“Customer switching intention from home delivery to smart locker delivery: Evidence from Vietnam”

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CUSTOMER SWITCHING INTENTION FROM HOME DELIVERY TO SMART LOCKER DELIVERY: EVIDENCE FROM VIETNAM

Abstract

The purpose of this study is to uncover evidence on the factors influencing switching intention from home delivery to smart lockers in the last-mile delivery service. The research model is constructed based on the Pull-Push-Mooring Theory and the Customer Perceived Value Theory using structural equation modelling to analyze data collected from 557 smart locker users in Vietnam. The results indicated a significantly positive influence of pull factors (convenience, environmental friendliness, and security) and push factors (delivery failure experience and risk), and confirmed that mooring factors (habit and switching cost) negatively impacted customers' intention to switch from home delivery to smart lockers. The study also revealed that mooring factors moderate the relationship between pull factors and the intention to switch. Moreover, gender, age and frequency of shopping online are significant to switching intention, and usefulness mediates between them and switching intention. Several managerial implications were suggested for stakeholders in order to enhance customers' switching intentions to use smart lockers, thereby improving the quality, efficiency, and sustainability of the last-mile delivery service in the future.

Keywords last-mile delivery, pull-push-mooring framework, conversion behavior

JEL Classification D12, L87, O14, M31

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INTRODUCTION

The trend of global economic integration, economic recovery after the COVID-19 pandemic, and the explosion of e-commerce have contributed to the rapid growth of last-mile delivery services. According to the Vietnamese Ministry of Information and Communications, total postal output in 2022 will reach 1,550 million postal items with revenue reaching 2.37 billion USD, an increase of 16.2% compared to 2021, and predicted to reach 4.88 billion USD by 2030 (Vietnam Ministry of Information and Communications, 2023). E-commerce has been booming with a rapid increase in the frequency of online transactions, placing significant pressure on Vietnam's last-mile logistics businesses on home delivery time and cost efficiency (Huong & Thiet, 2020). Consequently, this has led to a high rate of home delivery failures (Buldeo Rai et al., 2021), as well as urban traffic congestion and environmental pollution (Zhang et al., 2019). As a result, a smart locker is believed as one of the technology solutions to optimize last-mile delivery to help improve service quality, reduce the risk of lost goods, and flexibly return goods (Wang et al., 2014). Smart lockers incorporate locking technology and personal identification codes, allowing users to de-

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liver, receive, and return goods without employee supervision (McKinnon & Tallam, 2003). Smart lockers contribute to improving the efficiency of last-mile delivery services thanks to the following features: reducing time and failure rate of delivery due to the recipient's absence, flexibility in delivery time for users when they can choose the time and location, contributing to reducing pressure on the traffic system in large cities, effectively integrating reverse logistics services (Quynh et al., 2023). In Vietnam, smart lockers are considered a new technology solution, attracting many consumers to use alternative services for home delivery (Iwan et al., 2016). Some studies on the topic of last-mile delivery mainly look at the technical characteristics and benefits and disadvantages of smart locker technology individually (Huong & Thiet, 2020; Quan et al., 2022). Nevertheless, the discussions about technology solutions for last-mile delivery services, especially about smart lockers, are still fragmented and need to be clearly oriented in the future (Lim et al., 2018). Hence, there is a significant gap in research on the comprehensive perspective on the factors that pull, push, and moor consumers' switching behavior from home delivery to the smart locker (including factors related to users' personal characteristics).

1. LITERATURE REVIEW AND HYPOTHESES

The Pull-Push-Mooring theory was first developed by Lee (1966) focusing on the explanation of the positive factors that promote the change of the subject's current condition, the factors that attract the change of the subject based on new characteristics, benefits, and values, and mooring factors that impede the transformation (Moon, 1995). Pull-Push-Mooring theory is widely applied in empirical studies to predict customers' switching intentions and behaviors (Bansal et al., 2005; Nimako et al., 2013).

Zeithaml (1988) defines perceived value as the way consumers evaluate the difference between all the benefits and costs of using a product or service and other competitive products or services. Moreover, Issock Issock et al. (2020) and Sweeney and Soutar (2001) have developed the theory of perceived value, in which perceived value is assessed via the aspects of functional values, economic values, emotional values, social values, and environmental values to explain consumer's behaviors.

