Article

An Empirical Analysis of E-Takaful Participation Readiness (ETPR) Among Individuals in Malaysia

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Abstract – Increased digitalization is one of the tailwinds expected to impact the Islamic Financial Services Industry (IFSI), including the takaful industry, which is growing at up to 5.2% globally. Despite the increasing penetration of digital technologies, the participation rate in online takaful remains disproportionately low. Hence, a call for a digital platform is seen as vital in the current economic situation to further reach out. This research suggests an integrated model of e-takaful participation readiness (ETPR) and empirically tests the model. Furthermore, this study opts for primary data via a structured online survey adapted from previous studies using a purposive sampling technique. Partial Least Square - Structural Equation Modelling (PLS-SEM) is the main statistical technique used in this study. Based on the perspective of user acceptance of information technology, the current research significantly expands on factors influencing e-takaful participation readiness among 395 individuals such as religiosity, attitude, and takaful literacy. Past studies have visited the topic of e-banking readiness, but limited studies focused on its relation to the e-takaful area. This study is a pioneer in examining consumer participation readiness toward e-takaful services particularly during the digital shifting process due to pandemic. The results supported the measurement model's prediction that each research measure's reliability and validity requirements were met. All the proposed hypotheses were found to be significant and accepted. The findings of this study suggest takaful operators in Malaysia to critically devise their new penetration strategies and focus on giving extra value to induce takaful literacy and make room for improvement in product penetration to the target segments by understanding the factors contributing to this phenomenon. This is crucial for policymakers, takaful operators, and other industry stakeholders to develop strategies that encourage greater adoption of online participation.
Keywords: “Takaful Literacy”, “E-Takaful Participation Readiness”, “Attitude”, “Technology”

1. Introduction

Malaysia ranks third in the world for making substantial takaful contributions and is among the top five takaful markets globally. The continuous growth in this industry is closely associated with the deployment of technology, which could be benefited in

terms of operational efficiencies (Ahmad, Mokal, & Rahman, 2023). Compared to its neighboring countries, takaful operators based in Malaysia gained privilege on technology usage and efficiency, thus helping them to operate consistently and efficiently (Sukmaningrum et al., 2022). Although insurance transactions have increased significantly in recent years, the industry lags behind in adopting e-commerce to increase e-insurance adoption, resulting in insufficient online sales in certain countries (Toukabri & Ettis, 2021).

Presently, digital technologies play an important role in people's day-to-day basis (Saleem, Aslam, Kim, Nauman, & Khan, 2022). Public attitudes toward taking up new and attractive lifestyles will change as a result of these digital technologies. In Asia-Pacific, digital insurance is expected to increase at a rate of 7.5% from 2023 to 2028. With a growing middle class and a more digital population, the uninsured and underinsured are more likely to adopt digital insurance (PricewaterhouseCoopers Malaysia, 2023). In addition, the market's InsurTechs are mostly responsible for driving the digitalization of the insurance industry, focusing on customers' growing demands for transparent, easily available, and cost-effective insurance. On the other hand, takaful technology (Takatech) aims to provide cooperative Islamic insurance services through digital platforms (Ali, 2021). While fintech provides convenience, it should not undermine its primary responsibility to protect customers' money. The challenges presented to takaful operations due to digital disruption are important to adapt, integrate and face gradual obsolescence (Sukmaningrum et al., 2022).

Malaysian Insurance Institute (MII) (2021) states that only 56% of Malaysians have some form of insurance coverage, and only 19% have comprehensive insurance cover. Life Insurance Association of Malaysia (2020) reported that 57% of Malaysians have never purchased life insurance, and affordability is the primary reason cited by 47% of them. Apart from that, a study revealed that a lack of understanding and awareness of takaful products among consumers is a significant challenge in the takaful industry (Zakaria et al., 2016). Malaysia's Life Insurance and Family Takaful penetration rates of 54% in 2022 and 19% in 2021, respectively, far below the 75% target set by Bank Negara Malaysia in 2017 (PricewaterhouseCoopers Malaysia, 2023).

Many factors can potentially influence individuals' takaful decisions. This study addresses three predictors, namely religiosity, attitude, and takaful literacy. E-Takaful Participation Readiness (ETPR) is the main interest of this study since there has been a significant shift toward digital platforms in various financial services, including the insurance or takaful industry, driven by technological advancements and changing consumer behaviors. Customers' expectations are also changing, with the growing demand for personalized and digital services. At international level, regulatory barriers and technological challenges pose significant obstacles to the adoption of e-insurance (Nyirenda & Nyirenda, 2023). Owing to altered technological circumstances and the emergence of implementation opportunities in the Uzbek insurance industry, new types of service have emerged, aiming to reduce expenses by using information technology as a medium of selling insurance policies online (Nuralieva, 2021). However, in India, developing insurance methods via the Internet is difficult due to complex procedures such as claim settlement and concerns about online security. Online insurance is thus most effective for low-complexity products (Dasgupta & Sengupta, 2002). To a certain extent, several technical and non-technical issues still linger around this practice. The

public lacks trust in this relatively new system, either considered taboo or general disbelief that the goods will never arrive (Nurhakim, Rohaini, & Suriatmadja, 2022). Considering these perspectives, it is of utmost importance for the public to manage these risks withe-insurance.

