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Article

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The drone delivery services: An innovative application in an emerging economy

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ABSTRACT

The rapid development of the Internet of Things (IoT) devices led to new era in the maritime and road transportation industry and research. This article studies the critical determinants of Drone delivery services (personal innovativeness, outcome expectancy, positive anticipated emotions, and perceived risk) on customer willingness to use Drone in an emerging economy. The article employs correlation analysis and structural equation modeling (SEM) to analyze the data of 602 valid observations collected in the structured questionnaire survey in Vietnam. Empirical results indicate that outcome expectancy and personal innovativeness positively impact customer attitude and anticipated emotion, while outcome expectancy has the strongest influence. These findings also show that outcome expectancy and personal innovativeness have an effect on customer willingness to use Drone through their positive attitude and positive anticipated emotions. Interestingly, the perceived risk of Drone is considered a moderator in reducing the relationship between customer attitude and willingness to use Drone while it has an insignificant impact on customer emotion and willingness to use.

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1. Introduction

Drone contributes several benefits compared with traditional delivery: faster, low costs, and a friendly environment (Merkert et al., 2022) and improves the operational performance of the maritime and road transportation systems (Chaudhry et al., 2021). However, drones bring customers advantages and risks (Yoo et al., 2018a). Customers are satisfied with flexibility, security, and speed (Raj & Sah, 2019; Hanh, 2020; Siddiqui & Le, 2019), while they are also afraid of Drone malfunction and “privacy invasion” by overflight “over their real estate property” (Kim, 2020). Therefore, this article examines the impact of personal innovativeness, outcome expectancy, and perceived risk on anticipated emotion, attitude, and willingness to use Drone in both maritime and road transport.

Since consumer behavioral intention considered as an indicator of behavioral acceptance and readiness to pay a premium for services, research on potential contributing factors to the intended use, plays an important role in providing information to researchers, drone developers, retailers and logistics. Yoo et al. (2018a) highlights

the Drone policy as an important factor on customer acceptance while Hwang and Lee (2019) demonstrated the Drone innovativeness and customers' attitude as determinants influencing customer intention. Meanwhile, Yoo et al. (2018a) identified that the Drone speed advantage, complexity and individual characteristics significantly impact customer attitudes. Kim and Hwang (2020) argued that key determinants of customer acceptance relate to attitude, personal, behavioral control and subjective norms. Lastly, Osakwe et al. (2022) highlighted the delivery risk as the moderator on links among customer attitude, desire, and customer intention.

The current transportation (road and maritime) is evolving with the proliferation of the new communication and computational features and many researchers are being conducted to upgrade this industry (Chaudhry et al., 2021; Lee et al., 2019; Vu & Nguyen, 2022). As in the terrestrial domain, drones are used in the maritime domain to conduct certain operations such as surveying ships, supervising offshore installations and delivering goods and supplies (Ksouri et al., 2020). Although scholars demonstrate an interest in the study of drone delivery services (Raj and Sah, 2019; Yoo et al., 2018a), these studies are limited to emerging economies. This is unsurprising as drone delivery is still an emerging trend and piloted in phases. Interestingly, a recent survey (Urban, 2018) found that approximately 26% of respondents expect to use drone delivery services in the next few years. This finding further reinforces the necessity for an

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enhanced understanding of consumer readiness to accept this technology and to inform professionals. Furthermore, none of mentioned research has studied whether Drone perceived risk is considered as the moderating factor on customer willingness to use Drone in both road and maritime transportation research (Yoo et al., 2018a; Sah et al., 2020).

