Malaysia, n.d.).

Human capital is a challenging part of I-FinTech business models. There are challenges for I-FinTech operators due to a lack of human capital talent that can fill the technology gap (MDEC, 2020) especially Shariah expertise. Payza (2019) states the implementation of digital banking operations is a complicated process due to its selectivity in determining viable target markets and talents and developing a digital team. Based on BNM (2016b), FinTech disruptions occur when transaction processes are performed without adherence to specific rules and principles. Hence, it is crucial to address the risks of Shariah non-compliance that potentially arise following the FinTech system non-adherence to Shariah principles. In this regard, Shariah advisors' primary task is to address system and application-associated risks. Thus, Shariah expertise is crucial in the development of I-FinTech in order to incorporate appropriate Shariah tenets and determine product compliance.

Jamil and Abu Seman (2019) stressed that FinTech companies that work with IFIs utilise and apply existing Shariah governance. Skills in Shariah guidelines are also essential whether FinTech companies employ employees who are knowledgeable about Islamic finance or use the services of Shariah consultants. For example, PayHalal obtained Shariah approval from the consulting services Amanie Advisors. Djafri (2017) also agrees that most FinTech products and procedures are not fully compliant with Shariah principles and the requirements of Islamic contract laws as FinTech catalysts are not experts in Islamic or Shariah finance disciplines. He argues that the application of technology in Islamic finance is in dire need of joint study between Shariah scholars and technology experts such as computer or software engineers to clearly comprehend the modus operandi of financial service technology (Sungit & Ahmad, 2017). Therefore, technology experts require a basic knowledge of Islamic finance while Shariah scholars need to be acquainted with technological application in Islamic finance (Muneeza & Mustapha, 2019).

As FinTech undoubtedly requires the facilitation of legal and regulatory frameworks, robust human capital skills, and committed participants in the Islamic financial industry; collaborations between stakeholders involving regulators, financial sector businesses, industry bodies, non-financial institutions, scholars, and consumers should be perpetuated (Laldin & Furqani, 2016) to prevent miscommunication.

Challenges in protecting consumer rights

The digital revolution heralds a novel set of intricacies for human development, such as high inequalities within and between nations, human rights, data privacy and security, job losses following automation, economic instability, and other pertinent factors. Although several countries are currently expanding essential social services, including education and healthcare to rural populations with mobile phones, most low and middle-income communities are still unable to benefit from social and economic opportunities as almost 2 billion individuals do not utilise smartphones. Furthermore, 2 billion out of 5 billion mobile customers worldwide remain offline (Jahic & Jahan, 2019). The local mobile phone penetration rate was 90.71% in 2019 and is estimated to reach 97.4% in 2025. Likewise, the number of mobile internet users would assumably reach 33.43 million in 2025 compared to 28.4 million in 2019 (Statista Research Department, 2020).

Given the complexities in aligning digital strategy implementations with new customers' decision-making processes and technology prototypes within the Islamic banking and finance context, banks are required to disrupt present business models to provide unique customer experiences and complement customer needs in an increasingly digital world (Laldin & Djafri, 2019b). Technological security denotes another complexity regarding consumer rights protection. As the utilisation of robo advisors for fund services and wealth management could equally instigate financial risk and personal information leakage, FinTech might be accountable for any losses due to system or algorithm failure (Lee & Shin, 2018). There are joint project ventures on ZakatTech blockchain plates by the International Shari`ah Research Academy for Islamic Finance (ISRA) and SysCode utilise blockchain to improve transparency and effectiveness levels and community members' confidence in performing zakat donations through legitimate channels. The venture also expected to increase the amount of zakat collection and distribution to the needy, improves the social economy, minimises transaction costs, improves efficiency levels in the overall collection and distribution process, and reduces system errors and fraudulence (International Shari`ah Research Academy for Islamic Finance [ISRA], 2019).

A local survey by PwC (2018) to obtain respondents' views on customers' behaviour towards and usage of e-wallet revealed that only 22% of respondents were e-wallet users who often utilised the application for food and beverage (F&B), retail, and e-commerce purposes. Respondents' primary e-wallet concerns were poor implementation among traders, weak user interface, and security risks. In line with the BNM issuance of the Guidelines on Electronic Money (e-money) and Interoperable Credit Transfer Framework (ICTF) to promote higher usage of mobile payments among Malaysians, e-money issuers should adhere to minimal e-money scheme principles and standards, such as governance and integrity, compliance with other requirements, risk management, and stakeholders' e-money rights and responsibilities for operationalisation (Mohamad, 2019). The Real-time Retail Payments Platform (RPP) that went live at the end of 2018 enables convenient and secure payments with mobile phones, identity card numbers, business registration numbers, and QR code payments (Lee & Khaw, 2018). Notably, the measures enable users to conveniently fulfil online transactions. Financial institutions may collaborated with organisations, such as CyberSecurity Malaysia to increase customers' awareness of Internet banking security (CyberSecurity Malaysia, 2021).

6. Conclusion

This study successfully examined the significant impact of FinTech development on Malaysian IFIs by analysing past literary content. Additionally, the study contributes to the current body of I-FinTech knowledge through extensive research on the threats, importance, and challenges of FinTech operationalisation in Malaysian IFIs. The novelty of FinTech induced short-term adverse impacts and long-term benefits as modern life is inextricably linked to technological development. Technological applications have caused disruptions by redefining processes, methods, and complexities towards

traditional banking. Despite the undeniable threat towards traditional banking, FinTech facilitated the exploration of previously disregarded segments (under-served). The FinTech emphasised the importance of optimising traditional banking efficiency and effectiveness, users' financial service experiences, and the development of FinTech players. Although I-FinTech inevitably encountered complexities involving regulation, human capital, and consumer rights protection, IFIs should manipulate FinTech growth by integrating I-FinTech-oriented solutions to complement millennial consumers' demand and Shariah requirements. One of the main concerns in meeting Shariah requirements is not only complying with contractual stipulations, but also on the fairness and maintaining the Shariah objective of wealth protection, whereby I-FinTech should ensure that the wealth of I-FinTech users is protected. As the challenges for I-FinTech advancement encompassed Shariah compliance, it is deemed essential to develop a specific Shariah framework for I-FinTech-based alternatives and incorporate Shariah tenets into novel technologies. Stronger collaborations with Shariah scholars and information technology experts in developing and evaluating I-FinTech products and services proved necessary. Previously mentioned gaps could also be empirically bridged in future research. Summarily, this study encourages IFIs to offer Shariah-compliant FinTech-based solutions which will attract wider market of consumers either Muslims or non Muslims.

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