THE ROLE OF OPENNESS TO CHANGE IN AUTOMATED PARCEL LOCKER USAGE INTENTION AMONG ONLINE BUYERS IN MALAYSIA
Firdaus Halimi Mohamad; Abdul Hafaz Ngah

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Firdaus Halimi Mohamad
University of Malaysia Terengganu, Faculty of Business, Economics & Social Development, 21030 Kuala Nerus, Terengganu, Malaysia, firdaushalimi92@gmail.com
Abdul Hafaz Ngah
University of Malaysia Terengganu, Faculty of Business, Economics & Social Development, 21030 Kuala Nerus, Terengganu, Malaysia, hafaz.ngah@umt.edu.my (corresponding author)

Abstract: Automated parcel locker is a self-service technology to facilitate parcel collection and has been introduced in Malaysia in 2016. Although automated parcel lockers have advantages over home delivery, customers still prefer the traditional method. Subsequently, this study aims to explore the role of time constraint, supplier image, and openness to change toward online buyers' intention to use automated parcel lockers. Based on the stimulus-organism-response theory, the study conducted both an online survey and an on-site survey. Two hundred and sixty-five respondents' data were used for data analysis, and the results indicate that time constraint has a negative influence on openness to change, and supplier image has a positive influence on openness to change. Openness to change was found to mediate the relationship between time constraint and intention to use and between supplier image and intention to use. Automated parcel lockers providers will benefit from the outcomes of this study.

1   Introduction

Increasing consumer demand for online shopping has a vital impact on the last-mile delivery services. Logistics providers need to be more creative to ensure the online buyers' satisfaction which supporting the repurchase intention from the same platform, thus the platform will reuse the same logistics provider to deliver their products [1]. Thus, technological factors always a main source of innovation to meet the customer's expectation.

Self-service technology (SST) is a technological interface that enables customers to produce and consume services without requiring direct assistance from company employees [2]. In last-mile delivery, SST is provided in the form of a parcel locker, which is frequently used for self-service collection and return of online purchases [3] It was reported that SST facilities would continue to evolve and play a more prominent role in service delivery [4]. In addition, SST has been introduced in the delivery process as a cost-effective approach to reducing waiting time [5].

Waiting time is a crucial factor in making online customers happy and satisfied. Online purchases are becoming more associated with expectation of short delivery time such as next day delivery or same day delivery [6]. Due to excessive transit times, about 43 per cent of consumers in Malaysia are discontented with their parcel delivery experience [7]. Compared to the regional average delivery time of 3.3 days, buyers in Malaysia need to wait for 5.8 days before their parcel arrives. Furthermore, late delivery and lack of communication about delivery status account for over 90 per cent of customer complaints and negative comments. According to [8], logistics companies always concerned with obstacle to prompt delivery which is traffic congestion. Therefore, an

automated parcel locker services has been introduced as an innovative solution to reduce waiting time and provide efficient last-mile delivery.

During the last few years, logistic service providers in Malaysia also managed to provide an innovative solution to parcel deliveries by providing automated parcel lockers as well as designated pick-up points. Many logistics businesses in Malaysia provide parcel delivery services, with Pos Laju, the national courier service founded in 1988, being the largest. The use of an automated parcel locker system in Malaysia, called Pos Laju Ezibox, began in 2016 to assist parcel deliveries. According to the yearly report of postal and courier service published by the Malaysian Communication and Multimedia Commission in 2018, the number of automated parcel lockers in the first half of 2018 was recorded at 110. The numbers rose from 58 automated parcel lockers recorded in the first half of 2017—equivalent to a 53% increase—which means the top 10 courier companies in Malaysia started to provide more automated parcel lockers to their customers [9]. In this notion, the increase of automated parcel lockers means that the logistics service providers intend to reduce the time waiting for home deliveries.

Home deliveries is expanding and developing rapidly [10] and remain the more popular choice amongst customers in the last-mile delivery context [11]. According to [12], in Singapore, 80 percent of respondents prefer home delivery to self-collection options. Similarly, the condition in Malaysia also indicated that customers prefer home delivery; numerous complaints were directed at the Communications and Multimedia Minister, mainly regarding home deliveries [7]. Last-mile logistic companies created automatic parcel locker services as an

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innovation to improve online purchasers' experiences. These services offer advantages over home deliveries, such as minimising inefficiencies associated with consumers waiting at home for their delivery [13]. However, it seems that online buyers are still favouring home delivery. To assure the success of automated parcel locker services, the study attempts to uncover the elements impacting online purchasers' intention to use automated parcel lockers in Malaysia. Furthermore, despite being considered a new innovation, automated parcel locker services have been largely overlooked by researchers in the last-mile delivery.