Data for this study is collected in Vietnam. The country presents ideal conditions to test assumptions on consumer acceptance of this emerging technology artifact. With the average growth rate in the period 2016–2019 reaching about 30%, the size of our country's e-commerce market has increased from 4 billion USD in 2015 to about 11.5 billion USD in 2019 (VECOM, 2020). The rapid development of e-commerce means that the pressure placed on the associated logistics services industry is also increasing, especially the last mile delivery (Tolstoy et al., 2022). Meanwhile, doing well at the last mile delivery stage is extremely important for e-commerce companies because it has a significant impact on consumer satisfaction in the online shopping experience (Vakulenko et al., 2019). The requirement is to have new and more effective solutions for this last mile, replacing home delivery – a popular but limited form (Mousavi et al., 2022). Therefore, it is extremely necessary to study methodically customer willingness to use Drone in order to solve the above questions. Based on the above mentioned, this study contributes to the transportation research about the impact of Drone delivery service on customer behaviors.

Based on the diffusion of innovation theory (Rogers, 1983) and the technical acceptance model (Davis, 1989), this study develops a theoretical model of the relationships between customer adoption factors (i.e., positive anticipated, attitude toward Drone, and willingness to use) and determinants such as perceived attributes of innovation (i.e. personal innovativeness, outcome expectancy), perceived risks. The remainder of this paper is structured as follows: Section 2 presents the theoretical background of Drone delivery service and its influence on customers' willingness to use Drone; Section 3 shows the research methodology; Section 4 is devoted to the results, while the final section presents conclusions, theoretical and managerial implications, and the limitations of the study.

2. Literature review

2.1. Drone delivery service

A drone is a type of flying vehicle or unmanned aircraft, aircraft with remote control and without the presence of humans inside the cockpit, and it can come in many different shapes, sizes, and roles (Chaurasia & Mohindru, 2021). The Drone's structure includes the main components: motor, central processor, propeller, bracket, and power supply (battery) (Floresano & Wood, 2015). Users can control the drone with a remote controller or/and pre-programmed it with GPS-based coordinates and routes. Many drones now have built-in GPS, so they can always locate where they are flying (Renduchintala et al., 2019).

The drone controller consists of two buttons and a foldable antenna, usually using 2.4 GHz radio waves (Yaacoub et al., 2020). They argued that some drone controllers have a combination of both 2.4 GHz and Wi-Fi signals, look like game console controllers, or can be based on a control app running on a smartphone or computer tablet (Pasha et al., 2022; Stasiak et al., 2018). Conventional drones can fly thanks to rotating propellers powered by batteries. Some expensive high-end drone models can fly on a forced basis and can fly up to 800 km and up to 15 km high. Some drones operate by pre-programmed operation; others operate under human remote control (Stasiak et al., 2018). Drones generally fly to a destination, whether they are used for military or civilian purposes.

The Drone Delivery system will track the consumer's live location and thus provide guaranteed package delivery to the right place and

person (Scott & Scott, 2019). The GPS Drone delivery system will determine the consumer's location through GPS, detect the live location, and deliver the correct package within the specified time as each delivery date (Chen et al., 2022). GPS will be built-in into the drone, and the tracking device will detect the user's location. The device will now be processed by the customer using the OTP provided during packet generation to avoid fraud.

2.2. Anticipated emotion

Anticipated emotion is an "individual's emotional response" to a "perception of a certain situation" (Clore et al., 1987). Kas and Mes (2002) demonstrated that emotions significantly impact and "account for differences in sustained behavior of individuals". Xie et al. (2015) showed a significant association between personal characteristics, moral feelings, and consumer responses. Negative moral emotions (i.e., contempt, anger, and disgust) create adverse reactions, while positive emotions lead to positive responses. However, this research flow needs to assess the relevance of predictive of the emotional outcome of future decisions. In addition, the concept of lead-based emotion, which refers to the emotional response following an individual's predicted behavior, has been proposed (Hwang et al., 2020).

