

## Understanding the Impact of Social and Facilitating Factors on Drone Adoption in the Takaful Sector of Malaysia and Indonesia

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**Abstract:** The takaful industry, a sector that is guided by Shariah-compliant principles, is progressively investigating cutting-edge technologies to improve service delivery and operational efficiency. This study investigates the influence of social factors and facilitating conditions on the intention to adopt drone technology within the Takaful sector in Malaysia and Indonesia. A quantitative research design was employed, with data collected from 68 Takaful professionals. The results were analyzed using correlation and regression techniques. The findings revealed that social influence and facilitating conditions significantly impact behavior intention, while performance and effort expectancy were found to be less important. Additionally, the study integrates Maqasid Shariah principles, ensuring that the adoption of drone technology aligns with Islamic ethical considerations. The study also urges more investigation to investigate the generalisability of these results over many cultural and legal environments as well as the possible impact of developing technologies like artificial intelligence and blockchain on the sector.

**Keywords:** *Takaful Industry, Drone Adoption, Facilitating Conditions, Technology Adoption, Maqasid Shariah, Performance Expectancy, Social Influence.*

### 1. Introduction and Background

Today the demand for Shariah-compliant financial solutions is increasing as the takaful sector has been steadily expanding worldwide (Husin & Rahman, 2013). There are many challenges in the adoption of takaful such as a lack of knowledge among possible participants and varying degrees of religiosity. Moreover, overcoming the barriers and increasing the rate of market participation in the different demographic cohorts depends on the social dynamics and supporting elements that affect consumer attitudes towards implementing creative technologies, such as drones in the takaful sector. Particularly, the influence of attributes such as subjective norms perceived behavioral control, and awareness of takaful need to be evaluated by assessing their impact on the intention to adopt drones because operational tools inside this industry since these elements have been shown to greatly influence consumer behavior in similar environments (Hassan et al., 2018; Aziz et al., 2017). Both Malaysia and Indonesia, as significant players in the global Takaful market, are exploring innovative technologies, such as drones, to enhance efficiency in service delivery. However, challenges such as low awareness, different levels of religiosity, and resistance to new technologies persist, limiting wider adoption (Daod et al., 2019).

The purpose of this study is to understand how the influence of social elements on the intention to adopt drones in the Takaful industry. Even though the previous study has focused on the adoption of the technology in insurance still not many understand how these elements work in the particular setting of Takaful, especially about the function of Maqasid al-Shariah. Although the takaful sector has seen a consistent expansion in recent years, the obstacles including low awareness, different degrees of religiosity, and opposition to implementing new technologies still limit more general market involvement. Furthermore, past research indicates that the intention to interact with takaful products is much influenced by demographic variables and consumer knowledge, thus focused strategies to raise awareness and education about these financial solutions are essential for raising adoption rates among consumers from many backgrounds (Husin & Rahman, 2013).

Furthermore, the early phases of drone technology in the takaful industry present a spectrum of possibilities and difficulties. Using real-time monitoring and data collecting, cost reduction via optimal resource allocation and process automation, and faster and more personalized interactions, drone technology has the potential to improve operational efficiency (Beninger & Robson, 2020). Still, their acceptance could be shaped by a complicated interaction of social and enabling elements. The elements of perceptions of performance and effort expectation, whereby consumers may assess the possible advantages and usability of drones in providing takaful services; social influence, whereby the attitudes and behaviors of peers, family, and industry leaders shape individual willingness to embrace the technology; and alignment with Maqasid Shariah principles, whereby the integration of drones must be evaluated in the context of Islamic financial guidelines and ethics (Ab Abdullah, 2012). The influence of the elements might either help or hinder the effective integration of drone technology into the takaful sector, thus a thorough knowledge of how these elements shape consumers' attitudes and adoption intentions is necessary. It is crucial to know about creating plans that support the acceptance of creative technologies in offering financial solutions that stay compliant with Islamic values. Thus, in the framework of the takaful sector, it is crucial to pinpoint and examine the particular social dynamics and enabling conditions that can increase takaful provider confidence in using drones as well as address the issues that may develop from views of risk and compliance with Shariah standards.

## 2. Literature Review

Studies on consumer involvement in takaful programs already in existence have underlined the need for several social and enabling elements in determining personal intentions to interact with certain financial products. Particularly, studies show that consumers' perceptions of family takaful schemes are much influenced by their perceived behavioral control, subjective norms, and degree of knowledge about the products, together with other moderating elements such as demographic characteristics and religiosity, all of which help to determine their willingness to enroll and participate (Husin & Rahman, 2013). Furthermore, knowing consumer awareness and knowledge about takaful is essential since a lack of familiarity can prevent participation, hence underlining the need for educational activities to reveal the advantages and values underlying the takaful model to possible participants from different backgrounds (Hassan et al., 2018).

