

Quadruple Helix Engagement: Reviews on Syariah Fintech Based SMEs Digitalization Readiness

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ABSTRACT

The development of Syariah Financial Technology (Fintech) after Covid-19 has experienced significant fluctuations in affecting the country's economy. The importance of the role of Financial Transactions in the digitalization readiness of SMEs makes a considerable contribution to the use of Financial Technology as an effort to maintain the sustainability of SMEs. Identification of the involvement of the quadruple Helix (government, investors, academics, and communities) in maintaining the financial stability of SMEs through Syariah Fintech emerged as new challenges and opportunities in improving the economy after Covid 19 in Indonesia. Therefore, a systematic literature review investigation regarding how to utilize Syariah fintech products adjusted to the degree of digitization is required to help SMEs' sustainability and explore the role of the quadruple Helix in pursuing this success. We identified 110 papers published on Syariah Fintech for SMEs, SMEs Digitalization Readiness, and The Role of Quadruple Helix between 2003-2021 with 87 specifications from Scopus journals and 23 from proceedings conferences. The analysis was performed using Atlas. Ti 9 Software Packages on the above topic by limiting the discussion to inclusion and exclusion criteria. The literature review found a lack of study about the evaluation of Quadruple Helix Engagement for Syariah Fintech Based SMEs Digitalization Readiness. Thus, it needs to enhance a new Syariah fintech quadruple helix recommendation focusing on the SMEs' digital readiness assessment to increase the utilization of proper Syariah fintech products for SMEs.

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1. INTRODUCTION

The prosecution of lockdown and social distancing regulation in Indonesia carries weight on the economic disaster, the decreased production, the supply chain disruption, the high loss of income, the financial markets damaged, the new customers' defeat, and the credit flows disruption [1]. To overcome the restriction of community interaction and break down the Covid-19 spread, Financial Technology (Fintech) emerges as an alternative solution in ensuring the sustainability of the business economic activity. Fintech inclines as information and financial technology tools in providing financial services at affordable costs, user-friendliness, and ease of transaction procedures [2]. In the Syariah context, fintech grows into economic digitization platform that provides financial services and assistance following Islamic Syariah regulation [4].

Recently, Syariah finance has had a great opportunity in conquering financial problems after Covid-19. The perception of Syariah finance prohibits interest rates (riba), presumes the money as a transaction medium

instead of a commodity, and guarantees no financial transactions without asset revitalization. Thus, Syariah finance boots the conceiving of financial system freedom based on profit and loss. Syariah finance services utilize and adapt the customer demands as a community financial tool, including Zakat, Qardh-Al Hasan, Sadaqa, Mudaraba, Islamic Microfinance, Sukuk, and Waqf [5]. However, the Covid-19 crashes into several challenges for Syariah finance as well as fintech, including market fragmentation due to limited travel and communication [6], reduced investment and income, particularly in Syariah microfinance and SMEs, high dependence on government assistance, zero cash owing to the delay of equated monthly instalment (EMI) payment, negative implications of liquidity needs, and uncertainty of business merger. Hence, these encourage Syariah Fintech to administer such financial innovation services through Syariah financial institutions and the banking system [2 and 3].

Syariah banking adopts 5C prudence principles that call to mind in credit policies, credit quality assessment procedures, and the professionalism and integrity of credit foundation. According to [7 and 8], five principles figure out the character of a prospective vagabond; the capacity of customers' credit payment; the customers' capitalization [9]; the customer Collateral guarantee physically and non-physically [10]; the customer sustain and economic condition. This 5C concept grows into the Syariah fintech consideration in providing the credits based on SMEs' digitalization preparedness.

Several previous studies have discussed several models or frameworks used to measure the digitalization readiness of SMEs from different perspectives, contexts, backgrounds, case studies, and goals [11]. Beacon [12] and Decision [13] produced a model of a tool for measuring the digitalization readiness of SMEs. However, this model fails to encourage digital transformation in organizations and suggests proper prioritization analysis in achieving success. Salah [14] built a digitalization readiness measurement model under the name General Practitioner Information System (GPIS) and New IT/IS Capability Evaluation (NICE) by involving technology experts as industry assessors. Building Information Modeling (BIM) is a model for measuring organizational maturity associated with technology readiness. This model is inflexible, limited to BIM companies, and far from the standard for measuring MSME digitalization readiness.