2.3. Hypothesis development

According to Agarwal and Prasad (1998), personal innovativeness in the technology field is considered as "individual willingness to access new IT systems". It directly impacts the user's acceptance of the new IT system (Jackson, Mun, & Park, 2013). It can be concluded that individual innovativeness leads to their anticipated positive emotion about the new IT system. When it comes to Drone delivery services, personal innovativeness is proposed to have linked with anticipated emotions, attitudes, and willingness to use Drone. The hypotheses are as follows:

H1a. : *Personal innovativeness has a significantly impact on positive anticipated emotions.*

H1b. : *Personal innovativeness has a significantly impact on attitude toward Drone delivery service.*

H1c. : *Personal innovativeness has a positive impact on willingness to use Drone.*

Outcome expectancy is "the expected ability to carry out a course of action successfully and achieve the expected outcome" (Bandura, 1977). Osakwe et al. (2021) suggested that outcome expectancy has positive impact on attitude and intention to use Drone. Huang et al. (2015) demonstrated that outcome expectancy is a key factor influencing attitude toward an IT system. Similarly, several scholars have suggested the link between outcome expectancy and attitude toward IT (Stone & Baker-Eveleth, 2013). From these perspectives, outcome expectancy about Drone will lead to individual anticipated emotions, their attitudes and their willingness to use Drone delivery services. Several studies have shown that when users interact with service system, they do not wish to use if this system is so complex (Fan et al., 2018; Yoo et al., 2018a). Hence, when an individual processes information, their perception is affected by the complexity of the task, so the simplicity of a task is negatively correlated with its cognitive load (Xu et al., 2020). Complexity can affect the knowledge, desire, and motivation needed to perform a task (Hærem et al., 2015). Therefore, individuals invest more time and effort as task complexity increases, and adjust their judgment, performance, and expectations accordingly (Xu, 2016). Therefore, high expectations on high complexity problems will lead users' intention to use Drone (Lankton et al., 2010). The hypotheses are proposed:

H2a. Outcome expectancy has a significantly impact on positive anticipated emotions.

H2b. Outcome expectancy has a significantly impact on attitude toward Drone delivery service.

H2c. Outcome expectancy has a positive impact on willingness to use Drone.

Several attempts suggested the relationship between anticipated emotion and behavioral intention (Picarra & Giger, 2018). The suggestion of Kals and Maes (2002) showed an existing link between anticipated emotion, attitude, and willingness to use. On the other hand, exploring the impact of emotion on motivating goal-directed behavior is the findings of Baumgartner et al. (2008), which provide evidence that positive and negative emotions predict behavioral intentions. The results of Ha's (2018) analysis indicate the consumer intention is based on their emotion in the field of new technology. Ahn and Kwon (2020) focus on green practices in the hotel industry and confirm the prominent impact of positive and negative emotions on eco-friendly behavioral intentions towards green hotels. Consequently, the hypotheses are following:

H3a. Anticipated emotion has a positive impact on attitude toward Drone delivery service.

H3b. Anticipated emotion has a positive impact on willingness to use Drone.

When the customer's attitude is enhanced, they will have a positive emotion and intention towards the service. Lee (2009), based on the TAM model, demonstrated that customer attitude toward using the technology system impacts their intention to adopt. In addition, many empirical studies in the field of self-service technology have shown that attitude positively influences intention (Chi, 2021; Yoo et al., 2018a). In general, if users feel that using a service brings more value, they are willing to use this service.

H4. Attitude toward Drone delivery service has a negative impact on willingness to use Drone.

Several studies have shown that delivery risk reduces customers' desire to use services (Yi et al., 2020; Hwang & Cloee, 2019; Nakamura & Kajikawa, 2018). Firms have fewer advantages in adopting Drone because of possible risks (Soffronoff et al., 2016). Hence, the delivery risk is an important factor that helps reduce potential user acceptance of Drones, especially in the logistics context (Osakwe et al., 2021). Consequently, these hypotheses are proposed following:

H5a. Perceived risk reduces the relationship between positive anticipated emotions and willingness to use Drone.

H5b. Perceived risk reduces the relationship between attitude toward Drone delivery service and willingness to use Drone.

Based on the above mentioned, this paper proposed the framework which is depicted in the Fig. 1.