This study builds on the theoretical foundation of Pull-Push-Mooring theory and Customer Perceived Value theory to examine the relationships among variables and the research model. By integrating these theories, one can better understand the factors affecting the customer's switching intention to use smart lockers through push factors (limitations of home delivery service), pull factors (benefits of smart lockers) and mooring factors (restriction factors) (Chuong et al., 2024).

Convenience is the first pull factor which is flexible to collect in both time and geographical area (Roy et al., 2018). Indeed, smart lockers are often located near residences, workplaces, and public areas with convenient transportation to accommodate customers who often travel (Yuen et al., 2019). This solution saves time by operating 24 hours a day, minimizing the delivery waiting time, and allowing users to proactively receive goods from smart lockers at any time (Collier & Sherrell, 2010; Yuen et al., 2019). The second, smart lockers are designed with self-service features, do not require direct interaction between the delivery person and receiver, and have a security commitment from the supplier (Featherman et al., 2010). As a result, this enables for the protection of both customers' and delivery personnel's information. The personal data are encrypted, so the customer must identify his or her in order to open the smart lockers (Xu et al., 2011). The safe aspect of smart lockers helps to reduce customers' concerns about privacy while also encouraging the use of this technological solution in shipping goods (Quan et al., 2022). The third attractive feature of smart lockers is environmental friendliness (Iwan et al., 2016). Thanks to smart lockers, deliveries are efficiently operated, reducing downtime, thereby decreasing the number of vehicles, deliveries, materials, and emissions per shipping transactions (Van Duin et al., 2016). From an

environmental perspective, this solution contributes significantly to the reduction of traffic congestion, noise, and air pollution (Huong & Thiet, 2020).

The first mooring factor, habits, is learned behaviors that become reactive and automatic in order to achieve specific goals (Verplanken, 2006). Several researches have addressed the impact of the habit factor in lowering intention (Tuu et al., 2008). A strong habit prevents the intention to switch. In particular, home delivery is a common click-and-choice routine in online purchasing because traveling to pick up goods is considered more difficult than staying at home waiting for deliveries (Wang et al., 2014). When compared to home delivery, obtaining delivery service using smart lockers may require customers to relocate; the further the distance, the less convenient it is, and the more unlikely customers switch to use smart lockers (Chen et al., 2018). Another mooring factor, transaction costs, is identified as one of the elements that generate obstacles in switching behaviors because customers prefer to hunt for cost-optimizing solutions. Furthermore customers' intentions and behaviors are constrained when costs decrease (Campos & Mello, 2017). As demonstrated in some previous studies, the customer switching intention decreases when the conversion cost rises (Hou et al., 2011). The expenses associated with the smart locker service include (i) the cost of accessing information about the smart locker; (ii) the cost of learning how to use smart lockers; (iii) the cost of traveling to the smart locker location; and (iv) the cost of using the smart locker (Yuen et al., 2019). Low switching costs enhance the establishment of switching intention and vice versa. Customers analyze and balance the costs and benefits of switching for products and services with high switching costs (Sun et al., 2017), they are bound by current products even when they can realize the shortcomings of the current product or see the superiority of the new product.

Home delivery is one of the popular and preferred options for last-mile delivery (Buldeo Rai et al., 2021). However, errors can occur at any stage during the service delivery process, resulting in the delivery failure. All variables that disrupt service delivery or cause service failure, whether objective or subjective, have a negative influence on customers' experience and both sellers and service suppliers (Shan et al., 2021). From a business's perspective, delivery failure increases the cost of product returns, communication, and re-delivery. Besides, from the customer's view, increasing the delivery time can cause discomfort, which is unsuitable for many customers' lifestyles and working conditions (Song et al., 2009). When customers' service experience fails, they are more likely to consider changing their present buying habits (Sun et al., 2017). This finding indicates that favorable service experiences decrease switching intention, whereas insufficient service experiences promote switching intention (Chiu et al., 2011). On the other hand, customers' perceived risks for home delivery services include the risk of personal information being compromised (Cheng et al., 2019); the risk of the buyer not receiving the goods due to loss or confusion; the risk of products and goods being damaged; and the risk of responding to and returning goods (Haridasan et al., 2021). The perceived risk of home delivery is higher than the perceived risk of distribution via smart lockers, which prompts customers to switch to a low-risk solution (Marriott & Williams, 2018).