This market is massive and relatively untapped, with most people needing help to appropriately acquire or afford takaful coverage. Leading companies invest heavily in technology, and customers actively take advantage of new advantages. PricewaterhouseCoopers Malaysia (2023) conducted a survey among 84% of the uninsured aged 18 to 34, and they found that digital insurance or takaful is expected to provide real-time updates, claims processing automation, and easy access to the provider's platform.

Previous studies have mainly focused on e-insurance (Grazy & Parimalarani, 2019; Bagheri & Forushani, 2016; Hashim, 2022; Nyirenda & Nyirenda, 2023; Stanković et al., 2022; Nuralieva, 2021), but little research has been studied on e-takaful participation readiness (Toukabri & Ettis, 2021). The relevance of online participation in takaful is essential to address the changing preferences of policyholders and the evolving landscape of the takaful industry. Hence, Tech Takaful is a new area that needs to be explored to model the future of the takaful sector in the digital era (Stanković et al., 2022). The research is centered by outlining the factors contributing to e-takaful participation readiness by individuals. The objectives of this study are as follows:

- To examine the influence of religiosity on e-takaful participation readiness by individuals
- To examine the influence of attitude on e-takaful participation readiness by individuals
- To examine the influence of takaful literacy on e-takaful participation readiness by individuals

2. Literature Review

Previous theoretical and empirical research have attempted to determine a strategy or technology diffusion pattern, as well as the settings that influence the adoption and implementation of innovations. However, the acquire takaful literature did not address this crucial topic, such as the use of technology to innovate takaful products (Qadri, Ali, Jafar, Tahir, & Abbasi, 2022). As a result, Tech Takaful was identified as a new area that needs to be investigated to determine the future model of the takaful sector in the digital era. Technology must first be purchased and implemented by a company, and after that, end users of the company must accept and utilize it (Stanković et al., 2022). The new adoption theory states that the more innovative the mind, the more likely the sample is to adopt new products. If takaful becomes available in India and is well-supported by Muslim customers in the early stages of implementation, the industry will have a competitive advantage over traditional insurance in the country.

2.1. E-Takaful Participation Readiness (ETPR)

Abubakar (2020) believed that the unprecedented crisis of COVID-19 pandemic may hasten the adoption of new normal innovation in Malaysia's family takaful market. In

an earlier study, Dasgupta & Sengupta (2002) recognized e-insurance in the Indian insurance industry as part of the overall transactions that goes through secure channels and maintains policy information digitally. E-insurance also increases the security of the insurance process. Through service niche creation, first mover advantage, and online promotions, e-insurance offers new revenue streams. These channels provide greater market penetration than traditional channels and contribute to higher revenue generation than conventional insurance processes.

Ramayah et al. (2009) thought that the proliferation of the internet has profoundly transformed the way banks and financial firms provide online financial services. Likewise, Mat Ali, Arshad, and Ibrahim (2021) recommended way to reduce physical interactions during the movement restriction orders caused by the recent pandemic, namely by encouraging takaful and insurance businesses to make improvements in digitization of their operations, such as claims processing and customer assistance.

2.2. Religiosity

The level of religiosity should not be underestimated as it may convey the intention of customers to take part in a family takaful plan. Religion is defined as a way of connecting a person to the superior being and developing relationships in society. Mokhlis (2009) defined religion as a multifaceted concept that encompasses actions, attitudes, ideas, feelings, and experiences. Religiosity is of interest because evidence revealed that takaful holders exhibit a higher degree of religiosity compared to conventional insurance policyholders (Riaz, Akram, & Saad, 2023).

Takaful's approach parallels the implementation of Maqasid Shariah to protect religion, life, wealth, property, and dignity of the community (Gwadabe, 2019). Besides, Hassan, Salman, Kassim, & Majdi (2018) described *ta'awun* and *tabarru'* as the two main concepts embodied in takaful implementation. According to Mansor (2015), Muslim consumers who perceive Muslim products to be superior to conventional products, as well as those with higher religiosity values are identified as the group that prioritizes takaful product. The main goal of takaful from the participant's perspective is to comply with the rules of Islamic law for Muslims to meet their lawful needs.

A Muslim who understands Islam and who firmly affirms his faith with words and hearts is a person who embodies all the virtues of the Islamic teachings. Md Husin & Ab Rahman (2013) addressed the existence of takaful in the market and its importance in meeting the spiritual needs of Muslims who are conscious of their religious obligations. Shahid (2018) emphasized that the development of Islamic insurance varies by country, depending on demographics, politics, religious beliefs, and sociocultural environment. Hassan and Abbas (2019) regarded religiosity as a critical and effective factor and found that element ranked second in terms of effect on takaful adoption.

