

A CONCEPTUAL FRAMEWORK FOR INSURTECH READINESS IN MICROTAKAFUL SECTOR

Fatin Anis Mahirah Mohammad^{1,a*} and Nurul Aini Muhamed²

¹Graduate School of Muamalat, Faculty of Economic and Muamalat, Universiti Sains Islam Malaysia, 71800 Nilai, Negeri Sembilan, Malaysia

²Faculty of Economic and Muamalat, Universiti Sains Islam Malaysia, 71800 Nilai, Negeri Sembilan, Malaysia
^afatinanismahirah@raudah.usim.edu.my

*Corresponding Author: fatinanismahirah@raudah.usim.edu.my

Abstract: *The adoption of Insurtech in the Microtakaful industry has the potential to enhance customer experience, streamline policy management, and improve the affordability and accessibility of Microtakaful products within the financial technology ecosystem. However, the readiness of Microtakaful sector in Malaysia to integrate Insurtech remains uncertain and requires further investigation. Existing literature highlights that issues related to public awareness, misconceptions regarding Takaful, limited accessibility, and operational challenges are among the factors that may hinder the growth and development of Microtakaful. This study aims to develop a conceptual framework for assessing the readiness of Malaysian Microtakaful providers to adopt Insurtech solutions. A conceptual framework focusing on the technological factor is proposed to understand how technological readiness influences Insurtech adoption in the Microtakaful sector. The findings are expected to identify critical factors influencing the adoption of Insurtech, highlight challenges and barriers in the integration in Microtakaful sector. This study employs a qualitative approach through a literature review to develop a conceptual framework for the Insurtech readiness in the Microtakaful sector in Malaysia. By addressing the existing gaps in Insurtech readiness, this study contributes to the sustainable development of Microtakaful and supports efforts to enhance accessibility, affordability, and operational efficiency in delivering Shariah-compliant financial protection to underserved communities in Malaysia*

Keywords: Microtakaful, Insurtech, Takaful, Technology Readiness

1. Introduction

Microtakaful has emerged as an important Shariah-compliant financial protection mechanism aimed at improving financial inclusion among underserved communities. Since its early development in 1997, Microtakaful has expanded across several Muslim-majority countries, including Malaysia, Indonesia, Pakistan, and Bahrain. However, despite its potential to support low-income populations, academic research on Microtakaful remains limited compared to conventional insurance and broader Takaful studies. Existing literature highlights that Microtakaful can provide affordable protection solutions for vulnerable groups, but operators continue to face challenges related to operational costs, regulatory requirements, and the sustainability of business models.

In Malaysia, Bank Negara Malaysia (BNM) has supported the growth of Microtakaful through initiatives such as Perlindungan Tenang, introduced in 2017 to encourage the

development of affordable, simple, and accessible insurance and Takaful products, particularly for the B40 population. Nevertheless, the adoption and expansion of Microtakaful products remain challenging for Takaful operators due to cost constraints and market limitations.

Previous studies have mainly focused on Insurance using Insurtech but little research has been done on Takaful and Microtakaful participation readiness using Insurtech. Addressing the lack of awareness among the Malaysian public is crucial to increasing exposure and education about Takaful technology. (Gazali, H. M., Haque, M. M., Shafiai, S., & Shamsudin, N. 2023). The increasing demand for accessible, affordable, and efficient financial protection highlights the importance of developing sustainable Microtakaful models that align with the digital transformation of the Takaful industry. Therefore, examining Insurtech readiness in the Microtakaful sector is essential to identify the technological factors that influence successful adoption.

This study contributes to the existing literature by proposing a conceptual model that explains the readiness of Takaful operators to integrate Insurtech into Microtakaful services in Malaysia. The proposed framework provides valuable insights for Takaful practitioners and policymakers in developing strategies to enhance digital transformation, improve operational efficiency, and expand Microtakaful accessibility among underserved communities. Finally, this study is structured as follows. The next section presents the literature review, which provides a comprehensive examination of existing studies related to Insurtech adoption in the Takaful and Microtakaful sector. This is followed by the research methodology section, which explains the approach used in developing the conceptual framework. The subsequent section discusses the key factors influencing Insurtech readiness in the Microtakaful sector, followed by the conclusion, which summarizes the main contributions, implications, and potential directions for future research.