The research objective is to identify the factors that influence customers' intentions to switch from home delivery to smart lockers. To address this research gap, the following hypotheses are formed:

H_1: *Pull factors (perceived convenience, privacy security, and environmental friendliness) have a positive effect on customers' switching intentions.*

H_2: *Mooring factors (habit of using home delivery and perceived switching cost from a smart locker) have a negative effect on customers' switching intentions.*

H_3: *Push factors (perceived delivery failure experience and risk) from home delivery have a positive effect on customers' switching intention to use smart lockers.*

$H_{4a,b}$: *The relationship between pull factors, push factors, and customers' switching intention to use smart lockers is moderated by mooring factors.*

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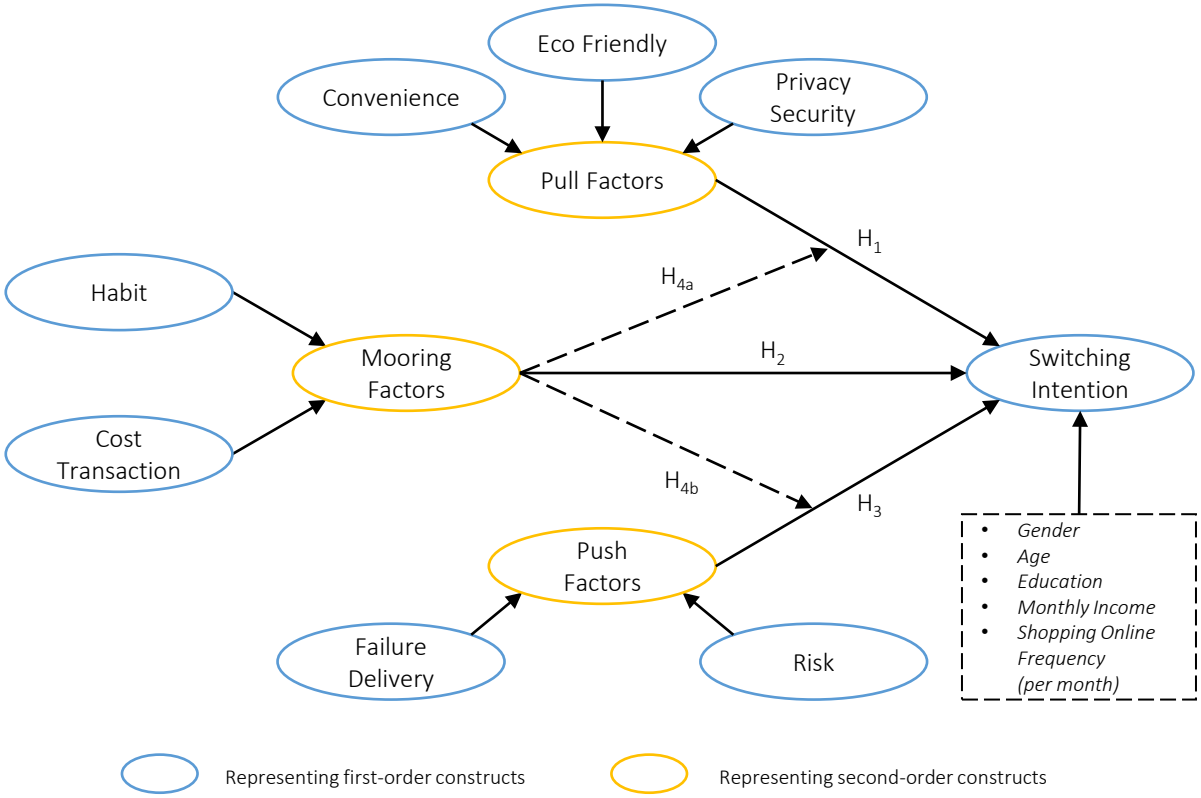