3. Methodology

3.1. Measurement

To operationalize latent constructs in the study, scales have been taken from prior literature with relevant modification in item wordings fitting the context. Three items of personal innovativeness are captured from Jackson et al. (2013) and Yoo et al. (2018a). Positive anticipated emotions are captured using three items from the study of Hwang and Lee (2019); Hwang & Kim (2020). Five items of outcome expectancy are adapted from Boateng et al. (2016), Osakwe et al. (2021). Perceived risk has five components from the study of

Soffronoff et al. (2016) and Yoo et al. (2018a). Finally, the willingness to use Drones has three items from Chuah et al. (2022) (Table 1). These items have been measured on a five-point Likert scale ('1' - strongly disagree to '5' strongly agree).

Before conducting the formal survey to collect data, a pilot test of the questionnaire were carried in two round. Firstly, the questionnaire was filled out by five experts, who are lecturers of two universities in Vietnam and specialize in logistics and information system. After that, the wording of questions in the questionnaires was modified to ensure clarity based on the experts' feedback (Straub et al., 2004). Secondly, the questionnaire was tested with 80 students, who are studying and specializing in the major of information systems and logistics in Vietnamese universities. Cronbach's Alpha was used to evaluate the data from this pilot test. The results show that all items of research constructs are adequately reliable. Each construct has a Cronbach's Alpha coefficient from 0.70 to 0.90. Therefore, the validity and reliability of the survey questionnaire are ensured. The final version of the questionnaire was translated into Vietnamese by a professional translator and reviewed by a language editor to make sure the accuracy of the translated version.

3.2. Population and sample

For the purpose of this study, the research population was defined to be Vietnamese individuals with experience in online shopping and ages 18–40 years. This research population is considered an "early adopter" and "heavy user of digital technology" (Thusi & Maduku, 2020; Alexander & Kent, 2020). Convenience sampling method was employed to develop the research sample because the sample is chosen on the basis of the convenience of the investigator. This is the most commonly used sampling method in studying customers' behaviors (Peterson & Merunka, 2014). Often the respondents are selected because they are at the right place at the right time. The advantages are that they are most commonly used, less expensive and there is no need for a list of all the population elements (Etikan et al., 2016). However, they are not without limitations; results from the data cannot be generalised beyond the sample (Acharya et al., 2013).

The sample size was determined at least 350 observations as per the rule of thumb in multivariate analysis literature (e.g Comrey and Lee, 1992). Therefore, we distributed 800 questionnaires to obtain at least 300 observations. The online survey was employed and launched for four months, from February to May 2022, before the data was exploited to examine the proposed model. The online form of Google Docs was used because it is a popular tool and is easily accessed by Vietnamese people. This study was conducted among online customers of two big e-retailing companies in Vietnam (Tiki and Lazada) and sent following care service through websites and their SMS messages.

The study follows a proper ethical procedure that all the answers of the respondents are kept confidential. All the questionnaires were anonymous. The questionnaires that contain incomplete or disengaged responses were discarded. Only complete questionnaires were used. As a result, 602 responses were recorded for the analysis, which represents a retrieval rate of 75.3%.

3.3. Data analysis

The multivariate data analysis method was used to analyze and test the research hypotheses. Confirmatory factor analysis (CFA) was used to evaluate the reliability and validity of each construct in the model. Measurement model scales were used to assess the overall fit with actual data, convergent validity, and discriminant validity. The model fit indices including χ^2 /df, goodness of fit index (GFI), normed fit index (TLI, NFI), comparative fit index (CFI), and root