2. Literature Review

This literature review synthesizes theoretical and empirical studies on technology-driven innovation in insurance, the development and challenges of Microtakaful, and the concept of Insurtech readiness as it applies to the Takaful sector. Recent studies indicate that technology-driven innovation has become an increasingly significant influence in Islamic finance, particularly in Takaful and Microtakaful development. (Ghazali et. al., 2023; Ahmad et al., 2023). These studies show that insurance technology and digital solutions can expand financial inclusion, improve affordability, and make Microtakaful more accessible to underserved groups, especially small businesses and low-income communities. (PricewaterhouseCoopers Malaysia [PwC Malaysia], 2023; Al Rifai & AlBaker. 2025). This suggests that digitalization is not only a technical upgrade but also a means of strengthening the social and economic role of Microtakaful. However, despite the growing recognition of technology as a driver of innovation in financial services, the application of technology-driven innovation within the Takaful sector remains limited, particularly in the development of sustainable Microtakaful products. (Qadri et al., 2022). As experts have also pointed out (Ditama, 2024), there is still very little literature on the use of digital platforms, blockchain smart contracts, and Insurtech solutions in a Sharia-compliant framework. The emergence of Insurtech represents a significant opportunity for the Takaful industry to enhance operational efficiency, improve accessibility, and develop innovative solutions that address the challenges of Microtakaful delivery. Therefore, Insurtech readiness has become an important area of investigation in shaping the future digital transformation model of the Takaful sector (Stanković et al., 2022).

Besides, the Takaful market is expected to become one of the important aspects that contribute to Malaysian economic growth and social development. By 2010, Takaful had already expanded across key countries such as Lebanon, Indonesia, Malaysia, Sri Lanka, Bahrain, and Pakistan (Patel, n.a.; ICMIF Takaful, 2010). Microtakaful has strong potential to support financial inclusion by providing affordable protection to underserved and low-income groups. As a low-cost Takaful scheme, Microtakaful is specifically designed as an initiative to help low-income individuals, particularly the B40 group in Malaysia, by enabling them to obtain financial protection for themselves and their families against unforeseen risks. (Rapi et al., 2022; Salleh et al., 2021). Bank Negara Malaysia (BNM) also encourages the Takaful industry to provide Microtakaful products for the targeted group (B40) to increase penetration rate of B40 people taking Takaful protection. Since 2017, BNM has launched Perlindungan Tenang, an Microtakaful initiative that encourages the development of affordable, simple, and accessible insurance and Takaful products. This initiative targets the B40 segment to improve access to financial protection. According to the Middle East Insurance Review, the Perlindungan Tenang initiative by BNM includes collaboration with 13 licensed insurers and Takaful operators to develop microinsurance and Microtakaful products. These products have reached approximately 75,000 individuals by the end of 2019, highlighting progress in extending protection to the underserved segments of the Malaysian population.

However, despite these efforts, according to a report issued by BNM, the overall participation and uptake of Microtakaful products remain relatively low compared to the size of the underserved population, particularly among the B40 segment. (Mahmad Robbi et al., 2025). This indicates that accessibility initiatives alone may not be sufficient, as factors such as awareness, financial literacy, trust, product understanding, affordability, and engagement approaches continue to influence Microtakaful participation. Besides, academic research on Microtakaful remains limited compared to conventional insurance and general Takaful studies (Kader, 2010; Kwon, 2008; Maysami & Kwon, 1999). Although Kwon (2007) identified Microtakaful as a new trend in the insurance landscape, the discussion was primarily conceptual and did not provide an in-depth analysis of the mechanisms, implementation challenges, and technological capabilities required for effective Microtakaful delivery. Consequently, there remains a research gap regarding the role of Insurtech in enhancing Microtakaful operations, particularly in improving accessibility, affordability, customer engagement, and operational efficiency within the Malaysian Takaful sector.

Previous studies also have explored various aspects of Microtakaful implementation. A study by Ali and Khan (2022) has revealed how Microtakaful operators incorporate Islamic principles such as mutual cooperation (*ta'awun*) and shared risk of Takaful into their operations. The study found that the business model of Microtakaful providers can remain profitable through a sustainable business model that balances social objectives with operational efficiency. This can be achieved through cost-effective product designs, simplified underwriting processes, digital distribution channels, efficient claims management, and partnerships with government agencies or financial institutions. By reducing operational costs and reaching a larger pool of participants, Takaful operators can offer affordable contributions while maintaining financial sustainability. Accordingly, Hassan and Ahmed (2023) have also analyzed the challenges of scaling Microtakaful in Muslim-majority countries. The research highlighted the difficulty of balancing profit generation with social objectives, noting that regulatory frameworks often hinder the growth and scalability of Microtakaful programs. These challenges indicate the need for innovative approaches to improve the accessibility, affordability, and efficiency of Microtakaful services.