Figure 1. Research framework

2. RESEARCH METHODOLOGY

A questionnaire was designed by forward and back-translating this instrument from English to Vietnamese and vice versa. All constructs and measurement scales were adopted from prior studies. Specifically, convenience, which includes 5 observed variables, was inherited from Yuen et al. (2019) and Barua et al. (2018); Privacy security, which includes 5 observations, was inherited from Barua et al. (2018), Demoulin and Djelassi (2016), and Yuen et al. (2019); Eco-friendliness was based on three observations from the study by Xie et al. (2022); Delivery failure experience comprises four observations inherited from Shan et al. (2021); Risk perception was evaluated by the scale of Forsythe et al. (2006) and Rahman et al. (2018); Switching cost was inherited from Yuen et al. (2019); Habit factors are used from the scale in the study by Cheng et al. (2019); and Switching intention is consulted from Chen and Keng (2019). Furthermore, the control variables include (i) Gender; (ii) Age; (iii) Education level; (iv) Number of deliveries per month; and (v) Income as recommended by Halpern and Mwesiumo (2021). To confirm the meaning and clarity of the questionnaire, a pre-test with three marketing professionals and 25 customers was conducted. In this pre-test stage, slight modifications were made to items to make the measures clearer. The survey questionnaire was divided into three sections: (i) General information; (ii) Questions about the factors influencing the decision to use smart lockers; and (iii) Personal information. All measurement items were assessed using a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

Since there was no sampling frame available, data were collected via an online survey in early 2023 using the easy-to-use snowball sampling methodology. Snowball sampling is a referral technique that enables researchers to collect data by utilizing existing social connections. This sampling method involves initial respondents suggesting their friends and acquaintances to participate in the study. The questionnaires were sent to respondents directly (28.54%), online (58.53%), and by telephone (12.93%). After 2 months of data collection, from the 700 questionnaires delivered, 581 responses were received, with 557 responses valid for analysis. Table 1 shows the demographics of the study population:

Table 1. Research sample characteristics

Characteristics	Variables	Quantity	Ratio (%)
Gender	Male	247	44.34
	Female	310	55.66
Age	Gen Z	266	47.76
	Gen Y	197	35.37
	Gen X	94	16,.87
Jobs	Student	146	33.80
	Officer	221	43.06
	Lecture	59	11.11
	Manager	14	1.85
	Freelancer	34	2.08
	Architect	9	1.16
	Housewife	21	0.93
	Worker	15	1.62
	Other	38	4.40
Education level	High school	93	16.70
	Undergraduate/ Bachelor	391	70.20
	Post graduate	73	13.10
Income (millions VND)	< 5	101	18.13
	From 6-10	228	40.93
	From 11-15	111	19.93
	From 16-20	89	15.98
	Above 20	28	5.03

A structural equation model is used in this study to evaluate the effect of pull factors, mooring factors, and push factors on the intention to switch from home to a smart locker. The data analysis is performed using the Smart-PLS 4.0. This software package is mainly used for the application of structural equation modeling based on the partial least squares method (PLS-SEM). Therefore, it is used to investigate the relationship between independent variables and dependent variables. It is also used as a moderator for quadratic. The model was evaluated in two steps using structural equation modeling. First, the measurement model was evaluated. Second, the structural model was evaluated to test research hypotheses related to the intention of switching of smart lockers in last-mile delivery.

3. RESEARCH RESULTS

The data analysis results (Table 2) reveal that the model's first-order items provide reliability and validity. Cronbach's alpha coefficient of first-order variables includes convenience, eco-friendliness, security, switching cost, habit, risk perception, and delivery failure experience that are all greater than 0.65, composite reliability (CR) of the scales in the research model is satisfactory with the achieved values all greater than 0.70. The least average variance extracted (AVE) of the factors in the model reached a value greater than 0.588. Thus, all variables ensure reliability.

The HTMT coefficient is proposed by Hair et al. (2019) to test the discriminant validity of the

Table 2. Results of evaluating composite reliability, outer loadings, and AVE of first-order items