On the other hand, Lou [15] found the e-readiness on the construction (ERiC) framework as an alternative measurement tool that can be done by increasing organizational awareness in supporting the digital economy. Unfortunately, this framework is specifically designed for the Construction Industry (CI) with case studies in the United Kingdom. At the same time, Okfalisa [16] has succeeded in building a measurement model for the digitalization readiness of MSMEs by considering aspects of economic activity such as business activities, transactions, management, marketing, micro-environment, and macro-environment. Readiness of the Information Technology (IT) aspect is also a concern as it measures the performance of IT culture, IT competence, IT finance, and IT infrastructure.

Quadruple Helix integrates the roles of academics, entrepreneurs, government, and civil society into creative and knowledge activities (Oscar, 2010). Previous research stated that the Quadruple Helix concept could develop creativity, innovation, and technology for the creative industry. The Quadruple Helix concept is very considerable in sustaining and strengthening the industry's creativity, capability, and competitiveness [17]. Islam [18] recognized the Quadruple helix approach as pivotal in SMEs' sustainability and compliance strategies in developing countries during persisting disasters. The outer course of the study demonstrates the capability of Quadruple Helix-based interconnectivity. It offers a comparative glimpse at the strategic practices of SMEs and recommends policy furtherance [19]. It also emphasizes the significance of horizontal collaboration and a proper government stance in the association of other Helixes to overcome the issue and the necessity for a creative solution instead of simply redistributing existing resources and enhanced communication.

However, some researchers continue to argue that the backdrop of the Quadruple Helix studies has not yet produced the predicted impacts on crisis setting. According to the Quadruple Helix model, four stakeholders' involvement [20 and 21] are critical in determining whether economic sectors generate the necessary strategic innovation blueprints to solve business issues. Developing innovative products, processes, and services is an effective way for SMEs to overcome or circumvent market obstacles. [22]. Regards to this notion, the Quadruple Helix mechanism suggested that civil society elements such as culture, values, lifestyle, social problems, and media are vital components of the innovation system as it communicates the activities of business firms, Government departments, and universities to either improve or undermine collective innovation initiatives [23 and 24]. The collaboration of components in the Quadruple Helix mechanism encourages digitizing SMEs as an innovation system to improve business performance and survive challenges during the crisis economy. Nonetheless, the complicated course of resource-friendly digitization that shakes traditional business processes, rapidly expanding contributions to dynamic technology platforms, and comprehensive innovation may indeed play a critical role in supporting this transformation process [25]. Herein, the involvement of the government or concerned authority can serve as an entire territory in the relocation of knowledge and provision of additional assistance to protect SMEs from the pandemic. Academia as a second

Helix has been distinguished as the base shifting technology paradigms [26]. On the other hand, industries can create vocational accelerators, science, hubs, and commercialization processes of understandings to assist companies in achieving their goals [27 and 28] and effectively control the crisis properly. A directed public community about technology, media, and culture influences the formal bottom-up engagement of participation [29].

Noticing the prominent role of the Quadruple Helix in the success of digitizing MSMEs and the link between MSME digitalization readiness and Syariah Fintech assistance, it is necessary to develop a new novelty study on how to determine the right Syariah fintech product for SMEs according to the degree of digitization. Furthermore, how the Quadruple Helix's role in pursuing this success is also the review's focus in this research.

2. RESEARCH METHOD

This research used database sources from Google Scholar and Scopus to report a wider variety of journals and conference proceedings. The query was performed by using the Google Chrome operator. Keywords and search patterns were also employed to find a broader range of Syariah Fintech Products and SMEs Digitalization Readiness Assessment and Success Transformation. A more comprehensive search context can be performed to obtain a target outcome when using Scopus. This research employed five sets of keywords (Syariah Fintech, Quadruple Helix, SMEs Digitalization Readiness, Performance Measurement, and Financial Transaction) in Scopus [34]. This study created 87 documents collected from Scopus Journal and 23 papers from Google Scholar and Scopus indexed administered from 2003-2021.