In this context, the convergence between Insurtech and Microtakaful presents a promising opportunity to enhance financial protection for underserved populations. As both industries evolve, understanding how they can complement each other is critical solution for expanding coverage and improving efficiency. Insurtech involves a range of innovations that leverage digital tools, data analytics, and automation to improve the efficiency and effectiveness of insurance services (Insurance Information Institute, 2020). It has the potential to streamline operations, reduce costs, and enhance customer engagement, which can effectively address the challenges faced by Takaful companies in offering Microtakaful products. Patel and Sari (2023) also have compared Insurtech developments in developed and developing countries to examine how Microtakaful could benefit from emerging digital technologies. The research highlighted that the global adoption of Insurtech, including advancements like artificial intelligence (AI) and blockchain, offers substantial potential for accelerating growth in the Microtakaful sector. However, the study also pointed out that regulatory challenges remain a significant obstacle in certain countries, particularly in regions where legal frameworks have not kept pace with the rapid evolution of technology. These regulatory hurdles hinder the widespread adoption of Insurtech solutions that could otherwise enhance the efficiency and accessibility of Microtakaful services, especially in underserved areas. Despite these challenges, the study concludes that the global integration of Insurtech innovations has the potential to make insurance more affordable and accessible while staying aligned with the core principles of Microtakaful.

In conclusion, this paper provides a comprehensive overview of the evolution of Insurtech and Microtakaful are focusing on key studies, trends, and global implications. As both sectors continue to grow, it will be essential to address regulatory challenges and ensure that technological advancements align with the social objectives of these industries. Despite the increasing recognition of Insurtech as a driver of innovation in financial services, empirical research examining the readiness of Takaful operators to adopt these technologies remains limited, particularly within the Malaysian Microtakaful context. This research gap highlights the need for further investigation and provides the foundation for the present study to develop a conceptual framework for Insurtech readiness in the Microtakaful sector. Therefore, this paper explores the connection between Insurtech and Microtakaful, highlighting how technological advancements can drive innovation and support the goals of Microtakaful in providing affordable and accessible protection solutions to low-income communities while ensuring that Microtakaful sector remains financially sustainable.

3. Methodology

As this study proposes a conceptual framework, further study is required to examine the relationships among the identified constructs. This paper uses a qualitative approach by reviewing all relevant literature from various databases. In searching for literature, only articles in established journals are reviewed. A literature search produced a total of more than 100 articles, of which 30 were chosen for detailed analysis to identify the key constructs and factors that support the development of the proposed conceptual framework.

4. Discussion

The literature review indicates that although Insurtech has been recognized as a significant driver of innovation in the financial services industry, empirical studies examining the readiness of Takaful operators to adopt such technologies remain limited, particularly within

the Malaysian Microtakaful sector. Previous studies have largely focused on the potential benefits of digital transformation, customer accessibility, and operational efficiency; however, limited attention has been given to the internal and external factors that determine whether Microtakaful providers are prepared to implement Insurtech solutions. Furthermore, the availability of affordable Microtakaful products does not necessarily lead to higher participation among low-income communities. The persistent low adoption rate suggests that challenges may exist beyond product affordability, including issues related to awareness, accessibility, operational efficiency, and customer engagement.

From the provider perspective, ensuring the sustainability of Microtakaful requires innovative approaches that can reduce operational costs, expand market outreach, and improve service delivery without creating excessive dependence on external support. From the consumer perspective, the low adoption of Microtakaful products indicates that affordability alone may not be sufficient to encourage participation among low-income communities. Factors such as awareness, understanding of Microtakaful benefits, trust, accessibility, and ease of interaction may influence consumers' willingness to adopt these protection solutions. Therefore, this study proposed a conceptual framework to assess the readiness of Insurtech adoption in Microtakaful sector by focusing on technological context. Based on previous studies, three key technological constructs were identified, namely relative advantage, compatibility, and trialability.