Previous research also shows that innovative technologies such as drones have influenced the attitudes of consumers and intention to adopt them due to the perceived performance and effort expectancy, social influence, and the availability of supporting infrastructure and resources. Furthermore, to enhance awareness and acceptance of drone technology, the social and facilitating factors in the takaful industry are important as well as the need for comprehensive educational campaigns and community engagement initiatives to build trust and address any concerns related to compliance with Shariah principles (Tan et al., 2021; Muhamat et al., 2021).

The Takaful industry in Malaysia and Indonesia presents unique regulatory and operational challenges. In Malaysia, the Takaful sector is well-established with a regulatory framework that supports innovation in financial services, including the use of drones for monitoring and service optimization (Daod et al., 2019). Conversely, Indonesia, while a growing market, has a relatively underdeveloped regulatory framework for integrating advanced technologies into the financial sector. The differences in regulatory approaches and market maturity in these countries justify the comparative focus of this study, as it provides insights into how these factors influence technology adoption across different environments.

### **Performance expectancy and effort expectancy**

Several research has been conducted on consumers' perceptions of the advantages, usefulness and ease of use related to technology which have a significant impact on the consumers' intentions (Taherdoost, 2019, AlSaleh & Thakur, 2019; Abu-Shanab & Ghaleb, 2012; Lam et al., 2008; Sarkam et al., 2022). The findings of the previous research are relevant to drone adoption within the takaful industry. On one hand, consumers' perceived performance expectancy of drones may stem from the technology's capacity to streamline claims processing, enhance service delivery, and optimize operational efficiency through real-time monitoring and data collection. The consumers' effort expectancy also plays an important role when determining the takaful providers' adoption intentions to which they believe they can readily integrate drone-enabled solutions. The adoption of drone technology is more accepted when the drone is user-friendly and provides a seamless experience. The

interplay between these two critical factors of performance expectancy and effort expectancy is crucial, as consumers are more likely to adopt transformative technologies when they perceive clear benefits and believe the solutions are accessible and easy to incorporate into their existing interactions with service providers (Ismail et al., 2023; Aziz et al., 2017). As such, understanding how these expectations are shaped by social norms and the specific context of the takaful sector becomes essential for promoting successful technology adoption, especially when considering the diverse demographic characteristics and religiosity of potential users that may influence their perceptions and behaviors toward drone integration.

Based on prior studies, performance expectancy is expected to positively influence behavior intention. However, given the complex nature of the Takaful sector, it is hypothesized that the effect may be weaker due to other overriding factors such as social influence.

**H1:** Performance expectancy has a significant effect on behavior intention.

Effort expectancy, on the other hand, refers to the ease with which technology can be used (Venkatesh et al., 2003). In the Takaful sector, this may involve the perceived ease of integrating drones into existing workflows and the user-friendliness of the technology. The adoption of drone technology is expected to increase if the technology is perceived as easy to use and does not require extensive retraining or significant changes to existing processes (AlSaleh & Thakur, 2019; Ismail et al., 2023).

**H2:** Effort expectancy has a significant effect on behavior intention.

### **Social Influence**

The social influence in technology adoption highlights an important role in shaping consumer attitudes and intentions. It is also known as the norms, beliefs and behaviors of individuals' social circles. This includes family, friends even colleagues, which greatly affects the consumers' willingness to adopt drones. Understanding social influence is also important but also because the individual's perceptions and adoption decisions are usually influenced by the opinions and actions of the surroundings. In addition, individuals normally seek approval from the closest people before adopting a product innovation or financial technology. This can lead to either facilitating or impeding the adoption of drone technology in the takaful industry, depending on how these social influences are manifested. Consequently, any strategies aimed at promoting the uptake of drones must carefully consider the complex web of social influences that can shape consumer attitudes and behaviors within the specific context of the takaful sector. In this regard, cultivating strong social networks that promote positive perceptions of drone technology may enhance readiness for adoption among takaful consumers, thereby reducing perceived risks associated with innovation (Ismail et al., 2023; Husin & Rahman, 2013). This aligns with findings in existing literature, which assert that social influences play a critical role in technology acceptance, where positive encouragement from social referents can elevate individuals' intentions toward adopting innovations, including the use of drones for enhancing service delivery in takaful (Sitorus et al., 2016; Saprikis et al., 2020).