Scale	Outer loadings	Composite reliability (CR)	Average variance extracted (AVE)
Pull Factor 1: Eco-friendliness **(Xie et al., 2022)** ***(α = 0.872)***			
EF_1: Smart lockers are an eco-friendly solution for last-mile delivery	0.906	0.874	0.796
EF_2: Smart lockers help to reduce emissions	0.905		
EF_3: Smart lockers are a solution in last-mile delivery to control and protect the environment	0.864		
Pull factor 2: Convenience **(Barua et al., 2018; Yuen et al., 2019)** ***(α = 0.878)***			
CF_1: Smart lockers are located near residential areas	0.858	0.880	0.672
CF_2: Smart lockers make it easy to pick up goods	0.845		
CF_3: Smart lockers enable to receive goods at different times	0.783		
CF_4: Smart locker is easy to use	0.791		
CF_5: Smart lockers operate automatically 24/7, flexible delivery time	0.821		
Pull factor 3: Privacy security **(Barua et al., 2018; Demoulin & Djelassi, 2016; Yuen et al., 2019)** ***(α = 0.909)***			
PS_1: Smart lockers bring a safe condition when experiencing	0.871	0.910	0.733
PS_2: Smart lockers reduce the risk of revealing personal information	0.863		
PS_3: Smart lockers protect customers from the risk of leaking personal information	0.873		
PS_4: The policy of information security of the service supplier is specific and detailed	0.861		
PS_5: The adoption of smart lockers helps protect personal privacy	0.811		

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Table 2 (cont.). Results of evaluating composite reliability, outer loadings, and AVE of first-order items

Scale	Outer loadings	Composite reliability (CR)	Average variance extracted (AVE)
Push factor 1: The delivery failure experiences **(Shan et al., 2021)** ***(α = 0.810)***			
FDE_1: I have failed to receive goods many times	0.731	0.816	0.639
FDE_2: I have to wait too long to receive the goods	0.791		
FDE_3: My goods have been transferred to another destination without my allowance	0.814		
FDE_4: My complaints about the delivery service were not handled in time	0.856		
Push factor 2: Risk **(Forsythe et al., 2006; Rahman et al., 2018)** ***(α = 0.780)***			
RP_1: Customer's personal information is not guaranteed to be safe when disclosed or provided to third parties	0.824	0.788	0.602
RP_2: Customers may not receive the goods	0.717		
RP_3: Customers may lose their goods	0.804		
RP_4: Difficult to resolve disputes during the delivery of goods	0.824		
Mooring factor 1: Switching cost **(Yuen et al., 2019)** ***(α = 0.827)***			
SC_1: Customers must look for smart lockers	0.811	0.831	0.660
SC_2: Customers must learn how to use smart lockers	0.786		
SC_3: Customers must move to the location of the smart locker	0.773		
SC_4: Customers have to pay the cost of using smart lockers	0.875		
Mooring factor 2: Habit **(Cheng et al., 2019)** ***(α = 0.653)***			
HF_1: When buying online, customers automatically choose direct delivery	0.759	0.811	0.588
HF_2: Direct delivery is the obvious choice	0.797		
HF_3: When buying online, I usually choose the direct delivery method without consideration	0.743		
Switching intention **(Chen & Keng, 2019)** ***(α = 0.858)***			
SI_1: I'm considering switching from home delivery to smart locker delivery for my next shopping	0.802	0.863	0.701
SI_2: I plan to switch from home delivery to smart locker delivery for my next shopping	0.825		
SI_3: I will switch from home delivery to smart locker delivery for my next shopping	0.850		
SI_4: I will soon switch from home delivery to smart locker delivery for my next shopping	0.871		

scales for the quadratic variable. The results of the index (Table 3) show that all correlation values are smaller than the threshold of 0.85 (Henseler et al., 2015), so the scales in the model are all guaranteed with the discriminant value.

Checking the model's multicollinearity, the VIF coefficients of all variables are in the range of 1.335-2.746, smaller than the proposed level 5, which confirms that the model has no multicollinearity problem (Henseler et al., 2015).

The results of the analysis and testing of hypothesis H_1 on the positive impact of pull factors on switching intention from home delivery to using smart locker delivery are accepted (β = 0.115, t = 3.754, p = 0.000). This shows that the benefits of last-mile delivery through smart lockers, including the growth of environmental friendliness, security, and convenience, are likely to promote customers' intention to use this form rather than the traditional delivery method. Hypothesis H_2, referring to the influence of mooring factors on customers' switching intention in this study, is confirmed (β = –0.161, t = 4.627, p = 0.000). This result demonstrated that besides the advantages of smart lockers, some constraints, such as switching costs or habits, hinder the customer's intention to switch from home delivery to using smart locker delivery. Hypothesis H_3 is accepted when finding evidence of the influence of push factors on customers' switching intention to use smart lockers (β = 0.080, t = 2.297, p = 0.022). It can be identified that home delivery failure experience and traditional home delivery risks are the factors driving customers' switching intention to use smart