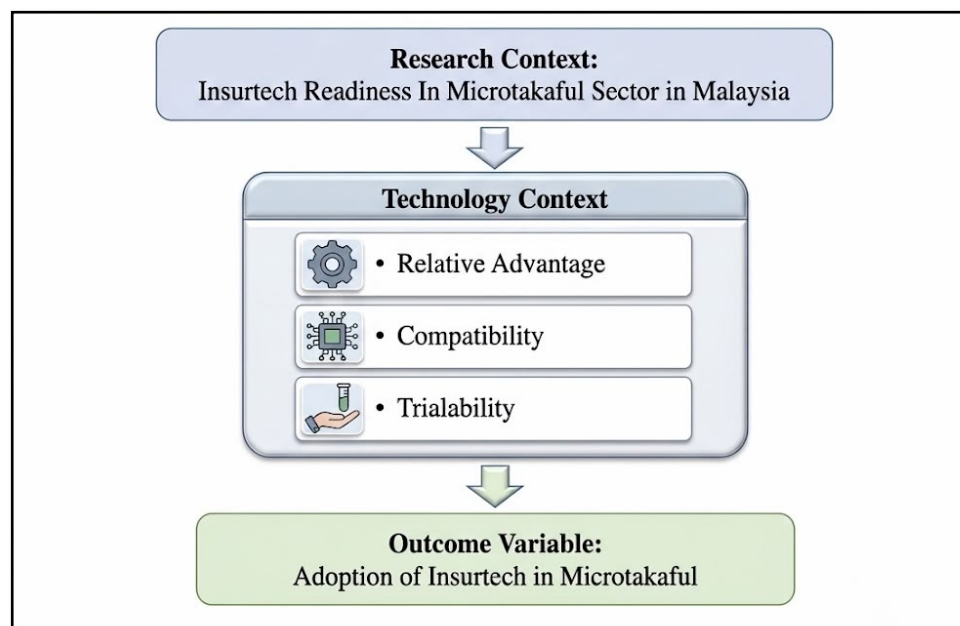


Figure 1. Proposed Model of Conceptual Framework for Insurtech Readiness in Microtakaful in Malaysia

Previous literature shows evidence of relative advantage as a significant force in the adoption of technology in business (Bhattacharya and Wamba, 2018, de Ruyter et al., 2001, Hsing Wu et al., 2013, Kapoor et al., 2014, Lok, 2015, Puklavec et al., 2018). Rogers (2010) defines relative advantage as a key technological factor influencing technology adoption, as it reflects the extent to which an innovation is perceived as superior to existing practices. In the context of Insurtech adoption in Microtakaful, the concept of relative advantage plays a significant role in driving technology adoption. When Takaful companies see clear benefits in digital transformation compared to traditional methods, they are more inclined to implement new

technologies to achieve enhanced operational efficiency, improved customer experience, cost reduction, and data-driven insights for better decision-making.

In addition to relative advantage, compatibility plays a vital role in influencing Insurtech adoption. (Cosma and Rimo, 2024). Rogers (2010) defines compatibility as the degree to which an innovation aligns with the existing values, past experiences and needs of potential adopters. The concept of compatibility refers to how well a new technology aligns with an organization's existing systems, values, and operational practices. For Takaful companies, digital solutions that integrate seamlessly with legacy systems and comply with Shariah principles are more likely to be adopted. Since Microtakaful products often cater to low-income groups, ensuring compatibility with existing customer engagement strategies and distribution channels is crucial for successful implementation.

Lastly, trialability is another influential factor that encourages adoption by allowing Takaful providers to test Insurtech solutions before full-scale implementation. Rogers (2010) defines trialability as a degree to which an innovation may be experimented with on a limited basis. By enabling companies to experiment with new technologies on a smaller scale, they can evaluate the system's effectiveness, identify potential risks, and build confidence in its functionality. For instance, Takaful companies may pilot digital claims processing tools or chatbot services in select regions before expanding their use across the organization.

Overall, the technological context highlights the importance of innovation characteristics in influencing Insurtech readiness among Microtakaful providers. The literature suggests that relative advantage, compatibility, and trialability are critical factors that shape organizations' perceptions and willingness to adopt digital technologies such as artificial intelligence, big data analytics, blockchain, cloud computing, and mobile platforms offer chances to improve operational efficiency, increase customer access, and create new Microtakaful products. Therefore, these three constructs are linked into the proposed conceptual framework as key technological factors influencing Insurtech readiness in the Microtakaful sector in Malaysia.

5. Conclusion

Takaful plays a fundamental role by providing Shariah-compliant risk protection and supporting the achievement of long-term financial security in accordance with Islamic principles. A significant contribution of this study is the development of a conceptual model focusing on technological readiness for Insurtech adoption in the Microtakaful sector. While the adoption of Insurtech has been widely examined in the conventional insurance industry, research on its application within the Microtakaful sector remains limited. This gap highlights the need for further investigation into how digital technologies can support the transformation of Microtakaful services and enhance their accessibility, efficiency, and sustainability. This study specifically focuses only on technological readiness as a key factor influencing Insurtech adoption in the Microtakaful sector. Technological readiness is particularly relevant as the adoption of Insurtech requires appropriate digital infrastructure, technological capabilities, system compatibility, data management, and the ability to integrate emerging technologies into existing Microtakaful operations. Although technological factors have been examined extensively in studies of conventional insurance and technology adoption, their relevance to Microtakaful requires further investigation. This is particularly important in developing countries such as Malaysia, where the Microtakaful sector operates within a distinct Islamic financial and market environment. By examining technological readiness within the Malaysian Microtakaful context, this study extends the existing literature on Insurtech readiness and technology adoption in Islamic financial services. Furthermore, this study contributes to the

growing literature on Takaful by providing a theoretical foundation for future empirical research and offering practical insights for policymakers, regulators, and Takaful operators. The proposed model may assist decision-makers in formulating effective strategies to accelerate digital transformation, strengthen organizational readiness, and enhance the penetration and accessibility of Microtakaful products among underserved communities in Malaysia.

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