Similarly, Rahman, Hoque, Yusuf, Bin Yusoff, and Begum (2023) asserted that compared to Muslims who did not follow Islamic teaching, those who are highly religious give a strong preference to Islamic products. This can be concluded that Muslims are influenced by the level of religiosity before taking part in any family takaful scheme. Meanwhile, Afif Muhamat, Zubaidah Ahmad, Roslan, Karim, and Azizan (2019) advised that the main focus be given to the formal development processes before introducing new takaful products, such as offering hibah-waqf as a

takaful product feature and so on. The company can collaborate with the waqf corporation for each state, which will be under the state Islamic Religious Council, to manage all waqf affairs that have been entrusted by participants.

Thus, religiosity as a variable is an important factor for someone who intends to purchase takaful. The level of spirituality demonstrates a greater sense of consumer responsibility associated with the customers' religiosity (Johar & Suhartanto, 2019).

2.3. Attitude

The adoption of innovations in information systems and technology were significantly influenced by attitudes. In a study investigated by Amin (2012), attitude has a positive significant relationship with Islamic insurance participation. Dwivedi, Rana, Jeyaraj, Clement, & Williams (2019) in their study claimed that attitude has a direct influence on usage behavior. These findings are significant because they emphasize is the importance of this variable for theories of technology acceptance and use to explicitly model individual characteristics. Insurance has attributes that are closely associated with utilitarian approaches against risk reduction. Rocha and Botelho (2018) outlined how a person's willingness to pay a certain amount for insurance can be seen as a risk-reduction strategy.

Kharde and Madan (2018) identified one of the major factors influencing customer purchase intentions other than environmental influences is consumer attitudes. Likewise, Park and Campus (2006) acknowledged the attitude toward family takaful purchase significantly influenced Muslims' behavioral intention to proceed with the purchase. Besides, Li, Liu, Shi, and Sui (2021) agreed that the central determinant of both portfolio allocation and insurance policy choices is risk attitude.

2.4. Takaful Literacy

Ana and Wan Ahmad (2020) explained that financially educated and well-informed consumers are more capable of making prudent decisions for their families and themselves, improving their financial stability and overall well-being. Husin and Rahman (2016) stressed on the level of indebtedness that can downgrade the financial situation in households. On the other hand, Rapi, Salaudeen, Ravi, Wongsangiam, and Redzuan (2022) proposed that takaful companies should make effort and cooperate with the B40 households to encourage them to acquire takaful as a financial safety net in the event of an economic shock and improve their living standard to that of a middle-class society. Meanwhile, Kehinde and Sharofiddin (2021) suggested in their study that public awareness be enhanced to increase customer acceptance of the country.

As stated by Ali, Raza, Puah, and Amin (2019), consumer awareness may be referred to as their level of adoption or acceptance of an innovation. In the earlier study, Md Razak, Idris, Md Yusof, and Jaapar (2013) had discovered a noteworthy degree of community acceptance of takaful products in Malaysia and recommended takaful operators to adopt an aggressive marketing strategy in order to raise the level of acceptance toward takaful products.

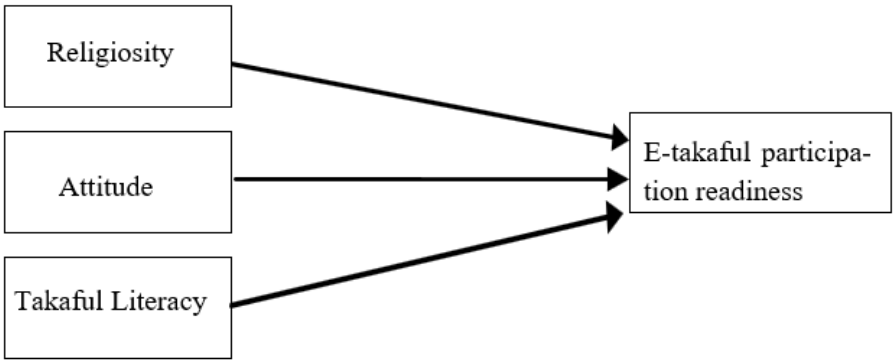
Agarwal (2020) suggested that efforts should be made to promote financial literacy as well as digital literacy among the general public. Weedige, Ouyang, Gao, and Liu

(2019) perceived informed decisions, protected consumers, financial independence, and peace of mind all as contributing to financial literacy. The involvement of the takaful family scheme was concluded to be heavily relied on the client's awareness. According to Driver et al. (2018), most people are unaware of the value and significance of personal insurance policies. Moreover, insurance literacy is not always correlated with financial literacy (Lin, Bruhn, & William, 2019).

2.5. Conceptual Framework

The model for this study had three exogenous constructs, namely religiosity, attitude, and takaful literacy, and one endogenous construct, which is e-takaful participation readiness. The conceptual framework of this study is presented as in Figure 1.

Figure 1: Conceptual Framework of E-Takaful Participation Readiness



As can be seen, several hypotheses regarding the inter-relationships among the constructs need to be tested in this study. The hypothesis statements and method of analysis are shown in Table 1 below.