Table 3. Discriminant validity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Cost Transaction															
(2) Gender	0.186														
(3) Frequency	0.219	0.373													
(4) Privacy Security	0.085	0.134	0.121												
(5) Risk	0.422	0.075	0.168	0.047											
(6) Convenience	0.245	0.126	0.104	0.104	0.209										
(7) Eco Friendly	0.190	0.268	0.188	0.047	0.240	0.315									
(8) Failure Service	0.504	0.126	0.212	0.034	0.121	0.192	0.361								
(9) Habit	0.466	0.158	0.187	0.051	0.846	0.191	0.326	0.212							
(10) Income	0.122	0.119	0.556	0.090	0.139	0.100	0.081	0.153	0.102						
(11) Education	0.032	0.092	0.026	0.112	0.035	0.050	0.070	0.055	0.098	0.018					
(12) Age	0.158	0.237	0.381	0.229	0.187	0.238	0.292	0.148	0.259	0.252	0.014				
(13) Switching Intention	0.417	0.575	0.609	0.263	0.323	0.237	0.432	0.321	0.374	0.342	0.072	0.527			
(14) Mooring Factors x Push Factors	0.178	0.065	0.042	0.146	0.199	0.053	0.121	0.121	0.192	0.043	0.049	0.025	0.067		
(15) Mooring Factors x Pull Factor	0.049	0.096	0.055	0.122	0.039	0.102	0.086	0.051	0.069	0.049	0.015	0.058	0.225	0.259	

locker delivery. Hypothesis H_{4a} about the moderating role of mooring factors in the relationship between pull and intention to switch is accepted (β = −0.144, t = 5.704, p = 0.000). Meanwhile, hypothesis H_{4b} about the role of the mooring factor in the relationship between push factor and switch intention is not accepted (β = 0.014, t = 0.781, p = 0.435). The controlling role of the factors of gender, number of delivery times per month, and age is significant in explaining the intention to switch, while customers' income and education level are not statistically meaningful.