To analyse online customers' intention, the current study uses the stimulus organism response (SOR) paradigm and provide insight regarding their openness to switch to another collection mode to address practical issues and fill the research gaps. Many studies in parcel service delivery which looking for intention to use, discover influencing factors such as time pressure, relative advantage, convenience, personal innovativeness, security and attitude [11], [14-16]. However, there are hardly any studies testing time constraints, supplier image, and openness to change in a single study. Hence, the current study creates a new link between time constraint and openness to change and between supplier image and openness to change. Supplier image and time constraints are incorporated in the current study because these variables can explain customer behaviour [17,18]. Similarly, as individuals with high levels of openness to change are more open to trying new things, the current study suggested that it will influence their intention to use automated parcel lockers. Besides, current study contributes by providing the perception in perspective of Malaysian customers, hence will provide a better understanding on the establishment of the parcel locker services in the country.

Multiple companies offer automated parcel locker services in Malaysia, such as Pos Laju, Ninja Van, and Parcel365; each company has a different image from customers' perspectives. This could be influenced by their past experiences of making business transactions or being influenced by advertisements. Hence, supplier image is crucial in influencing customer openness to change and intention to use automated parcel lockers because companies with a good image could provide better services compared to companies with an unsatisfactory image. Additionally, customers are needed to travel to the automated parcel locker location to retrieve the parcel. Customers expect the parcel collection to consume less time and effort. Therefore, time constraints could further explain the online buyers' behaviour. The customers who are having time constraint issues could have difficulty using automated parcel lockers. Based on the explanation above, supplier image and time constraint were chosen to develop the SOR framework.

The current study aims to investigate the factors that influence online buyers' intention to use parcel lockers by operationalising time constraint and supplier image as

'stimulus,' openness to change as 'organism,' and intention to use as 'response', all based on [19] SOR model. As customer behaviour can influence the strategic decision of the parcel delivery company [20], the implication of this study may serve as a reference for these companies, especially in Malaysia, to improve their services in order to attract new customers. In addition, understanding the customer behaviour is important factor to survive in the current market [21]. Besides, findings from this study also enrich literature in automated parcel locker and self-service technology contexts, and also provide timely information for the last-mile delivery provide to craft a better marketing plan to ensure this new technological approach will be used and sustainable.

2 Literature review
2.1 Stimulus–Organism–Response theory
Mehrabian and Russell presented the SOR theory for the first time in 1974. This theory states that environmental stimuli (S) can stimulate a cognitive and affective reaction (O), which generate a behavioural response (R) [19]. Stimuli are external elements of the physical environment, according to [22], whereas an organism is an individual's internal processes and structures that occur between stimuli and responses. Various factors of the external environment to which people are exposed, such as product conditions, design, shopping ambiance, and product attributes, operate as stimuli that influence change in an individual's experiences, according to this model [23]. Additionally, [24] stated that the organism will take an internal or external behavioural response to external stimuli after a sequence of cognitive activity. The internal response will be manifested as an individual attitude, while the external response will be manifested as specific behaviour [25].

The SOR model has been applied in a variety of settings such as in social commerce [26], brand loyalty [27], and self-service technology [28,29]. Considering that past studies regarding self-service technology have applied the SOR model, the present study looks to strengthen the literature by incorporating time constraint, supplier image, openness to change, and intention to use in a single research model. The research framework is shown in Figure 1.

The present study suggested that time constraint and supplier image could be the factors representing the stimuli since both of the factors originated from the online buyers' surrounding environment. The stimulus is likely to influence the online buyers' internal response and openness to change. Moreover, online buyers with a high level of openness to change are likely to use the automated parcel locker.

2.2 Intention to use
Intention was defined by [30] as the amount of effort someone is willing to exert to perform a behaviour. It was further explained by [31] that intention has the meaning of

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a person's readiness to perform a certain behaviour. Generally, the stronger a person's intention to do a behaviour, the stronger the actual behaviour will be carried out. The intention in this research context is online buyers' intention to use the automated parcel locker for parcel collection.

Past researches have shown that intention has been used in many contexts to determine consumer behaviour, for instance, in parcel station usage intention [32], self-collection services [11,33], self-service technologies in air travel [34], reverse logistics [35], insurance planning [36], airline services [37] and augmented reality (AR) application [38]. Hence, the current study looks for factors influencing online buyers' intention to use automated parcel lockers in the Malaysian context.