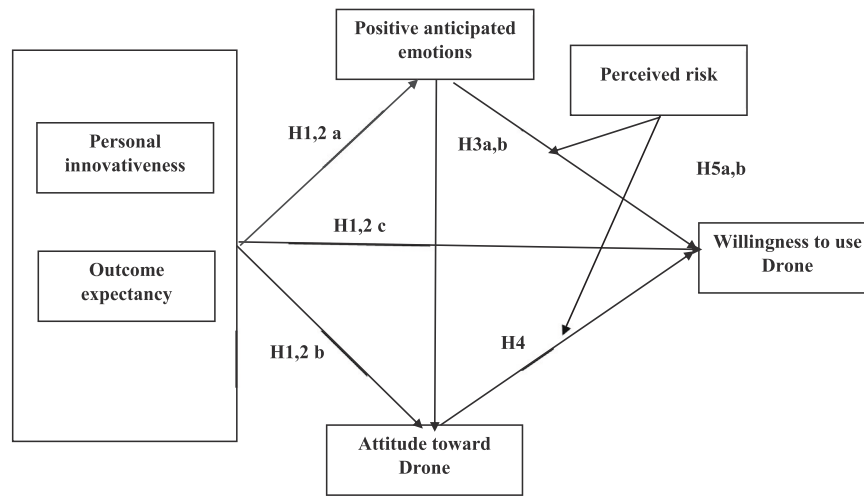


Fig. 1. The proposed framework.

Table 1

The measurement scale of proposed constructs.

Constructs	Items	Source
Personal innovativeness	If I heard about a new technology, I would look for ways to experiment with it Among my peers, I am usually the first to try out new technologies I like to experiment with new information technologies	Jackson et al. (2013); Yoo et al. (2018a)
Outcome expectancy	My expectation about drone delivery is that it will provide many unique features I expect that drone delivery will offer me superior value for money Using drone delivery will offer me greater convenience than any other methods I expect good service quality when using drone for my shopping delivery My expectation, in general, is that drone delivery will offer me important benefits	Boateng et al. (2016), Osakwe et al. (2021)
Positive anticipated emotions	If I use Drone delivery services, I will feel happy If I use Drone delivery services, I will feel excited If I use Drone delivery services, I will feel delighted	Hwang and Lee (2019); Hwang & Kim (2020)
Perceived risk	The drone might malfunction and damage the package it's carrying The drone might deliver my package to a different address The package the drone is carrying might be stolen Drone delivery will cause me to lose control over my privacy Drone delivery will lead to a loss of privacy for me	Soffronoff et al. (2016); Yoo et al. (2018a)
Attitude	In my opinion, using drone delivery would be a wise idea In my opinion, using drone delivery is to pick up a package would be a wise idea I think I find it easy to use drone delivery	Yoo et al. (2018a), Lee (2009)
Willingness to use Drone	I am willing to use Drone delivery to take my order I am willing to receive services delivered by Drone I am likely to interact with Drone	Chuah et al. (2022)

mean square error of approximation (RMSEA) were examined with the following criteria: from 1 to 5 for χ^2 /; above 0.90 for GFI, TLI and CFI (Kline, 2005); and below 0.08 for RMSEA (Bollen, 1989). The PROCESS macro in SPSS 22.0 was employed for analyzing the moderating impact of perceived risk.

4. Results

4.1. Research sample profile

The research sample consists of 602 valid observations of online customers. In the research sample, males account for 43.5%, and females account for 56.5%. The group of people from 18 to 29 accounts for 56.4%, while the group from 30 to 40 years old accounts for 43.6%. Of the research sample, people with academic qualifications of undergraduate and master's degrees account for 72.6% (Table 2).

4.2. Measurement model test-validity and reliability

Following the guidelines of Anderson and Gerbing (1988), the measurement model can only be tested when reliability and validity

Table 2
Characteristics of respondents.

	Percentage (%)
Gender	
Female	43.5
Male	56.5
Age	
18–29	56.4
30–40	43.6
Education	
Sub-degree	20.4
Undergraduate degree	52.6
Master degree	20.0
Doctoral degree	7.0

are employed. CFA addressed the reliability and validity of the proposed model using the Maximum Likelihood Estimation Method (ML). Cronbach alpha of each construct was more than the cut-off requirement of 0.7, which indicated that the scale was internal consistency (Nunnally & Bernstein, 1994). The measurement model presented in Table 4 exhibits a good fit as the test indices indicated a satisfactory fit ($\chi^2/df = 2.416$; $CFI = 0.901$; $TLI = 0.902$; $IFI = 0.912$,

Table 3

The reliability and convergent validity.