The article selection procedure yielded 58 papers, which were used as the primary research investigation in this study. The inclusion and exclusion criteria also utilize quality studies, duplication of multiple databases, and the appropriateness and similarity with the keywords included in a full-text screening procedure. The inclusion criteria include written in English, 2003 to 2021 time publication, a discussion about Syariah Fintech, Quadruple Helix, SMEs Digitalization Readiness, Performance Measurement, and Financial Transaction. The journal will be listed if a similar article is discovered at conferences and journals. On the other hand, the exclusion criteria encompass studies that lack validation and experimental result, studies based on organization reports, opinion articles, editorials, and coincidental studies about Syariah Fintech Products, SMEs preparedness assessment, and successful transformation. As a result, from 58 foremost studies selected, only 51 papers were used for subsequent analysis, seven papers eliminated because of a review paper. These reviews are restricted to only research papers with completed empirical data, and data extraction forms will be used.

This research used the Atlas. Ti 9 software package to analyze data at a systematic literature review. The Atlas. Ti 9 is well-suited for preserving, recognizing, and analyzing this research data. One of the benefits of Atlas. Ti 9 easily accessed quotations for keywords, patterns, relationship charts, and other analytic tools [30]. The auto-code breakthrough was initially used for Atlas's initial phase of analysis. Ti 9 software. It attempts to explore and mark various sections of Atlas's knowledge body as quotations. Ti 9 software was used.

These quotations were gathered in a separate register for an assessment, whereas quotes on the research technique were evaluated regularly. All papers were read and discussed multiple times based on the research issue to discover common themes and concepts [31]. The Atlas. Ti 9 software provided the quotation, network, and family terminology to utilize machine terminology and illustrated them clearly [32]. The previous researchers explained that Atlas.Ti.9 technique summarized the study amidst codes, quotes, and system hierarchy with notes and clarified the definition of quotations [33]. This software is user-friendly for unfamiliar researchers with qualitative data analysis software. Keywords, themes, relationship charts, various analytic capabilities, and quick access to quotations were all advantages of utilizing the Atlas. ti 9 software [34].

Five components were conducted on this systematic research review using the qualitative software tool analysis Atlas.ti.9. Firstly, the study aims to get insight into advanced techniques and the ultimate potential of SMEs' digital readiness and Syariah fintech products. Secondly, the concentration of this article focuses on SMEs' digital readiness and the characteristics of Syariah fintech research, i.e., objectives, approaches, and results. Thirdly, the viewpoint of this analysis takes a balanced approach to the study of publications. Fourthly, the design of this article is arranged first in conceptual order, then connected. Lastly, the coverage of the literature is well-documented [31]. This software reveals the world cloud information, network perspectives, and coding frame of related issues in this study. The open coding function of the Atlas. Ti 9 employs a software package, recognizing numerous words, phrases, and other terms of interest linked to this article or topic of the claim are explored. A "quotation," for example, is labelled with open code and uses the actual words from the exact text to generate a message. When creating codes started with new concepts, it is not uncommon to end up with more than a few lines of code [31]. The deep codes analysis is conducted to see any relationships and categorize the terms into groups based on their shared characteristics. Besides, the dimensions of the codes analysis represent the property's location in a subset or continuation is also investigated. The category's

name can be different from the codes to explain its scope better, even build sub-categories and affix them to the classes if required [34]. Next, gravitational coding and selective coding are loaded. Such coding allows building models in an inductive approach in the study.

3. RESULTS AND DISCUSSION

3.1. World Cloud Information Analysis

The Atlas.Ti 9 software administers word cloud information to assist apprentices in understanding how software comprehension is performed. A word cloud is an essential and straightforward visualization technique often used to give a rapid overview of text content. In most cases, the most common terms in a text are expressed as a weighted list of words in a particular spatial arrangement (e.g., sequential, circle, random). The font sizes of the terms indicate their importance or frequency of recurrence for graphical reasons or to communicate additional information visually. As the software loading, the world cloud information on Syariah fintech and SEMs digitalization readiness can be represented in Figure 1.