2.3 Time constraint

According to [39], an assessment of limited time available for processing information and making decisions is referred to as a time constraint or time pressure. [40] stressed that time pressure usually increased the desire to lock into one problem-solving strategy and decreased the openness to other choices. In this notion, when pressured with a time constraint, an individual's level of openness to change will be reduced and may proceed with the method he knows best. The time constraint in this study is the online buyers' perception of the restricted time available for parcel collection.

[41] suggested that negative time pressure will decrease affective and emotional connection between retailer and supplier. [42] explained that the time constraint of a self-service technology transaction negatively influences customer's attitude toward the technology. Additionally, [17] emphasised that time pressure was the strongest determinant of lower hand hygiene behaviour among veterinary referral practices in the United Kingdom. Based on the literature, it was confirmed that time constraint was able to influence behaviour negatively.

With regards to the human lifestyle in general, some would love to travel while some are happy being at home. Similar to online buyers' lifestyles, some would love to travel for self-collection, and some would prefer home delivery. As travelling toward automated parcel locker locations will consume time, online buyers with time constraints could face difficulty performing self-collection. Suppose the online buyer perceived himself as always being constrained by time. In that case, he is likely to have difficulty travelling to parcel locker locations and is expected to have a weaker level of openness to change toward using automated parcel lockers. Hence, the current study theorises that time constraints will have a negative influence on openness to change. Therefore, the first hypothesis is:

H1: Time constraint has a negative relationship with openness to change.

2.4 Supplier image

[43] defined image as "the set of meanings through which an item is recognised and humans describe, recall, and react to it". The perception of a brand as represented by brand associations in customer memory was termed as supplier image [44]. According to [45], store image refers to a customer's view of a store based on its multi-attributes. The image was identified as an important factor in the evaluation of the services and company [46]. The supplier image in this study refers to how online shoppers perceive automated parcel locker service providers.

Literature provides positive association between image and customers'' attitudes [18,47]. Hence, it was confirmed that image could affect behavioural response. For parcel delivery, considering that the traditional delivery method has some issues and that there is an alternative solution, the online buyer needs to decide which method works best. Each of the companies offering parcel delivery services holds a different level of the image in customers' memory. This could be influenced by several factors such as customers' past experiences or being influenced by excellent advertisement. Therefore, maintaining a positive image is an important task for the providers since it is crucial to influence customer openness to change and intention to use. Companies with a good image hold better evaluations from the customers. Hence, online buyers who perceive that the automated parcel locker provider is having a good image and can offer good services could be tempted to use the automated parcel locker. Therefore, the following hypothesis is proposed:

H2: Supplier image has a positive relationship with openness to change.

2.5 Openness to change

Openness to change was described by [48] as the willingness to promote change and have a positive impact on the change's potential consequences. Originated from Schwartz Value System, openness to change captures the unpredictability of an individual's thoughts and emotions [49]. Later, [50] stressed out that value is a critical motivator of behaviour and attitudes. Generally, change is very close to the notion of improvement, implementation, and reform [51]. According to [52], individuals with openness to change value tend to cherish new occurrences. Openness to change in the current study context is the online buyers' willingness to move from using traditional home delivery to automated parcel lockers for data collection.

Online buyers who have a high level of openness to change and face problems with traditional delivery may be willing to use an alternative such as an automated parcel locker. Switching to an alternative could facilitate their parcel collection. Openness to change is measured using a higher-order construct. The current study uses three dimensions to represent openness to changes, which are self-direction, stimulation, and hedonism. [53] explained that the dimension of self-direction and stimulation in

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openness to change are related to new product adoption behaviour. Hence, openness to change is an important factor for new product adoption behaviour.

The relationship between openness to change and intention to use was confirmed by past studies. A positive relationship was revealed by [54] regarding cosmetic consumption and [55] regarding entrepreneurial intention. Hence, the hypothesis is:

H3: Openness to change has a positive relationship with intention to use automated parcel locker.

2.6 Mediation

Mediation analysis is essential for model enhancement and theoretical advancement [56]. Therefore, the goal of this study was to improve the model's predictive power by including openness to change as a mediator for the association between time constraint and intention to use, as well as for the relationship between supplier image and intention to use.