Constructs	Range of loadings (CFA)	Cronbach's Alpha	Composite reliability	Average variance extracted
Personal innovativeness	0.722–0.820	0.852	0.828	60%
Outcome expectancy	0.713–0.789	0.807	0.789	55%
Anticipated emotions	0.711–0.825	0.844	0.859	54%
Attitude toward Drone	0.674–0.816	0.789	0.776	53%
Perceived risk	0.672–0.805	0.775	0.874	52%
Willingness to use Drone	0.777–0.890	0.881	0.857	61%

 $\chi^2/df = 2.416$; CFI = 0.901; TLI = 0.902; IFI = 0.912, RMSEA = 0.051**Table 4**

Direct effect testing results.

Relationships			Path Coefficient (β)	P	Test result
H1a: Personal innovativeness	→	Positive anticipated	0.318	**	Supported
H2a: Outcome expectancy	→	Positive anticipated	0.475	***	Supported
H1b: Personal innovativeness	→	Attitude toward Drone	0.306	**	Supported
H2b: Outcome expectancy	→	Attitude toward Drone	0.411	***	Supported
H1c: Personal innovativeness	→	Willingness to use	-0.218	0.52	Not Supported
H2c: Outcome expectancy	→	Willingness to use	-0.162	0.39	Not Supported
H3a: Positive anticipated	→	Attitude toward Drone	0.407	***	Supported
H3b: Positive anticipated	→	Willingness to use	0.339	**	Supported
H4: Attitude toward Drone	→	Willingness to use	0.422	***	Supported

RMSEA = 0.051). The model fit indices were above the cut-off requirement of 0.90 (Kline, 2005). All the indices were significant at $p < 0.001$ (see Table 3).

4.3. Hypothesis testing

As can be seen from Table 4, the baseline model has a good fit ($\chi^2/df = 2.061$; CFI = 0.914; TLI = 0.910; IFI = 0.905; RMSEA = 0.060). The proposed hypotheses (H1a, H1b, H2a, H2b, H3a, H3b, and H4) are accepted, H12 and H2c are not supported (Table 3).

Personal innovativeness and outcome expectancy all affect anticipated emotion and attitude toward Drone delivery services while they do not have a direct impact on willingness to use Drone. Outcome expectancy has the highest impact (0.475) on positive emotion and attitude (0.411). In regarding to positive anticipated emotions, it has a direct impact on attitude (0.407) and willingness to use Drone (0.339).

4.4. Moderation analysis

Moderating affects proposed through hypotheses H5a, H5b was tested using multigroup SEM. Two groups were created through median splits based on the values of the moderator variable. The moderating effect was checked with the help of comparing the restricted (constrained) model and nonrestricted (unconstrained) model. The difference in Chi-square ($\Delta\chi^2$) values between the two models offers a test for the presence/absence of a moderating effect, i.e., if $\Delta\chi^2$ is greater than 3.92 (for a p-value of 0.05). Results indicate (see Table 5) that perceived risk significantly influences the effect of anticipated emotion on willingness to use Drone delivery services (H5a), except for H5b.

Table 5

Multigroup analysis results.

Hypothesis				Perceived risk		$\Delta\chi^2$ (df=1)	p-value	Result
				High	Low			
H5a:	Anticipated emotion	→	Willingness to use	0.46	0.37	10.05*	> 0.05	Not Supported
H5b:	Attitude	→	Willingness to use	-0.33	-0.25	6.36*	< 0.05	Supported

* $p < 0.05$

5. Discussion

5.1. Theoretical implications

The e-commerce development entails the need for a more sustainable and efficient delivery system (in both road and maritime transport) to meet and satisfy customers' expectations when shopping online. With its distinct attributes, the Drone delivery service has the potential to be the right last-mile delivery solution in that trend. Consequently, several companies in developed countries (Amazon, Wal-mart) have adopted Drone delivery, and many other businesses are considering this new technology as an innovation. However, it is unclear whether customers in emerging economies accept Drones despite their benefits. The empirical investigation of this paper discovered potential customers' willingness to use Drone delivery services and contributes several implications to maritime and road transportation research.