Figure 1. World Cloud: Syariah fintech and SEMs digitalization readiness

3.2. Network Perspectives

The network perspectives indicate how the information codes are related to the key topics resulting from SMEs' digitalization readiness and Syariah's fintech approaches. The Atlas.Ti.9 created the network functions to view the Digitalization Readiness Transformation Success among SMEs, and SMEs Digital Readiness Assessment with Quadruple Helix Involvement through the Syariah Fintech as depicted in Figure 2 and 3, respectively. In general, Sophie and Nadine [35] found several obstacles in digitizing MSMEs. The first obstacle is technical barriers related to resource availability and operation technology readiness in the form of effectiveness and efficiency in using the Internet of Things, big data and analytics, cloud computing, cybersecurity, augmented reality, intelligent manufacturing solutions, additive manufacturing, connected manufacturing simulation, manufacturing digitalization strategic road mapping, and artificial intelligence in business activities and services [36 and 37]. Often, the above barriers are triggered by a lack of financial support and technical resources, which makes infrastructure adoption impossible [38 and 39]. The second obstacle is organizational barriers regarding the management concepts, business process operations, product creativity, organizational structure [40], change management competencies and skills in supporting digitalization, resources, and collaborative management innovation [39], business digital partner maturity, digitalization of culture shock, reluctance to change, ignorance and awareness of change, and pessimism about change [41 and 42]. The third obstacle is the lack of ability, competence, and human resource skills in utilizing digital technology and the lack of digital training and education, especially for sales competence or customer interface skills [43 and 44]. These obstacles result in breaches of customer security and privacy (Cybersecurity maturity), lack of control over information and information ambiguity, and lack of utilization of customer activity analysis [45] which affects the successful digitalization of MSME businesses. This condition worsened after the spread of Covid-19.

It is proven that digital transformation can improve and maximize MSME business performance. However, since the ICT investment in transformation requires great intention and financial hazard, infrastructure, operational management, digital acceptance, and digital learning, skills, abilities, and competencies, measuring MSMEs’ digitalization readiness is one solution to avoid various possible failures of digitization. Understanding the degree of digitization and servitization makes the MSMEs addressed to the right digital solutions, optimal business strategies, business models, and effective technology adoption [36].

Emphasizing the Syariah previews, SMEs’ digitalization readiness is a prerequisite for assuring readiness in Syariah, economy, and IT perspectives transformation achievement within the SMEs sector. This success factor would provide SMEs with a better opportunity to develop other drivers of digitalization success, such as resource availability, digital readiness in Syariah, managerial expertise for digital transformation, and digital sophistication of business partners [46]. Figure 2 explains that the essential performance predictors that SMEs can develop and, as a result, gain the competency to perform a comprehensive digitalization readiness preassessment are resource availability, digital readiness in Syariah, and management competency for digital transformation. At present, business partner digital maturity, combined with digitalization readiness preassessment capability and digital Syariah training and education, would confess SMEs to generate transitional success predictors of organizational change qualifications, knowledge, digital technology skills, and manufacturing digitalization strategic road-mapping [46]. The three dependent success factors on the right side of the industrial digital transformation accomplishment are cybersecurity readiness, information and digital technology capability, and operations technology preparedness, which are the most demanding and complicated achievements.