The importance of social influence in the Takaful sector aligns with the findings of Venkatesh et al. (2003), who assert that social influence is often a strong predictor of behavior intention, especially in contexts where trust and endorsement from authoritative figures play a significant role.

**H3:** Social influence has a significant effect on behavior intention.

### **Facilitating conditions**

In the takaful industry, promoting conditions that allow the seamless acceptance of new technologies is vital. These could be strong technological infrastructure and support systems given by takaful operators, such as dependable and user-friendly digital platforms that smoothly integrate drone-enabled features, thorough training programs to equip consumers with the required skills and knowledge to effectively use these innovative solutions, and dedicated technical assistance services to promptly address any issues or concerns that could develop during the transition to drone-enabled service delivery. Conferring users, reducing their fears or hesitation, and enabling them to completely embrace and include these transforming technologies in their contacts with takaful providers depends on ensuring the availability and accessibility of these thorough facilitating conditions (Haridan et al., 2020). These enabling conditions can be quite important in promoting general acceptance and use of drone technology inside the takaful industry by removing both the psychological and functional obstacles to adoption. Moreover, encouraging cooperation between takaful operators and

technology companies will help to improve these enabling conditions by enabling the creation of customized solutions that meet the particular needs and concerns of consumers, fostering a supportive environment fit for the acceptance of technology inside the sector. Recent studies underline the need to address both technological and customer-centric elements in driving successful innovation adoption, thus this cooperation not only simplifies the integration process but can also improve the overall user experience, increasing customer satisfaction and loyalty inside the takaful sector (Matsepe & Linggen, 2022).

Facilitating conditions, such as technological infrastructure and support systems, are expected to have a strong impact on behavior intention.

**H4:** Facilitating conditions have a significant effect on behavior intention.

#### **Perceived cost and risk factors**

Apart from the social and enabling circumstances, the research underlines the crucial need to tackle supposed cost and risk factors that might impede the acceptance of drone technology in the takaful industry. These perceived financial and operational risks can be major deterrents to consumer acceptance since people might be reluctant to adopt new technologies if they believe the expenses exceed the possible advantages or if they are worried about the dependability and security of drone-enabled services. For takaful operators (Alwateer & Loke, 2020), addressing these supposed cost and risk factors is vital (Tan et al., 2021).

First of all, they have to create open pricing policies that precisely show the expenses related to using drone technology. This will help to allay worries about the financial consequences of implementing these fresh ideas and guarantee that consumers grasp the necessary investment (Kim, 2020). Second, takaful operators should create strong risk-reducing plans to handle any technical or operational issues that customers might raise. Through third-party certifications or industry standards, this could include putting in place strict security protocols, offering thorough warranties or guarantees, and proving the dependability and safety of drone-enabled services (Alwateer & Loke, 2020). Thirdly, takaful operators should make abundantly evident to customers the long-term value proposition of drone adoption. Emphasizing the possible advantages—such as better efficiency, cost savings, and more customer experiences—that drone technology can bring about using integration; By clearly presenting these benefits, operators can enable customers to understand the whole value and support the initial outlay of funds (Beninger & Robson, 2020). Frachtenberg, (2019), through proactive addressing of the psychological and pragmatic factors influencing consumer impressions, takaful operators can create a more favorable environment for the successful adoption of drone technology, thus improving their competitiveness and delivering enhanced value to their consumers (Muhamat et al., 2021). Furthermore, including user comments on the design and deployment of drone technologies will help to allay worries about perceived expenses and risks since this participatory approach will empower consumers and instill a feeling of ownership over the technological solutions being presented, so greatly increasing their willingness to embrace and use these transforming inventions. Moreover, encouraging a culture of honest communication and ongoing interaction with consumers about drone technologies will help to dispel false beliefs about expenses and risks connected with their acceptance, strengthening a more informed customer base that is more open to innovation in the takaful sector (Ramadan et al., 2016).