Table 1: Hypotheses Statements

H_1	Religiosity is positively related to e-takaful participation readiness by individuals
H_2	Attitude is positively related to e-takaful participation readiness by individuals
H_3	Takaful literacy is positively related to e-takaful participation readiness by individuals

3. Methodology

3.1. Research Design

A quantitative approach was used in this study through the adaptation of primary data such as survey instruments. This approach was applied in the current research to gather initial information and identify factors such as religiosity, attitude, and takaful literacy toward e-takaful participation readiness by individuals. At the initial stage, a set of questionnaires was used to evaluate each construct. The questions help researchers identify the factors that may influence e-takaful participation readiness by individuals; religiosity, attitude, and takaful literacy.

3.2. Population and Unit of Analysis

The target population must be properly defined as the initial stage in the sampling procedure. The population of a country is the number of people who live there (Taherdoost, 2016). Since Islam is the most widely practiced religion in Malaysia, the study of each Muslim's preparedness for e-takaful participation is regarded as notable (Md Husin, Ismail, & Ab Rahman, 2016). In quantitative research, the unit of analysis is considered as one of the most important components. The individual level is the unit of analysis in this study, which is vital to select insurable individuals from central regions.

3.3. Sampling and Data Collection Method

The sample population was represented by the non-probability sampling. Online surveys were used to collect the data, which was then shared on social media. Although the sampling strategy was selected based on specific criteria to produce a sampling unit with the desired characteristics, non-probability methods were used (Rahi, 2017). By using purposive sampling, the researcher managed to find participants who were willing and able to provide information based on their knowledge or experience by selecting respondents based on their qualities. The criteria for the sampling procedure include Malay, Muslim, aged 21 and above, and residing in Klang Valley.

The Klang Valley was chosen as the location to distribute the survey questionnaire following its national gross domestic products on the services sector which accounts for 57% of Malaysia’s economy (Department of Statistics Malaysia, 2021). The Klang Valley is also known as Greater Kuala Lumpur and regarded as a metropolis of Malaysia that is located in the central region of the country peninsula. It is considered as the major contributor to the economic growth specifically in finance and insurance. This location is also well-known for the residential states of educated people with tertiary education background. Hence, individuals in this location are seen to be more aware of the current digital platform implemented by financial services to perform transactions.

3.4 Data Analysis Procedure

This section explains how the researcher tested the validity and the reliability before collecting real data. After completing the measurements and before collecting the actual data, the researcher continued to test the questionnaire's content validity. The panel of

expert and typical respondents were identified as two useful groups for content validity test. The survey instruments were then distributed to a small sample of academicians and industry experts with backgrounds in financial management to obtain feedback and recommendations on the content and layout of the survey instrument, to determine how long it will take to answer the questionnaire, and to assess the adequacy of the questions.

Data analysis entails several steps that include numerical or statistical measures as well as hypotheses testing. The main goal of data analysis is to derive meaning and interpretation from study findings. Knowledge and competence in the research field were gained using a structured questionnaire created by the researcher. The data acquired is quantifiable data, allowing the use of a combination of descriptive and inferential statistics analysis in this study. This study used Statistical Package for Social Science program (SPSS) with version 27 to summarize and analyze the obtained data by describing the characteristics of the subjects in a population directly using the descriptive indices such as frequency, mean, standard deviation, median, mode, normal distribution, Z score, range, percentage, proportion, rate, ratio, etc. Afterwards, this study turned to inferential analysis to investigate the characteristics of the sample. This study used the statistical test results to conclude the research population from which the sample was drawn using Partial Least Square (PLS-SEM) to test the measurement's reliability and validity as well as the hypothesized relationships.

4. Data Analysis and Findings

Ensuring that the data are not too far from normal is crucial before using PLS-SEM, as highly non-normal data make it difficult to assess the significance of the parameters. It is recommended that the researchers examine two distribution measures, such as skewness and kurtosis, because the bootstrapping procedure performs fairly robustly when the data is not normal.

This study used web power which is available online at https://webpower.psychstat.org/models/kurtosis/ to evaluate data distribution (Hair et al., 2010). The result was depicted based on Mardia's multivariate skewness ($\beta = 3.386$, $p < 0.01$) and kurtosis ($\beta = 34.038$, $p < 0.01$), indicating that the data were not normally distributed and could be used to advance the regression analysis via SmartPLS 4.

4.1. Descriptive Statistics

Descriptive statistics were used in this study to state and describe a variable in a phenomenon.

4.1.1. Respondents Profile

As part of the descriptive analysis, the researcher evaluated the distribution of the data across the given demographic characteristics of the respondents such as gender, age, educational background, occupational status, marriage status, income level and several short questions. Table 2 below shows the distribution of the 395 respondents according to their demographic characteristics. Of the 395 respondents, most were male (133), making up 33.7% of the total, while the remaining 262 (66.3 %) were female.

More so, the result of the socio-demographic characteristics further revealed the age distribution of the respondents. It indicated that the majority of the respondents (315) or 79.7% of them were between the ages of 21 – 30 years followed by 48 (12.2%) between the ages of 31 – 40 years, while 22 (5.6%) were between the ages of 41 – 50 years, leaving the minority of respondents from the age of 51 – 60 years and 61 years and above, 9 (2.3) and 1 (0.3), respectively.