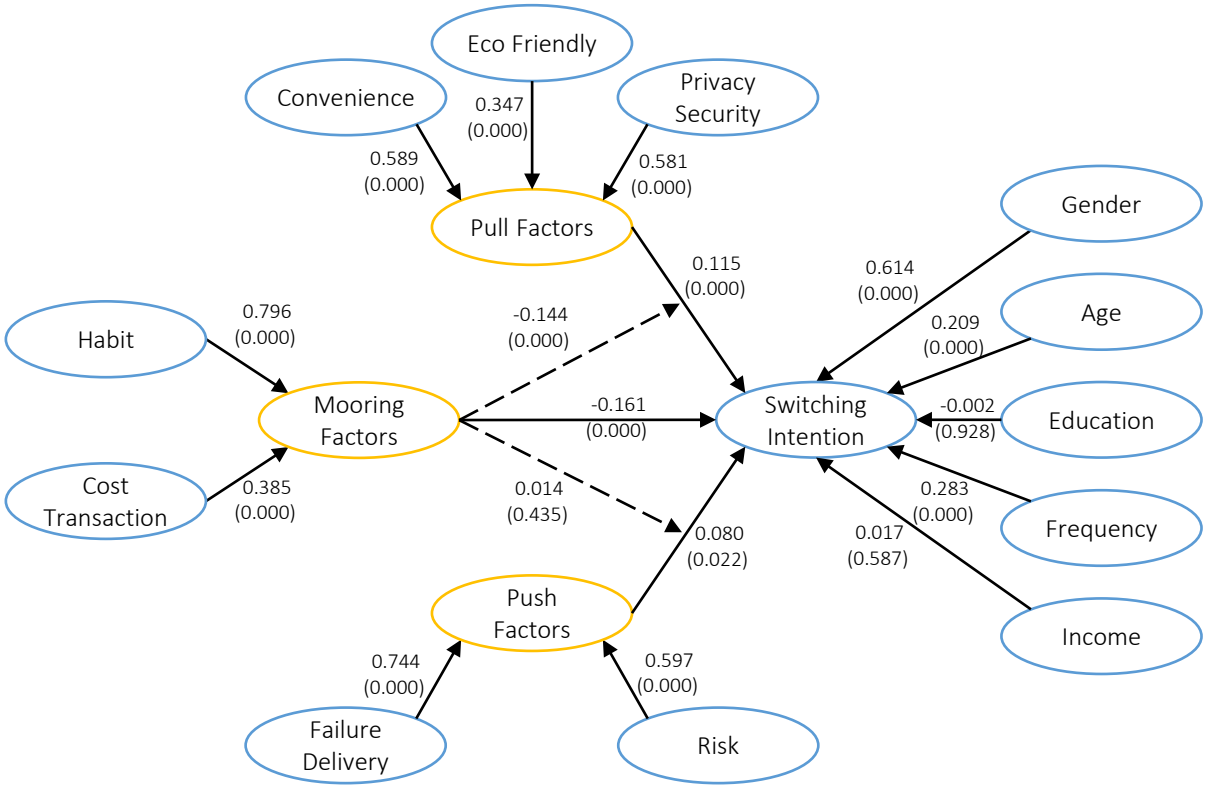

Figure 2. Structural model

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Table 4. Hypothesis testing results

Relationships	Beta	T-value	P-value	Findings
H_1. Pull Factors → Switching Intention	0.115	3.754	0.000	Supported
H_2. Mooring Factors → Switching Intention	–0.161	4.627	0.000	Supported
H_3. Push Factors → Switching Intention	0.080	2.297	0.022	Supported
H_{4a}. Mooring Factors x Pull Factors → Switching Intention	–0.144	5.704	0.000	Supported
H_{4b}. Mooring Factor x Push Factors → Switching Intention	0.014	0.781	0.435	Rejected
Gender → Switching Intention	0.614	9.515	0.000	
Frequency → Switching Intention	0.283	8.332	0.000	
Income → Switching Intention	0.017	0.543	0.587	
Education → Switching Intention	–0.002	0.090	0.928	
Age → Switching Intention	0.209	7.619	0.000	

4. DISCUSSION

The results of this study support the views of Chen and Keng (2019) and Quan et al. (2022), affirming the factors that attract and increase the intention to switch from home delivery to smart lockers are convenience, eco-friendliness, and privacy security. Indeed, a smart locker is an automatic device that is fixed at a location in a customer's living area (apartment, office building, parking lot...). When a customer purchases goods and chooses to receive goods through a smart locker, the customer is provided with an electronic code for the smart locker via email or phone (Lemke et al., 2016). The solution of smart lockers contributes convenience for both customers and delivery staff not only by lowering the pressure of errors on delivery addresses and incorrect delivery times but also by enabling a customer to proactively receive goods (Van Duin et al., 2020). Furthermore, smart lockers enhance convenience and flexibility by shortening shopping and delivery time at home (Zarei et al., 2020). Another advantage of a smart locker is that it protects products and minimizes the risk of leaking information when products are transferred to the destination without observation, even if the goods are lost or not received. Moreover, this solution assists customers to return items and products in a convenient and secure way (Huong & Thiet, 2020). The eco-friendliness of smart lockers is proven to have the lowest level of impact. However, it also shows that customers are interested in the "green" values of smart lockers. Therefore, the communication for the smart locker service not only focuses on the function but also the environmental friendliness value of this delivery method, especially under the overloaded condition of last-mile delivery.

This finding is consistent with some previous studies (Featherman & Pavlou, 2003; Yang & Lin, 2015), highlighting that risks and home delivery service failure experiences have a negative impact on the intention to switch from home delivery to smart locker. Potential threats increase, which motivates customers to switch behaviors. This study presents evidence of the factors boosting customers to switch to receiving products via smart lockers, such as home delivery failure and unsafe receiving experiences. Over the years, home delivery has been a popular last-mile delivery method in Vietnam. However, home delivery has increased the negative experience and risk for the customer. The customer is required to arrange time and be present at the location and time they have chosen; otherwise, the delivery will fail. The home delivery failure experience is a common case as the delivery address is a restricted access area, or the deliveryman informally changes the delivery location, which causes the customer to lose time and cost. Customers who receive goods via traditional channels may choose to collect at a convenient place. However, this method brings certain risks, such as getting the wrong product, losing items, having problems returning the product, and revealing personal information about the product. These are the basic limitations of the home delivery method, reducing customers' satisfaction with last-mile delivery. The study also indicates that switching costs and habits are barriers preventing a customer's switching intention to use smart lockers.