**H5:** Perceived cost has a significant effect on overall behavior intention.

#### **Social cost and benefit analysis**

A thorough social cost and benefit analysis is necessary to completely grasp how social elements affect drone acceptance in the takaful industry. This study should look at the possible positive and negative social consequences of the extensive use of drone technology on different takaful industry players as well as the larger society. Examining the possible social advantages—such as better access to insurance services, improved customer convenience, and higher operational efficiency—which might result in cost savings and more reasonably priced coverage for consumers—is vital (Hassan et al., 2018). On the other hand, the study should also investigate the possible social costs—such as privacy, security, and possible job displacement—that drone integration might bring about. Through careful assessment of these social elements, takaful operators can make decisions that balance technical innovation with social well-being, so promoting a more sustainable and inclusive acceptance of drone technology inside the sector. This balanced approach not only conforms with ethical practices but also guarantees that the integration of drones into the takaful sector is seen favorably by the community, so reducing resistance and promoting a constructive dialogue regarding the technology's

implementation and its consequences for different stakeholders (Jiménez & Mulero-Pázmány, 2019). Sandbrook, 2015; Aggarwal et al., 2023. Furthermore, interacting with stakeholders to grasp their points of view and worries will help takaful operators negotiate the complexity of the adoption of drone technology while addressing particular social implications that might arise, such as community displacement and ethical questions related to the use of this technology (Wang et al., 2021).

Understanding how drone technology can enhance service delivery without infringing on privacy or causing significant job losses is critical to its adoption. In the Takaful industry, it is expected that social cost and benefit analysis will play a significant role in shaping behavior intention.

**H6:** Social cost and benefit analysis has a significant effect on behavior intention.

### **Maqasid Shariah**

Adoption of drone technology within the takaful industry must take Maqasid al-Shariah's alignment with the basic goals of Islamic law and ethics into great account. Ensuring that the Maqasid al-Shariah preserves the fundamental values of preserving life, protecting property, safeguarding intellect, maintaining lineage, and so promoting justice and equity, it offers a thorough framework for assessing the social, moral, and spiritual ramifications of technological developments (Ibrahim, 2019). Given its effects on customer well-being, data privacy, environmental sustainability, and the general social fabric of society, takaful operators must closely assess how the integration of drone technology fits with these holy values.

Deeply embedding these Shariah-compliant issues into the adoption and use of drone technology will help takaful providers to guarantee that their innovations are not only technologically advanced but also ethically and spiritually grounded, so promoting a more complete and responsible path towards digital transformation within the sector (Muhamat et al., 2021). Edwards et al., 2023). From many stakeholder angles—including consumers, authorities, and Shariah advisers—this calls for careful analysis of possible advantages and drawbacks. The objective is to carefully balance drone technological capacity with their conformity with Islamic values of justice, protection, and preservation.

Moreover, open and participatory communication with all pertinent stakeholders will help to build trust and enable the acceptance of drone technology, so promoting an environment in which ethical issues take the front stage in the takaful industry and innovation is driven forward. Early in the technology adoption process, takaful operators should engage Shariah boards and advisory teams to ensure that all aspects of drone use conform with Islamic principles, thus strengthening consumer trust and support for these developments (Salman, 2014). Furthermore, the effective integration of drone technology into the takaful sector calls for a coordinated effort to guarantee that all stakeholders—including regulators, consumers, and Shari'ah advisers—are sufficiently informed and engaged in the process, so fostering a comprehensive awareness of the ethical and spiritual issues that must direct the integration of drone technology in the sector. As shown by the strategic alliances between financial technology and conventional Islamic financial institutions, this cooperative approach not only improves the legitimacy of the initiatives but also helps to create a shared vision of enhancing financial inclusion and accessibility through creative solutions grounded in Islamic finance principles (Haridan et al., 2020). Using these collaborations, new drone-based products and services that satisfy the various needs of consumers while adhering to Shariah compliance can be developed, so contributing to a more inclusive financial ecosystem that fits the goals of both technological advancement and religious principles (Leveraging Islamic Fintech, 2020).

In this context, the alignment of drone technology with Maqasid Shariah is expected to positively influence behavior intention, as stakeholders within the Takaful industry are more likely to adopt technologies that comply with Shariah principles.

**H7:** Maqasid Shariah has a significant effect on overall behavior intention.

### **3. Research Methodology**

This study employed a quantitative research design to examine the factors influencing behavior intention toward the adoption of drone technology within the Takaful industry. The research aimed to identify the impact of various predictors such as social influence, facilitating conditions, performance expectancy, and effort

expectancy on the behavior intention of Takaful professionals in Malaysia and Indonesia.

The study utilized a purposive sampling technique to select respondents who are currently working in the Takaful industry across Malaysia and Indonesia. The sample consisted of 68 respondents, which, though small, is appropriate given the exploratory nature of the study and the niche population targeted. The respondents were employed across different Takaful operators, with the majority working at Great Eastern Takaful Berhad, Takaful Ikhlas General Berhad, Etiqa Family Takaful Berhad, and Etiqa General Takaful Berhad. The respondents' years of experience in the industry varied, with most having 5 years or less, followed by those with 6-10 years of experience.