Time constraint is argued to have a negative influence on openness to change. In addition, self-service parcel collection can make the delivery of products timely. However, influencing factors such as travel time to automated parcel locker locations may impair customers'

decisions. Besides, time constraint to complete a self-service transaction was found to negatively influence customer behaviour [42]. Literature also provides evidence of openness to change to influence intention to use. Therefore, the author's study theorises that openness to change mediates the relationship between time constraint and intention to use automated parcel lockers. Hence, the hypothesis for mediation is:

H4: Openness to change mediates the relationship between time constraint and intention to use.

Considering that customers' image is an important factor in evaluating a service, image positively affects customers' intention [57]. The authors argued that supplier image positively affects customers' openness to change. Additionally, the image was reported to positively influence intention to use [58,59]. Considering that image is suggested to have a positive effect on openness to change and consistently has a positive effect on intention, and considering that openness to change was proved by literature to have a positive association with intention to use, the current study suggests that:

H5: Openness to change mediates the relationship between supplier image and intention to use.

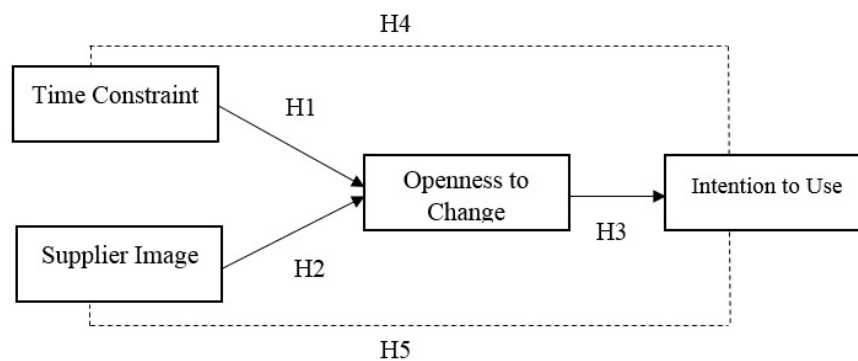Figure 1 demonstrates the research framework of the study.

Figure 1 The research model [authors, n/a]

3 Methodology

To accomplish the research goal, this study utilised a quantitative method to answer the proposed hypotheses. A self-administered survey questionnaire was most appropriate for the research purpose because the unit of analysis was at the individual level. In addition, due to the lack of a complete sampling frame, a purposive sampling strategy was used. There were two sections to the questionnaire. The first half of the survey asked about respondents' demographics, such as their age, gender, educational level, employment, and monthly income, whereas the second section asked about the study's variables.

A pre-test was administered prior to the actual data collection to ensure that the statements were clear and that the measuring items were understood. A face-to-face pre-test with ten respondents was conducted, simulating the

situation during real data collecting. During the test, the time needed to answer the questionnaires was recorded, with an average of around five to eight minutes to fully complete the questions.

Data were collected among online buyers who never experienced using an automated parcel locker. The initial plan for data collection is the on-field survey in Selangor and Kuala Lumpur because Kuala Lumpur is the capital representing Malaysia. However, due to the COVID-19 pandemic outbreak, data was gathered using an online survey via Google Forms. The initial location for data collection was changed; hence online buyers across Malaysia participated in this study. The link to the survey was distributed to multiple groups on WhatsApp and Facebook starting August 2020 until early January 2021. To improve data accuracy, a filter question of 'Had experience with an automated parcel locker' was included in the online survey.

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In late December 2020, on-site surveys were conducted in major shopping malls to increase the number of responses. Shopworkers were approached when there were no customers inside. Next, the workers were asked if they are online buyers and their experience using an automated locker. Only those who never use automated parcel locker and the active online buyer was selected as sample. Recognising the importance of data quality, it is critical that respondents participate voluntarily in this study. As a result, the respondents were first asked if they wanted to participate.

Respondents who agreed to participate were given the questionnaires. More than 300 online buyers completed the online survey and face-to-face survey. After sorting, only 265 surveys were valid. The sample size should be determined by the power of analysis based on the number of predictors, as suggested by [60,61]. According to [62], a study with two predictors requires at least 66 sample sizes to attain a 80% power with a medium effect size and 5% level of significance. As a result, a sample of 265 respondents was sufficient to test the research model in this study.