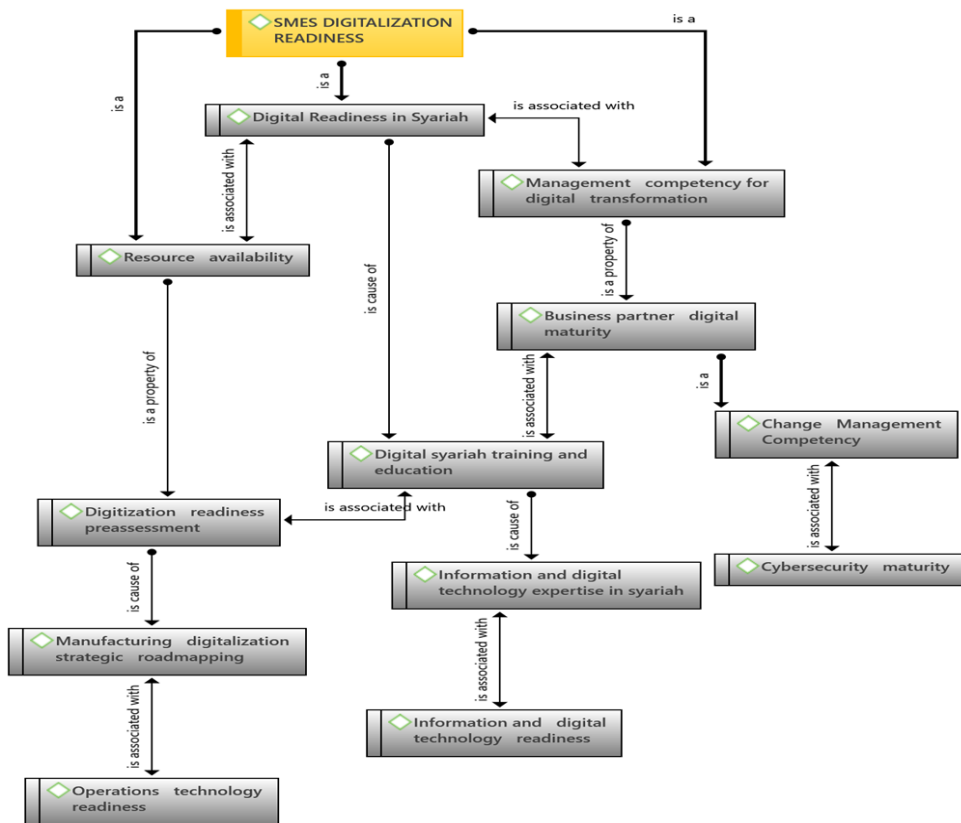


Figure 2. The Atlas. Ti.9 Network View on Digitalization Readiness Transformation Success among SMEs