Data was collected through a structured questionnaire distributed to professionals within the Takaful industry in both Malaysia and Indonesia. The questionnaire comprised sections that captured demographic information (e.g., gender, age, department), as well as items measuring key constructs such as performance expectancy, effort expectancy, social influence, facilitating conditions, and behavior intention. Each construct was measured using a Likert scale, where respondents indicated their level of agreement with various statements related to drone adoption in the industry. Given the cultural and regulatory differences between Malaysia and Indonesia, potential biases in responses were acknowledged. The comparative aspect of the study highlights these biases, providing a platform for future research to explore how these factors influence drone adoption differently in these two countries.

The collected data was analyzed using statistical methods, including frequency analysis, descriptive analysis, correlation analysis, and regression analysis. Frequency analysis was conducted to understand the distribution of respondents across different demographic categories and Takaful operators. Descriptive statistics were used to summarize the central tendencies and dispersion of the key constructs. Correlation analysis was performed to determine the strength and direction of the relationships between the predictors and behavior intention. Finally, regression analysis was employed to assess the predictive power of the independent variables on behavior intention.

The statistical analysis was carried out using SPSS software, which facilitated the calculation of mean values, standard deviations, correlation coefficients, and regression parameters. The analysis provided insights into the significance of each predictor in influencing the behavior intention toward drone adoption in the Takaful industry in both Malaysia and Indonesia.

#### 4. Results

The frequency analysis revealed that the distribution of respondents across various demographic and professional categories provides a diverse representation of the takaful industry. Out of the total respondents, 40 were male and 28 were female. A majority of the respondents were employed by Great Eastern Takaful Berhad (20 respondents), followed by Takaful Ikhlas General Berhad with 13 respondents, Etiqa Family Takaful Berhad with 11 respondents, and Etiqa General Takaful Berhad with 10 respondents. In terms of experience, most respondents had been working in the takaful industry for 5 years or less (28 respondents) or between 6 to 10 years (25 respondents). Only 12 respondents had more than a decade of experience, specifically between 11 to 15 years. The departments represented in the study varied, with the Shariah department having the highest number of respondents (17), followed by the Actuary department (12 respondents), Customer Service (10 respondents), and both Finance and Marketing departments, each with 9 respondents. The age distribution indicated that the majority of respondents were aged between 31-40 years old (40 respondents), followed by those in the 41-50 age group (18 respondents), and only 8 respondents were aged below 30.

**Profile of Respondents:** Table 1 displays a summary of the characteristics of the total sample of takaful providers who participated in the study.

**Table 1: Demographic Profile**

VARIABLE	FREQUENCY	PERCENTAGE
<b>GENDER</b>		
Males	28	41.17%
Females	40	58.82%
<b>Total</b>	<b>68</b>	<b>100%</b>
<b>TAKAFUL OPERATOR</b>		
Afi Syariah	1	1.47%
Aia Public Takaful Bhd	2	2.94%
Allianz Syariah (Allisya)	3	4.41%
Asuransi Bumiputera Syariah	5	7.35%
Asuransi Sinar Mas Syariah	1	1.47%
Asuransi Syariah Aia	2	2.94%
Asuransi Syariah Astra	1	1.47%
Asuransi Syariah Bni Life	3	4.41%
Asuransi Syariah Manulife	4	5.88%
Asuransi Syariah Panin	2	2.94%
Asuransi Takaful	4	5.88%
Etiqa Family Takaful Berhad	2	2.94%
Etiqa General Takaful Berhad	10	14.71%
Fwd Takaful Berhad	1	1.47%
Great Eastern Takaful Berhad	5	7.35%
Hong Leong Msig Takaful Berhad	2	2.94%
Prudential Bsn Takaful Berhad	1	1.47%
Prusyariah	4	5.88%
Sun Life Malaysia Takaful Berhad	2	2.94%
Syarikat Takaful Malaysia Am Berhad	3	4.41%
Syarikat Takaful Malaysia Keluarga Berhad	2	2.94%
Takaful Ikhlas Family Berhad	1	1.47%
Takaful Ikhlas General Berhad	3	4.41%
Others	1	1.47%
Xx Trial	1	1.47%
Zurich General Takaful Malaysia Berhad	1	1.47%
Zurich Takaful Malaysia Berhad	1	1.47%
<b>Total</b>	<b>68</b>	<b>100%</b>
<b>Years in the Takaful Industry</b>		
11 – 15 years	12	17.65%
16 – 20 years	3	4.41%
5 years and below	29	42.65%
6 – 10 years	16	23.53%
Others	8	11.76%
<b>Total</b>	<b>68</b>	<b>100%</b>
<b>Department</b>		
Actuary	5	7.35%
Customer Service	3	4.41%
Finance	8	11.76%
Investment	6	8.82%
Marketing	9	13.24%
Product Development	8	11.76%
Shariah	6	8.82%
Others	23	33.82%
<b>Total</b>	<b>68</b>	<b>100%</b>
<b>Age</b>		
31 – 40 years old	22	32.35%
41 – 50 years old	15	22%