All of the items for measuring the constructs were adopted and altered from prior studies because the current study employs Smart Partial Least-Squares (PLS) software version 3.3.3 by [63] which is based on confirmatory factor analysis (CFA). Despite the fact that some of the items have already been used in other studies, the items' content was altered to fit this study context without compromising the original meaning. The items were time constraint [17], supplier image [45], openness to change [64], and intention to use [65]. Items were adapted from these studies due to a smaller number of items compared to other studies. A large number of items will make the respondents lose interest in answering, thus affecting the quality of data. The measurement model and structural model were examined using [63]'s Smart Partial Least-Squares (PLS) version 3.3.3 software.

4 Analysis and findings

265 complete sets of valid questionnaires were received in total. Around 55 % of those polled were between the ages of 18 and 25. 26–33 years old (27.9%), 34–41 years old (9.8%), 42–49 years old (3.4%), and 50 years and older (3.8%) were the other age categories. Females made up the majority of the responders (61.1%). The majority of respondents (64.5%) have a bachelor's degree, followed by 18.5% with a diploma and 9.4% with a high school certificate. Masters (6.8%) and Ph.D. (6.8%) had the lowest percentages among educational categories (0.8%). RM1000–RM2000, RM2001–RM4000, RM4001–RM6000, and more than RM6001 were the four categories of monthly income. The majority of respondents earn between RM2001 and RM4000 (38.5%), followed by RM1000 and RM2000 (31.7%), RM4001 and RM6000 (5.7%), and more than RM6001 (4.9%). Since they are

students, a total of 19.2% have no income. Data on employment and educational level were also gathered. 62.3% of respondents were employed by the private sector, while 9.8% were employed by the government. Students made up 11.7% of responses, while unemployed people made up 7.2% and others made up 9.1%.

The current study practised variance-based Structural Equation Modelling (SEM) as proposed by [66] and [67] on account of the study's predictive approach. Before proceeding with the measurement model, a normality test should be performed. The normality test was carried out using Web Power to calculate multivariate skewness and kurtosis. The data was slightly not normal, as revealed by the results of Mardia's multivariate skewness (β = 8.370976, p 0.01) and Mardia's multivariate kurtosis (β = 93.401411, p 0.01), hence the Smart PLS software was appropriate to be used for analysing data [63].

Using a common method variance with data from a single source can lead to major errors [68], [69]. Hence, the current study used both procedural and statistical methods of analysis to solve this issue. The study used a different anchor scale to measure the study's constructs for the procedural technique [68,70]. A 7-point Likert scale was used to assess the intention to use while a 5-point Likert scale was used to assess the other constructs. With single-sourced data for statistical analysis, [71,72] recommended testing full collinearity against the possibility of Common Method Bias. Therefore, all variables are regressed against a common variable. A variance inflation factor (VIF) value of less than or equal to 3.3 shows no bias in single-source data. Table 1 presented that VIF values less than 3.3 were found in the analysis, demonstrating that CMV was not a profound issue.

Table 1 Full collinearity testing

BI	OTC	SI	TC
1.610	1.387	1.693	1.152

4.1 Assessment of the measurement model

To measure the hypothesis comprising of measurement and structural model, current study used a two-step approach. The structural model investigates the relationships between the exogenous and endogenous constructs in the research model, whereas the measurement model investigates the relationships between the items and their constructions; as depicted in Figure 1. Convergent and discriminant validity must be validated during the measurement model stage. To ensure all items accurately measure their respective constructs, the items must attain the convergent validity criterion. If the loading and average variances extracted (AVE) are equal or higher than 0.5, and the composite reliability is more than 0.7, the reflective measurement is valid and reliable [60]. Table 2 shows that all of the criteria for establishing convergent validity have been attained; thus, the result indicates that convergent validity was not an issue in this study.

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Table 2 Convergent validity

First Order	Second Order	Item	Loading	CR	AVE
Time		**TC1**	0.874	0.866	0.685
Constraint		**TC2**	0.897		
		TC3	0.697		
Supplier		**SUP1**	0.833	0.930	0.688
Image		**SUP2**	0.851		
		SUP3	0.773		
		SUP4	0.844		
		SUP5	0.859		
		SUP6	0.815		
Self-direction		**SD1**	0.787	0.868	0.687
		SD2	0.852		
		SD3	0.845		
Stimulation		**STI1**	0.864	0.893	0.735
		STI2	0.850		
		STI3	0.858		
Hedonism		**HED1**	0.837	0.873	0.632
		HED2	0.728		
		HED3	0.796		
		HED4	0.815		
	Openness to	**SD**	0.920	0.926	0.807
	Change	**STI**	0.896		
		HED	0.878		
Intention		**BI1**	0.948	0.971	0.918
to Use		**BI2**	0.966		
		BI3	0.961		

The heterotrait–monotrait ratio of correlations (HTMT) was established to determine discriminant validity, as recommended by [73]. Table 3 reveals that all HTMT values were less than 0.85, indicating that discriminant validity issues were not present [74].