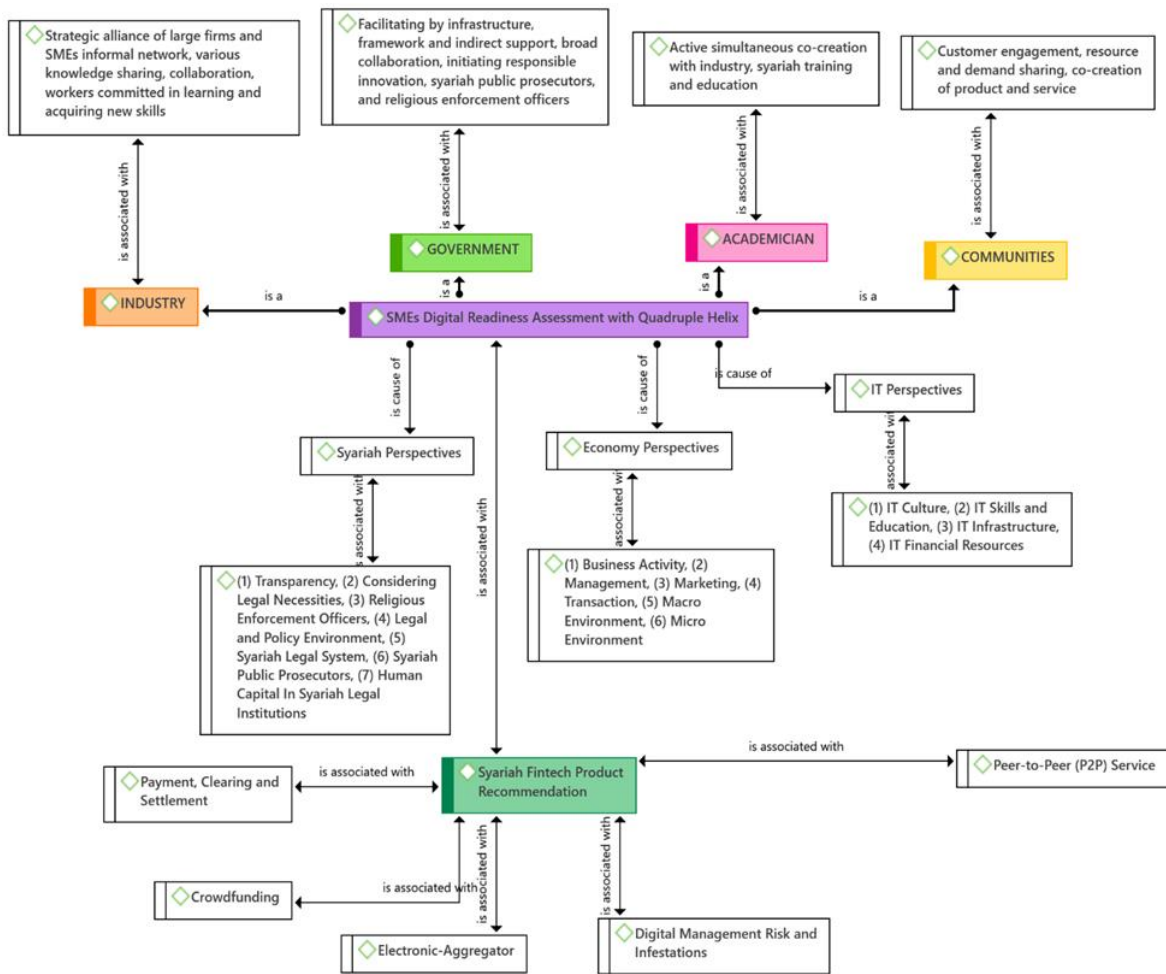


Figure 3. SMEs Digital Readiness Assessment with Quadruple Helix

According to Figure 3, the quadruple helix approach to SMEs’ digital readiness assessment emphasizes the interaction among universities, industry, communities, and government and perceives these elements as critical to developing favourable conditions for innovative efforts [47]. The quadruple helix concept is focused on the long-term evolution of modernization and the sense of integrating citizens’ perspectives based on culture and society [48]. According to Afonso [19], the design of an economy is split into four Helixes viz. universities, industry, communities, and government, each of which generates innovation and economic progress through their interactions. According to Roman [49] and Islam [47], the quadruple helix mechanism may begin with a reverse system. For example, an employee at a company could have a brilliant suggestion for improving the technological process (knowledge phase). If the concept has the backing of the manager/supervisor (step of persuading), the management may decide to approach a local institution for more investigation (phase of decision). If the universities have researchers and funds (or a business offers money) to undertake the necessary testing, the corporation may use a technique innovation (implementation stage) to produce more sophisticated goods. With the help of various local government authorities, the concerned company may additionally aim to file for a product innovation patent (confirmation phase). When tackling innovative issues that are not defined by a particular trend, the interaction in the Helixes is essentially a consequence of attempts to deal with crises (crisis phase) and build a solution [50]. Collaboration between universities, industry, communities, and government, referred to as the quadruple helix concept, is required to create the basis of a sustainable corporate sector [47].

Based on the IT, economy, and Syariah perspective, SMEs may enhance and maximize their company performance by implementing digital transformation. In such an instance, IT investment in digital

transformation necessitates considerable labour and risk in funding, infrastructure, operational activities, digital adoption procedures, digital capabilities, and learning development.

Therefore, assessing the readiness of SMEs to face these processes is very important, including business activities, management, marketing, transactions, macro and microenvironment, and IT transformation related to culture, education, infrastructure, and financial support [16]. Even yet, most developing nations still lack the initiative, ambition, and expertise needed to engage in IT in the digital transformation process. Financial concerns that significantly influence people's lives and the economy cannot be left entirely in the hands of individuals. The government may intervene to regulate a sector to maintain financial security and consumer rights, especially when unknowing investors are the victims of financial fraud. Because Syariah fintech companies usually operate independently, relying on complex arguments for why their innovations are permitted or authorized by particular fatwas, law, regulation, and infrastructural support are critical. Syariah fintech services will transform the environment and the way individuals do business. This scenario will influence human life's public interest (*maslahah*) worldwide.