51 – 60 years old	6	8.82%
Below 30 years old	24	35.29%
Others	1	1.47%
<b>Total</b>	<b>68</b>	<b>100%</b>

**Descriptive Statistics:** Descriptive analysis of the key variables in Table 2 provided insights into the respondents' perceptions and attitudes. Performance expectancy had a high mean value of 4.41, suggesting that on average, respondents had high expectations of performance, with moderate variability (standard deviation of 0.68). Effort expectancy also showed moderate variability, with a mean value of 3.98 and a standard deviation of 0.83. Social influence exhibited a slightly wider dispersion, with a mean of 3.88 and a standard deviation of 0.92. Facilitating conditions had a mean of 3.73, reflecting moderate variability in respondents' perceptions (standard deviation of 0.81). Perceived cost was also high, with a mean value of 4.21 and a standard deviation of 0.69. The analysis of social cost and benefit yielded a mean of 4.15 and a standard deviation of 0.77, indicating a consistent perception among respondents. Finally, the alignment with Maqasid Shariah was notably high, with a mean value of 4.68 and a low standard deviation of 0.45, while behavior intention had a mean of 3.99 and a standard deviation of 0.83, indicating moderate variability in respondents' behavioral intentions.

**Table 2: Descriptive Statistics**

Variable	Descriptive Statistics		
	Factor Name	Mean	Std. Dev.
PE	Performance Expectancy	4.433	0.751
EE	Effort Expectancy	3.974	0.879
SI	Social Influence	4.047	0.964
FC	Facilitating Conditions	3.908	0.792
PC	Perceived Cost	4.198	0.622
SCBA	Social Cost and Benefit Analysis	4.137	0.773
MS	Maqasid Shariah	4.702	0.439
BI	Behavior Intention	3.963	0.916

**The Correlation Analysis:** The correlation analysis Table 3 identified the relationships between key variables and behavior intention. Performance expectancy was positively correlated with behavior intention ( $r = 0.671$ ), suggesting that higher performance expectancy is associated with higher behavior intention. Effort expectancy also showed a positive correlation with behavior intention ( $r = 0.526$ ). Social influence had the strongest positive correlation with behavior intention ( $r = 0.865$ ), indicating a significant impact on behavior. Facilitating conditions were also positively correlated with behavior intention ( $r = 0.738$ ), suggesting that better-facilitating conditions are associated with higher behavior intention. Perceived cost ( $r = 0.460$ ) and social cost and benefit analysis ( $r = 0.601$ ) were both positively correlated with behavior intention, albeit to a lesser extent. The alignment with Maqasid Shariah, while positively correlated with behavior intention, had the lowest correlation coefficient ( $r = 0.325$ ), indicating a weaker relationship.

**Table 3: Correlation Analysis**

Variable	Factor Name	Correlation with Behavior Intention	P-value
PE	Performance Expectancy	0.671	0.01
EE	Effort Expectancy	0.526	0.05
SI	Social Influence	0.865	0.00
FC	Facilitating Conditions	0.738	0.00
PC	Perceived Cost	0.46	0.05
SCBA	Social Cost and Benefit Analysis	0.601	0.01
MS	Maqasid Shariah	0.325	0.10

**Table 4: Regression Analysis**

Variable	Factor Name	Coefficient	P-value
PE	Performance Expectancy	0.0975	0.418
EE	Effort Expectancy	-0.0618	0.488



SI	Social Influence	0.6975	0.00
FC	Facilitating Conditions	0.3474	0.00
PC	Perceived Cost	-0.0854	0.45
SCBA	Social Cost and Benefit Analysis	-0.092	0.387
MS	Maqasid Shariah	-0.097	0.517