The result on the respondents' educational background at the time revealed that of the 395 valid responses obtained, the majority (219) or 55.4% were enrolled in degree programs, while another 105 (26.6%) were completing their diploma programs. The second least educational background is SPM with 57 (14.4%), and only 14 (3.5%) were enrolled in Master or PhD level.

In terms of the respondents' occupational status, the result showed that the private sector was the majority of the respondents (186 or 47.1%), followed by self-employed (133 or 33.7%) and minority of the respondents from government sector (76 or 19.2%). The result of the study on the respondents' marriage status revealed that most of them were single (293 or 74.2%), and married respondents were 101 (25.6%), leaving the rest (1 or 0.3%) as divorced.

The result of the study on the respondents' income level found that 292 (73.9%) of the respondents earned less than RM 3000 per month. 69 or 17.5% earned around RM 3001 to RM 5000 per month, 20 (5.1%) with RM 5001 to RM 7000 per month, and 6 (1.5%) with RM 7001 to RM 9000 per as their monthly income. 3 (0.8%) of the respondents earned RM 9001 to RM 11000 per month and only 5 (1.3%) of them earned more than RM 11001 per month.

First short question asked was regarding the awareness of the respondents on takaful products, in which most of them, (357 respondents) have heard of takaful, while the rest of them have not heard about it. The question proceeded with participation of the respondents in takaful products and many of them (213 or 53.9%) do not participate in takaful products at the moment, leaving the rest (182 or 46.1%) actively participating in takaful products.

The third question asked which channel the respondents preferred to participate in takaful products. The highest count (162 or 41%) was through intermediaries or agents, the second highest channel (140 or 35.4%) preferred by the respondents was via online or website. The lowest preferable option was direct channel or walk-in branch with only 93 respondents (23.5%).

The fourth question asked the respondent regarding their estimation to purchase takaful products. 134 respondents (33.9%) said within one year, while 120 (30.4%) estimated more than 3 years. While the rest of them probably purchase around 1-2 years and 2-3 years, 93 (23.5%) and 48 respondents (12.2%), respectively.

The final question inquired if it is easier to participate in online takaful. The majority of them (227 or 57.5%) decided that participating in online takaful is much easier, while the rest were against the idea provided with reasons. 66 respondents (16.7%) said "I have poor understanding on product knowledge", similarly with another 65 (16.5%) who thought "I may need extra guidance when making claims", continued by 16 respondents (4.1%) who believed "I have difficulty to assess my own financial state

health". Meanwhile, 12 (3%) of the respondents answered "Takaful has poor technology adoption", stating the minority of them (9 or 2.3%) answered "E-takaful charge hidden cost".

Table 2: Socio-Economic Characteristics of the Respondents

Profile of Respondent	Items	Frequency	Percentage
1. Gender	Male	133	33.7
	Female	262	66.3
2. Age	21 – 30 years	315	79.7
	31 – 40 years	48	12.2
	41 – 50 years	22	5.6
	51 – 60 years	9	2.3
	61 years and above	1	.3
3. Educational background	SPM	57	14.4
	Diploma	105	26.6
	Degree	219	55.4
	Master/PhD	14	3.5
4. Occupational Status	Self-employed	133	33.7
	Private Sector	186	47.1
	Government Sector	76	19.2
5. Marriage Status	Single	293	74.2
	Married	101	25.6
	Divorced	1	.3
6. Income level (monthly)	Less than RM 3000 per month	292	73.9
	RM 3001 to RM 5000 per month	69	17.5
	RM 5001 to RM 7000 per month	20	5.1
	RM 7001 to RM 9000 per month	6	1.5
	RM 9001 to RM 11000 per month	3	.8
	More than RM 11001 per month	5	1.3

7.	Have you heard of takaful products?	□ Yes □ No	357 38	90.4 9.6
8.	Do you currently participate in takaful products?	□ Yes □ No	182 213	46.1 53.9
9.	Do you intend to participate in takaful products?	□ Online □ Intermediaries □ Direct	140 162 93	35.4 41 23.5
10.	If 'Yes', when would you probably purchase a takaful product?	□ Within one year □ 1-2 years □ 2-3 years □ More than 3 years	134 93 48 120	33.9 23.5 12.2 30.4
11.	Do you think it is easier to participate in online takaful?	□ Yes □ No (Choose your best answer): o Takaful has poor technology adoption o E-takaful charge hidden cost o I have poor understanding on product knowledge o I may need extra guidance when making claims o I have difficulty to assess my own financial state health o Others: _____	227 12 9 66 65 16	57.5 3.0 2.3 16.7 16.5 4.1