However, Muslims should evaluate whether something is allowed (*halal*) or banned (*haram*) from the standpoint of Maqasid Al-Syariah, in addition to allowing the advancement to be employed (Objective of Syariah). For example, a person possessing *al-mas'uliyah* (responsibility) and *al-Amanah* (trustworthiness) within their character are indicated to be a humanitarian. The components of *al-mas'uliyah* and *al-Amanah* allude to something applied to individuals to do or assume responsibility for. He will be held accountable if he makes mistakes or is treacherous. These components will assist individuals by keeping them from acting contrary to human character traits such as betrayal and the like. From an Islamic ethical standpoint, the person eventually deserves to be a Muslim individual of human character. In leading jurisdictions implementing Islamic financial services, there has been a considerable growth in the adoption of technology and creative solutions for contemporary fintech applications in the Islamic capital market. From SMEs' digitalization preparedness to Syariah fintech indirect collaboration in different ways, the business environment has boosted innovative activities, especially in facing the Covid-19 disruption. The spreading of Covid-19 and government policy regarding social distancing forces SMEs to find creative ways to be sustained through the collaboration of academics, governments, and communities to participate in valuing co-creation and industry initiation actively. Moreover, Covid-19 has indirectly encouraged the emergence of various fintech, including Syariah fintech, to support the SMEs' economy.

Todorof [51], on the other hand, claimed that Syariah fintech has fallen behind and is losing large numbers of Muslim customers. This defeat is due to adhering to Syariah's rules, making it very difficult to acquire wealth. Moreover, Syariah states that money should be gained via risk and work. Todorof [51], on the other hand, believes that technology may help Muslims' economies grow, notably in the fintech business, particularly in peer-to-peer (P2P) service, remittance, crowdfunding, and mobile wallet. In addition, the state of preparation for digitizing SMEs is also performed, including the requirement for peer-to-peer (P2P) lending, digital Islamic financing, electronic aggregators, and digital risk and investment management. So that those SMEs should emphasize business model development, innovate, be creative, and compete in the face of technological transformation. This transformation may be accomplished by harmonizing standards and recommendations to reduce risk. Even though Syariah fintech is still in its infancy, its market will be prominent and strong. This condition is because Syariah fintech provides efficiency in mobile banking, cheap transaction costs, and transparency and flexibility are essential aspects of Syariah rules and objectives. As a result, Syariah fintech might be realized by a collaborative effort of resource and information sharing to have a long-term influence on the economy, environment, and society.

This study shows that present levels of social resource in Syariah fintech products may be revitalized via scientific research improvement in readiness for Syariah, economy, and IT perspectives, as shown in Figure 3. Furthermore, the rejuvenation envisioned is from education and training since these are two of the most critical factors that impact the degree of individual leadership in a given organization and country. Therefore, it is proposed that the quadruple Helix's decision, enlightenment, and understanding of Syariah fintech are essential. Based on the aforementioned supporting framework, a new novelty was developed. It is outlined in the theoretical framework of digitalization readiness transformation success among SMEs. The Syariah fintech quadruple helix recommendation focuses on the SMEs' digital readiness assessment, as shown in Figures 2 and 3.

4. CONCLUSION

This study has been successful reviews and highlighted the role of Quadruple Helix in encouraging the development of digitizing SMEs through the readiness consideration of Syariah, economy, and IT perspectives. The Quadruple Helix concept has successfully shown the significant collaboration between universities, industry, communities, and government in creating the basis of SMEs' sustainability and success. The development of a theoretical framework for digitalization readiness assessment points to the importance

of Syariah fintech's role as a new creative and innovative system to maximize the business performance and survive the challenges of SMEs during the Covid-19 economy crisis. The power concept of Syariah in transparency, considering legal necessities, religious enforcement human resources, legal and policy environment, Syariah legal system, Syariah public prosecutors, and human capital in Syariah legal institution to be new opportunities and challenges in building an ecosystem, environment, social, and economy of SMEs digitalization. The success of digitalization preparedness is scientifically identified based on Syariah's leveraging on economic activities, such as business activity, management, marketing, transaction, macro and microenvironment, and IT adoption, such as culture, skills, education, finance, and infrastructure. Thus, Syariah fintech products in terms of peer-to-peer (P2P) service, crowdfunding, electronic aggregators, and digital risk and investment management growth as the creative solution on business technology adoption. Hence, Quadruple Helix's understanding, selection, management, and collaboration of Syariah fintech products for SMEs is crucial and the most decisive factor in digital transformation success and building a sustainable corporate sector.

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