The findings of this study show that personal innovativeness and outcome expectancy have all affected positive anticipated emotions and attitudes. Moreover, outcome expectancy created a high level of anticipated emotion and positive attitude toward drones, which is in line with the findings of Jackson et al. (2013) and Agarwal and Prasad (1990) in terms of IT systems in general. However, the outcome expectancy does not generate a higher willingness to use Drones.

The second critical finding reveals that personal innovativeness increases the positive emotion and attitudes of customers toward Drone delivery services. This finding is in accordance with the suggestion of Osakwe et al. (2022). They suggested that outcome expectancy positively impacts attitude and intention to use Drones.

The third findings show that outcome expectancy and personal innovativeness have no direct impact on customer willingness to use Drone. These findings are somewhat different from the suggestion of

Yoo et al. (2018a). This study reveals that outcome expectancy and personal innovativeness only have linked with the willingness to use Drones through positive anticipated emotion and positive attitude toward Drone.

Fourthly, this study confirms the positive impact of attitude and anticipated emotions on willingness to use drones. These findings are in accordance with the research of Ahn and Kwon (2020) about positive and negative emotions regarding eco-friendly behavioral intentions towards green hotels and the suggestion of Yoo et al. (2018a) about the attitude and willingness to use drones.

Finally, this study highlights the role of perceived risk in customer willingness to use drones. This study finds that perceived risk reduces the customer's attitude toward drones and willingness to use them. This finding is similar to the suggestion of Osakwe et al. (2021). However, perceived risk has insignificant with the link between anticipated emotion and willingness to use Drones.

5.2. Managerial implications

Several implications in the real-world context need to be noted regarding this study. Firstly, to promote and create conditions for Drone delivery services to develop an emerging economy, the role of Government and policy-makers is significant in communicating Drones to consumers and related stakeholders. Drone delivery service targets three groups of objects: one is a consumer who buys goods online - a group of direct users; second, e-commerce companies have their delivery team; third are logistics companies - this group can self-deploy Drone services to delivery methods. The communication needs to be done clearly and specifically for the above target groups to achieve the best effect. Secondly, governments and policy-makers launch regulations and institutional frameworks to support Drone deployment. Thirdly, businesses must manage and control the central data processing system to operate correctly to ensure that information is sent to delivery staff and consumers without confusion. Finally, businesses providing Drone delivery services need to build a secure internal network to protect them from today's increasingly sophisticated attacks by putting into use programs and software.

6. Limitations and future research

This study has certain limitations that could pave the way for further studies in drone applications. First, the theoretical model was conceived and tested only among millennials. Replicating study results for other consumer groups or for online consumers in general may not yield the same results. Therefore, this paper recommends further scrutiny of the proposed model while replicating the findings in other contexts. In this regard, this study also adopted a cross-sectional study design. Researchers can take a longitudinal approach using a dashboard and see how consumers' drone delivery experiences shape their social status over time and patterns how the whole works in this design. Notably, this study aims to assess whether drone delivery services are well received by consumers. In addition, this study may be limited by the adopted data collection method. Our study is based on a cross-sectional dataset that limits the work with respect to causal inference (Bagozzi et al., 2012). However, the study did not describe the role of different aspects of the drone while assessing its influence. Future researchers may study the multidimensional role of drones. In addition, our research is limited to the context of Vietnamese customers. The findings may not be generalisable for other customers from other emerging economies. We, therefore, encourage additional studies using data collected in countries other than Vietnam.

Data Availability

Data belong to the regulation of the sponsor.

Declaration of Competing Interest

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

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