4.2. Assessment of Measurement Model

As displayed, there were three exogenous constructs (religion, attitude and takaful literacy) and one endogenous construct (e-takaful participation readiness). PLS-SEM

prioritizes indicators based on the level of reliability of each individual. Applying a different internal consistency reliability measurement, known as composite reliability (rho_c), is preferable due to Cronbach alpha's limitations in the population. This type of reliability takes into account the different outer loadings of the indicator variables. The acceptable values for composite reliability are the values greater than 0.6 in exploratory research. Meanwhile, the acceptable values for indicator reliability or factor loadings 0.708 or higher is recommended but loadings > 0.7, 0.6, 0.5 or 0.4 are adequate if other items have high scores of loadings to complement AVE and CR. Hence, it is considered valid and reliable since composite reliability is all greater than 0.6. Based on the results shown in the Table 3 below, it is evident that B7, CL2, CL8, CL9, CR1 and CR3 do not achieve the threshold value, but indicators with loadings lower than 0.708 can be kept when the minimum of AVE result of 0.5 is achieved. Thus, all the constructs have met the satisfactory level of AVE result greater than 0.5. It is concluded that the constructs meet reliability and convergent validity requirement at this stage. The next method of assessing discriminant validity is by using HTMT technique developed by Henseler, Ringle and Sarstedt (2015). As shown in the Table 3 below, all the values fulfill the criterion of $HTMT_{.90}$ and the $HTMT_{.85,}$ indicating that discriminant validity is established for the constructs of this study.

Table 3: Convergent Validity

Latent Variables	Items	Loading	AVE	CR
E-Takaful Participation Readiness	B1	0.820	0.687	0.938
	B2	0.850		
	B3	0.843		
	B4	0.854		
	B5	0.884		
	B6	0.859		
	B7	0.674		
Religion	CR1	0.675	0.583	0.933
	CR2	0.762		
	CR3	0.699		
	CR4	0.816		
	CR5	0.783		
	CR6	0.797		
	CR7	0.763		
	CR8	0.769		
	CR9	0.780		
	CR10	0.783		
Attitude	CA1	0.863	0.749	0.947
	CA2	0.859		
	CA3	0.908		
	CA4	0.806		
	CA5	0.875		
	CA6	0.878		
Takaful Literacy	CL1	0.791	0.52	0.911
	CL2	0.671		
	CL3	0.803		
	CL4	0.868		
	CL5	0.764		
	CL6	0.810		
	CL7	0.812		
	CL8	0.363		
	CL9	0.370		
	CL10	0.743		

Table 4: Discriminant Validity using HTMT Criterion

	Attitude	**E-Takaful Participation Readiness**	**Religion**	**Takaful Literacy**
Attitude				
E-Takaful Participation Readiness	0.814			
Religion	0.626	0.649		
Takaful Literacy	0.756	0.703	0.727	

4.3. Assessment of Structural Model

After looking into the measurement model, this part proceeds to the structural measurement model assessment. There are five steps to assess the structural model in PLS-SEM, namely assessment for collinearity issues, assessment the significance and relevance of the structural model relationships, assessment the level of R^2, assessment the effect size (f^2), and assessment of predictive relevance Q^2.

4.3.1. Hypothesis Testing

It is critical to address lateral collinearity issues early in the structural model evaluation process. Each set of predictor constructs must be evaluated independently for each subset of the structural model. A VIF value of 5 or higher, or a VIF value of 3.3 or higher, indicate a potential collinearity problem to assess such issues. According to the results, all of the VIF values for the variables are less than 5 and 3.3, indicating that collinearity is not a concern.

The research hypotheses may be supported in accordance with the hypothesis's direction, t-values, and p-values. In terms of the confidence interval, which is between the lower level (LL) and the upper level (UL), it cannot straddle or overlap at zero. In the present analysis, a bootstrapping approach with resampling of 10,000 and one tailed test was used, in which the findings for the direct effect show that all the hypothesized relationships were supported. Table 6 below shows that for the first hypothesis, H_1, religion was positively related to e-takaful participation readiness ($\beta = 0.207$, t-value = 4.583, LL = 0.134, UL = 0.282, $p < 0.05$). After that, for the second hypothesis, H_2, attitude was also positively related to e-takaful participation readiness ($\beta = 0.558$, t-value = 11.557, LL = 0.477, UL = 0.635, $p < 0.05$). Lastly, for the third hypothesis, H_3, takaful literacy was found negatively related to e-takaful participation readiness ($\beta = 0.112$, t-value = 2.182, LL = 0.024, UL = 0.193, $p < 0.05$). Table 6 below indicates that all the direct hypotheses developed were significant and accepted for H_1, H_2 and H_3.

4.3.2. Assessment of Coefficient of Determination (R2), Effect Size (f2) and Predictive Relevance (Q2)

Coefficient of determination or R^2 is a model's predictive accuracy and may also be thought of as the combined influence of exogenous variables on endogenous variables. In other words, R^2 indicates the amount of variance explained by all of the exogenous constructs associated with the endogenous construct. The effect has a value between 0 and 1, with higher values indicating higher levels of predictive accuracy. As a general rule according to Hair et.al (2017), acceptable R^2 values are 0.75, 0.5, or 0.25, correspondingly, indicating a strong, moderate, or poor degree of predictive accuracy. In this study, R^2 is 0.622, indicating a moderate level of predictive accuracy equivalent to 62% variance in the e-takaful participation readiness explained by religion, attitude and takaful literacy.