This conclusion supports the findings of Chen and Keng (2019) and Tsai and Tiwasing (2021). Smart locker is an essential cost-cutting and operational efficiency solution for last-mile delivery services (Van Duin et al., 2016). Nevertheless, applying technology to this service requires customers to skillfully man-

age the integrated technology on the smart locker. Additionally, home delivery has become a habit of many customers in shopping online; a customer can directly receive, check the goods and pay the bill in cash. In the case of using a smart locker, a customer has to pay for the supplier of smart locker, and all transactions are online payments. Furthermore, customers are frequently concerned about how switching behavior may affect their efforts in terms of time, cost, process, and existing advantages.

Some previous studies suggested that the moderating role of anchoring factors with the other two factors was insignificant (Liu et al., 2021). This study contributed evidence about the negative regulatory role of mooring factors in the link between pull factors and the consumer's switching intention from home delivery to using smart lockers. In particular, the greater expense of switching to smart lockers and the more well-defined in-person pick-up habits will influence and weaken the bond between pull factors and switching intentions. Therefore, along with the outstanding functional values of the smart locker, it is vital to design easy-to-use smart lockers so as to ensure accessibility for customers and save time and switching costs. Additionally, communication of smart lockers should be widely spread to promote sustainable consumption.

This study also pointed out that customers' intentions to switch from home delivery to using smart locker delivery are influenced by demographic factors such as gender, age, and delivery frequency. Female consumers, in particular, have a higher switching intention than male customers, older customers, and customers who receive items on a regular basis have a higher switching intention to use smart lockers. In fact, smart lockers are a new technology solution in last-mile delivery services with new advantages and convenience that will easily attract customers having a high frequency of buying and receiving goods. Generation X and Y customers with a more stable income than Gen Z customers will have higher switching intentions.

CONCLUSION

This study aims to enhance understanding of the impact of pull, push, and mooring factors on consumer intention to switch from home delivery to smart locker delivery. Specifically, it examines the influence of mooring factors on the relationship between pull factors, push factors, and a customer's switching intention to use a smart locker. The findings of this study offer important theoretical contributions. Firstly, it is confirmed that in the context of last-mile delivery services in Vietnam, the structure of factors influencing the customer's switching intention is pull and push factors, respectively. Secondly, switching costs and habits are mooring factors that reduce the attractiveness of smart locker solutions. Finally, the study also confirms that the awareness of the environmental friendliness of service has a role in pulling the customer's switching intention.

The findings have several managerial implications for both the last-mile delivery service and the smart locker suppliers, in particular, designing and operating service regarding pull-push factors to attract switching intention along with solving mooring factors. Firstly, service suppliers should consider increasing convenience through network expansion and the installation of smart lockers in residential areas, offices, etc., for customers to easily access. Enhancing reliability by providing accurate service and minimizing errors in smart locker delivery; improving and strengthening the security features of new technology to fully secure customers' information in order to contribute more benefits than traditional ways. Secondly, smart locker service suppliers must raise customer awareness of the smart locker service in last-mile delivery as well as develop communication channels about the benefits, superiority, and environmental friendliness of smart lockers, in comparison with traditional solutions. As a result, customers gradually switch to using smart lockers. Finally, service suppliers should put more effort into minimizing the cost of switching services through discounts, subsidies, and promotions in order to balance the values for customers. Additionally, a professional support service for the smart locker system should be established, which helps reduce the negative consequences of smart locker service through feedback and service commitment.

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The omnichannel approach is one of the latest trends in last-mile delivery. Although home delivery is still one of the most common solutions in last-mile delivery in Vietnam, and it is difficult to find an absolute alternative, the adoption of a smart locker allows for partial replacement, diversifying choices for customers, and assisting businesses in maximizing efficiency, competitive advantage toward sustainable development. Thus, the discussions in this study have significant implications for businesses in the last-mile delivery service business. However, there are still some limitations: (i) The study solely examines the intention to switch; however, it does not go extensively into the types of intention to switch temporarily, partially, or fully; (ii) Some analysis of differences in switching intention by groups or specific customers has not been mentioned in this study. Therefore, it is necessary for future researchers to further consider the following topics: (i) multi-channel integration models in last-mile delivery; (ii) the level of the customer's intention to change behavior; and (iii) the differences in customer groups when considering the switching intention in last-mile delivery.

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