**The Regression Analysis:** The regression analysis Table 4 provided valuable insights into the factors influencing behavior intention. The model exhibited strong predictive power, with an R-squared value of 0.791, indicating that 79.1% of the variance in behavior intention was explained by the independent variables. The adjusted R-squared was 0.767, and the overall model was statistically significant, supported by an F-statistic of 32.53 and a P-value of 3.66e-18. Among the predictors, social influence emerged as a key factor, showing a strong positive effect on behavior intention with a coefficient of 0.6975 and a P-value of 0.000. Facilitating conditions also significantly impacted behavior intention, with a coefficient of 0.3474 and a P-value of 0.003. In contrast, performance expectancy, although positive, was not a significant predictor, with a coefficient of 0.0975 and a P-value of 0.418. Similarly, effort expectancy had a negative but insignificant effect, with a coefficient of -0.0618 and a P-value of 0.488. Perceived cost (-0.0854), social cost and benefit analysis (-0.0921), and Maqasid Shariah (-0.0972) all had negative coefficients, but none of these variables were statistically significant, as indicated by their respective P-values of 0.451, 0.387, and 0.517. These findings highlight the importance of social influence and facilitating conditions in shaping behavior intention, while other factors did not demonstrate significant predictive power in this model.

**Hypothesis Test:** In Table 5, the hypotheses testing revealed that social influence, facilitating conditions, and social cost and benefit significantly impact overall behavior intention, leading to the rejection of the null hypotheses for these variables. However, performance expectancy, effort expectancy, perceived cost, and Maqasid Shariah did not have a significant effect on behavior intention, leading to a failure to reject the null hypotheses for these variables. These findings underscore the importance of social factors, enabling conditions, and social cost-benefit considerations in shaping behavior intentions within the context of the takaful industry.

**Table 5: Hypothesis Test**

Hypothesis	Null Hypothesis (H0)	Alternative Hypothesis (H1)	Result
H1	Performance expectancy does not have a significant effect on overall behavior intention.	Performance expectancy has a significant effect on overall behavior intention.	Fail to reject H0 (P-value: 0.418)
H2	Effort expectancy does not have a significant effect on overall behavior intention.	Effort expectancy has a significant effect on overall behavior intention.	Fail to reject H0 (P-value: 0.488)
H3	Social influence does not have a significant effect on overall behavior intention.	Social influence has a significant effect on overall behavior intention.	Reject H0 (P-value: 0.000)
H4	Facilitating conditions do not have a significant effect on overall behavior intention.	Facilitating conditions have a significant effect on overall behavior intention.	Reject H0 (P-value: 0.000)
H5	Perceived cost does not have a significant effect on overall behavior intention.	Perceived cost has a significant effect on overall behavior intention.	Fail to reject H0 (P-value: 0.451)
H6	Social cost and benefit do not have a significant effect on overall behavior intention.	Social cost and benefit have a significant effect on overall behavior intention.	Fail to reject H0 (P-value: 0.387)
H7	Maqasid Shariah does not have a significant effect on overall behavior intention.	Maqasid Shariah has a significant effect on overall behavior intention.	Fail to reject H0 (P-value: 0.517)

(\*p<0.05; \*\*p<0.001)

## Discussion

The results of this study offer important new perspectives on the elements affecting the acceptance of drone technology in the Takaful sector in Malaysia and Indonesia. While performance expectation and effort expectation were found to be less important in this context, the results underline the important part of social influence and facilitating conditions in shaping the behavior intention of Takaful practitioners towards drone adoption.

### Social Influence as a key driver

The study showed that social influence is a strong predictor of behavior intention, meaning that the decision-making process of professionals depends much on the impressions and endorsements of peers, business leaders, and influencers. This result fits earlier studies stressing the need for social proof and group behavior in the acceptance of technology (Venkatesh et al., 2003). In the Takaful sector, where trust and community are fundamental, the endorsement of drone technology by eminent personalities can greatly increase its acceptance (Yoo et al., 2023)... This implies that plans meant to boost drone acceptance should concentrate on using the power of important industry players to establish credibility and promote general acceptance among professionals.

### The impact of Facilitating conditions

Facilitating conditions were also found to have a significant positive impact on behavior intention. Good infrastructure, training and support systems will ensure to succession of the application of drone technology in the Takaful industry. In addition, a supportive environment is important as individuals are more likely to accept and adopt new technologies when they feel equipped and supported (Sitorus et al., 2016; Kauffman & Techatassanasoontorn, 2010). It also depends on funding for technical support, regulatory framework and training programs that suit to Takaful industry that have a complex regulatory landscape (Ayamga et al., 2021; Jones, 2017; Ayamga et al., 2020).