The measurement of effect size (f^2) of the predictor constructs is also examined in this study to assess the relative impact of a predictor construct on an endogenous construct. Initially, R^2 value is estimated using a certain predecessor construct, and the result for

R^2 value will be lower if one of the predecessor constructs is removed. As a result, the effect size is defined as the difference between the R^2 values for estimating the model with and without the preceding construct. This study followed the range provided by Cohen (1988) whereby f^2 values of 0.35, 0.15 and 0.02 are considered large, medium and small effect sizes, respectively. The result can be seen in the Table 7 below that no large effect size reported in which only attitude has the large effect on e-takaful participation readiness ($f^2 = 0.405$) compared to other constructs with medium and small effect size such as religion ($f^2 = 0.057$) and takaful literacy ($f^2 = 0.013$), respectively.

The predictive model was applied to predict relevance using the Partial Least Squares (PLS) predictor. According to Shmueli et al. (2019), there is a strong predictive potential when all PLS-RMSE values are less than the linear regression model (LM-RMSE) value. The fact that the resulting Q^2 values are greater than zero indicates the exogenous constructs are predictive of the endogenous construct under consideration. Table 7 shows that all PLS-RMSE values were less than LM-RMSE, demonstrating the predictive power's strength and strong model recommendation.

Table 5: Predictive Model

Items	PLS-SEM_RMSE	LM_RMSE	PLS-LM	Q^2predict
B1	0.787	0.801	-0.014	0.413
B2	0.731	0.755	-0.024	0.47
B3	0.751	0.784	-0.033	0.482
B4	0.741	0.753	-0.012	0.45
B5	0.735	0.758	-0.023	0.437
B6	0.73	0.759	-0.029	0.431
B7	0.957	0.966	-0.009	0.247

Table 6: Hypotheses Statement

Hypothesis	**Relationship**	**β**	**Sample mean (M)**	**Standard error**	**T-value**	**P-values**	**LL**	**UL**	R^2	f^2	**VIF**	**Decision**
H_1	Religion -> E-Takaful Readiness	0.207	0.207	0.045	4.583	0.000	0.134	0.282	0.622	0.057 (medium)	1.973	Supported
H_2	Attitude -> E-Takaful Readiness	0.558	0.557	0.048	11.557	0.000	0.477	0.635	0.622	0.405 (large)	2.035	Supported
H_3	Takaful Literacy -> E-Takaful Readiness	0.112	0.115	0.051	2.182	0.015	0.024	0.193	0.622	0.013 (small)	2.505	Supported

Note: β = beta coefficient, LL = Lower Level, UL = Upper Lev

5. Discussion

The respondents' profiles, findings from the measurement model, and the structural model utilizing PLS-SEM were all covered in detail in the discussion of data analysis for this study. First of all, the results supported the measurement model's prediction that each research measure's reliability and validity requirements were met. All constructs had CR values greater than 0.7, and all loadings were higher than 0.5, indicating indicator reliability. The measuring model also demonstrated satisfactory convergent and discriminant validity, with an AVE value higher than 0.5. Each construct's square roots of AVE were significantly higher than its inter-correlation.

Second, the estimation of the structural model has been established in this study. The R^2 of 0.622 indicating a moderate level of predictive accuracy equivalent to 62% variance in the e-takaful participation readiness explained by religion, attitude, and takaful literacy. For the effect size (f^2), the result demonstrated a small to large effect size in which only attitude construct (f^2 = 0.405) contributes substantially in explaining e-takaful participation readiness. Furthermore, all the proposed hypotheses were found to be significant.

Table 7: Hypotheses Statements

Hypotheses	**Statements**	**Decision**
H_1	Religion -> E-Takaful Readiness	Supported
H_2	Attitude -> E-Takaful Readiness	Supported
H_3	Takaful Literacy -> E-Takaful Readiness	Supported

Based on the result reported above on H_1, the objective is to examine the influence of religiosity on e-takaful participation readiness by individuals. Religion, particularly Islam, is believed to have a powerful influence on Muslims to avoid prohibited religious activities. In another similar study, a control variable such as religion had a significant impact on respondents' willingness to participate in takaful (Hassan et al., 2018). The finding is also consistent with another study by Ghani (2017), who discovered the significant positive impact of religiosity on takaful participation readiness. Aside from that, Majid (2021) in his study found that religiosity played a positively significant role in explaining the intention to use Islamic FinTech. Hence, the e-takaful participation readiness (ETPR) model suggests that customers who hold strong religious beliefs are more likely to adopt takaful products. Individuals who hold stronger Islamic beliefs, on the other hand, are more likely to participate in takaful while those with lower Islamic beliefs have weaker purchase intentions for takaful.