### Implications for the Takaful Industry

The findings show that promoting and implementing drone technology can have positive significance for Takaful stakeholders. Social factors have a major influence on marketing and promotional efforts which both need to focus on developing social proof via endorsements from the market leader and early adopters. Indeed, it is necessary to ensure the availability of infrastructure and support systems are in the right order when to overcome barriers to adoption.

The Takaful industry in Malaysia and Indonesia will continuously evolve and these findings provide a framework for successfully integrating drone technology into their operations. The key drivers from the findings will enhance Takaful operators on their operational efficiency, improve customer service, and get the upper edge in the market.

### Contextual Factors

Furthermore taken into account should be the cultural and legal variations between Malaysia and Indonesia, which might affect the generalisability of these results. Both nations have different legal systems and cultural attitudes towards the acceptance of technology, which could influence how drone technology is seen and applied inside the Takaful sector. Malaysia, for example, has a more advanced drone regulatory system than Indonesia (Muhamat et al., 2021; Rahman et al., 2019; Saputra, 2020). Culturally, although both nations have Islamic values, variances in risk appetite and technology acceptance among stakeholders could exist [cite a source discussing cultural differences and technology acceptance in Southeast Asia or specifically in these countries](Aulia et al., 2020; Diniyya et al., 2021).

## 5. Managerial Implications and Recommendations

This study has demonstrated valuable findings on the adoption of drone technology in the context of the Takaful industry in Malaysia and Indonesia. Nevertheless, it is important to identify the limitations for future research works. This study only focused on Malaysia and Indonesia which is probably insightful to both countries but still further research is needed to know whether the findings hold in other countries with different cultural contexts and regulatory landscapes towards Takaful and usage of the drone technology. Even though the

sample size provided valuable data still a large and more diverse sample from different Takaful companies and professional positions probably can increase the generalizability of the findings. Moreover, combined with the qualitative data could provide richer insights into the motivations and concerns surrounding drone adoption, complementing the existing data. Lastly, with the evolution of drone technology, future research needs to consider the other areas that impact emerging technologies such as artificial intelligence and blockchain, on drone applications within Takaful.

This paper offers an insightful analysis of the acceptance of drone technology in the Takaful sectors of Malaysia and Indonesia. Still, it's important to recognize some constraints to direct the next studies. This particular study concentrated especially on Indonesia and Malaysia. Although perceptive for these countries, more study is required to ascertain whether the results apply to other areas with different cultural settings and legal environments for drone operation. Furthermore, even if the given sample size offers useful information, a larger, more varied sample spanning many Takaful businesses and professional roles could improve the generalisability of the results. Moreover, adding qualitative data via focus groups or interviews would enhance the current data by offering a more complex understanding of the reasons behind and worries about drone acceptance. Lastly, given the fast development of the drone sector, the next studies should take into account how newly developed technologies like artificial intelligence and blockchain would affect drone uses inside Takaful.

Building on these factors, the next studies might investigate several interesting directions. Comparative studies across several nations with different cultural and legal environments would help to clarify the elements influencing drone acceptance in Takaful using cross-cultural analogs. Longitudinal studies tracking the acceptance and influence of drone technology over time would provide insightful analysis of the long-term consequences on the Takaful sector. Further study is required to investigate the ethical consequences and create thorough legislative frameworks for drone use inside the Takaful sector, to guarantee responsible and sustainable implementation given the ethical and regulatory complexity. Last but not least, future research could look at the particular effects of drone technology on Takaful operations—that is, efficiency increases, cost savings, and customer satisfaction—so measuring the advantages.

Overcoming the limitations can provide a more comprehensive understanding of the potential of drones within the Takaful industry. Future research should focus on expanding the scope of this study to include other regions with different cultural and regulatory environments. A larger, more diverse sample would improve the generalizability of the findings. Additionally, as technology evolves, future studies should investigate the impact of emerging technologies such as artificial intelligence and blockchain on drone adoption in the Takaful industry. Qualitative studies, such as focus groups or interviews, could provide deeper insights into the motivations and concerns surrounding drone adoption, complementing the existing quantitative data.

### **Conclusion**

In conclusion, this study gives insightful analysis of how drone technology acceptance influences the Takaful business in Malaysia and Indonesia. The findings of the study also indicate the need for social influence and facilitating conditions compared to less relevant performance expectations and effort expectations. Indeed, these findings can provide a guideline to the stakeholders when developing strategies to motivate drone adoption, especially improving the industry's ability to explore this innovative technology.

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