Meanwhile, findings also reported that H_2 was supported with its aim to examine the influence of attitude on e-takaful participation readiness by individuals. The correlation results investigated by Souiden and Jabeur (2015) also supported the relationships between attitudes and purchase intentions of conventional and Islamic life insurance. Concerning this study, similar findings were also shared with Faizal et al. (2020), who offered clear empirical consensus evidence for the significant positive effect of attitude on intention in the scope of mental health disorders takaful schemes. According to the e-takaful participation readiness model (ETPR), customers with positive attitudes are more likely to participate in takaful. Therefore, educating existing and prospective customers about the benefits of Islamic insurance products is essential for instilling a positive attitude toward the products.

Lastly, the above findings reported for H_3 also supported the study as the goal is to examine the influence of takaful literacy on e-takaful participation readiness by individuals. Weedige et al. (2019) presented their research findings, which are consistent with the findings of this study, in addition of showing insurance literacy has a direct and favorable impact on behavioral intention. It follows that those who are better informed about insurance are more likely to buy it. The similar result was found in a recent study by Arshad, Chee, and Kosim (2023), as they found that adoption of Islamic wealth accumulation products is significantly and positively impacted by Islamic financial literacy. Thus, as financial literacy will increase a Muslim's prosperity, it is crucial for a Muslim to fulfill his religious and material obligations.

6. Conclusion

Takaful is a subset of Islamic financial planning cycle. The major contribution of this research is seen through the development of a new model on e-takaful, due to the lack of research found on this topic compared to e-insurance. Hence, Tech Takaful needs to be explored to the future model of the takaful sector in the digital era (Stanković et al., 2022). In addition, this study is important to raise public awareness and help the government accomplish its goal of hastening the recovery from the COVID-19 pandemic, reducing poverty, fostering stability and prosperity, and encouraging "green economic growth" in the nation.

This study contributes in terms of a new additional variable that has been given less attention on takaful literacy and how it affects individual’s behavior toward purchasing takaful electronically. It is relevant to be conducted since it counts into perspective of one of the key enablers stated in Shared Prosperity Vision 2030, which is to enlighten the society toward economic development. The outcome of this study will shed some light on several components out of 17 Sustainable Development Goals (SDGs) proposed by the United Nation for the implementation toward 2030.

Apart from that, this study also supports initiatives stated in Financial Sector Blueprint 2022-2026, in which insurance or takaful penetration rate will contribute around 4.8 to 5.0% to the gross domestic product (GDP). Meanwhile, in practical perspective, there are several parties who may benefit from this study. First, with the adoption of e-takaful, it is imperative for individuals to adopt a proactive approach to financially protect themselves and their

dependents in light of any financial shock happens, particularly due to the death of the sole breadwinner, as the repercussion lies on the dependents to take over in earning income. Hence, in such situations, the role of insurance and takaful can act as a safety net to provide temporary relief and unwind the pressure of financial burden (Rapi et al., 2022).

Next, the outcome of this study may also benefit the takaful industry. The recent discussion paper on the Licensing Framework for Digital Insurers and Takaful Operators (DITOs) issued by Bank Negara Malaysia (2022) identified three value propositions, which are *"inclusion, competition, and efficiency in a way to attract new digital players capable of providing innovative solutions to critical protection gaps among unserved and underserved market segments, as well as to improve customer experience and boost trust."* In Section 2(1) of the IFSA, *"digital takaful business refers to takaful business that is carried on wholly or almost wholly through digital or electronic means while DITOs also implies to a person licensed under section 10 of the IFSA to carry on digital takaful business."* Many financial institutions, including takaful operators, are investing in information technology (IT) primarily for information processing in order to stay relevant. This is because IT gives them a better way to differentiate their offerings and offer dependable, timely, and convenient services (Saleem et al., 2022). In Bahrain, for example, eTakaful has been adopted due to its benefits such as fast online services, avoiding long lines, simple steps to follow, direct online purchases, secured payment, and immediate policy cover.

Increased digitalization is one of the tailwinds expected to impact the Islamic Financial Services Industry (IFSI), including the takaful industry, with its current global growth of up to 5.2% (Islamic Financial Services Board, 2022). The industry's strong performance reflects its population's growing familiarity with the takaful system, as indicated by increased acceptance of takaful coverage as the preferred type of protection (New Strait Times, 2019). It is reported by Fintechnews (2022) that *"new digital platforms are helping to advance financial inclusion by improving access to payment services, credit, insurance and wealth management."* The demand for products from the takaful industry is high as more Malaysians understand is the importance to safeguard their families and themselves from financial risks (BERNAMA, 2023).

In order to improve consumers' insurance and takaful literacy, policymakers or the government will find this model very practical in developing a well-developed information and advice program that can educate consumers on alternative risk management tools, the values of insurance, their responsibilities in the process, and cases of successful policy outcomes (Weedige et al., 2019). To conclude, by considering huge potential growth in Malaysia whereby publics are popularized by affluent segments and Muslims majority, this study provides valuable insights for takaful operators in Malaysia to critically devise their new penetration strategies amid the current outbreak happening that might tremble a household burden. They should focus on giving extra value to induce takaful literacy and make room for improvement on product penetration to the target segments.

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