Table 3 HTMT

Construct	BI	OTC	SI	TC
BI				
OTC	0.481			
SI	0.597	0.479		
TC	0.174	0.261	0.335	

Note: BI=Intention, OTC=Openness to Change, SI= Supplier Image, TC=Time Constraint

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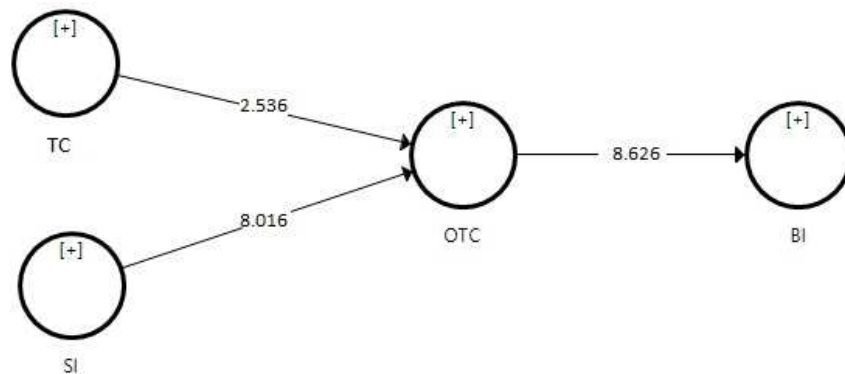Firdaus Halimi Mohamad; Abdul Hafaz Ngah

Figure 2 Structural model [authors, n/a]

4.2 Assessment of the structural model

To solve collinearity issues, [60] proposed that the variance inflation factor (VIF) values of all the endogenous constructs in the study model should be examined. The VIF critical value, according to [75] is less than 3.3. The VIF values in this investigation were lower than the threshold value of 3.3, indicating that collinearity is not an issue.

A 5000-sample bootstrapping approach was implemented to examine the hypothesis of the study model as suggested by [60]; the findings are shown in Figure 2. For a hypothesis to be declared supported, the beta value should align with the hypothesis with a T-value of greater than or equal to 1.645, a P value of greater than or equal to 0.05, and no zero values in between the lower level (LL) and upper level (UL) for the confidence interval.

Firstly, the effect of time constraint and supplier image was tested on openness to change. The R^2 was 0.207, indicating that both time constraint and supplier image explained 20.7% of the variance in openness to change. R^2 indicates the variance on endogenous constructs explained by exogenous constructs. As a result, with an R^2 of 0.207, the exogenous construct of the study could only explain 20.7% of the overall variance in respondents' openness to change in the current study. Second, the effect of openness to change was tested on intention to use. With R^2 of 0.198, openness to change could only explain 19.8% of the overall variance in intention to use an automated parcel locker.

The result shows that time constraint ($\beta = -0.127$, $p< 0.006$) is negatively related to openness to change, hence H1 is supported. Additionally, supplier image ($\beta = -0.398$, $p< 0.001$) has a positive association with openness to change, therefore H2 is supported. Similarly, H3 also supported with openness to change ($\beta = 0.445$, $p< 0.001$), indicating a positive association with intention to use.

[76] classifies effect sizes of 0.02, 0.15, and 0.35 as small, medium, and large, respectively. Time constraint has a small effect on openness to change. Supplier image was found to have a medium effect on openness to change. In addition, openness to change has a medium effect on the intention to use parcel locker. Table 4 illustrates the results for the direct effect.

Table 4 Hypothesis testing for direct effect

Hypothesis	Relationship	Beta	SE	t-value	p-value	LL	UL	VIF	R^2	F^2
H1	TC -> OTC	-0.127	0.050	2.536	0.006	-0.205	-0.038	1.117	0.207	0.018
H2	SI -> OTC	0.398	0.050	8.016	0.001	0.313	0.476	1.117		0.178
H3	OTC -> BI	0.445	0.052	8.626	0.001	0.356	0.526	1.000	0.198	0.247

PLS Predict is a prediction analysis utilising a holdout sample-based approach with a 10-fold procedure to perform case-level predictions on an item or construct level and prove the predictive relevance [77]. When all item differences (PLS-LM) are less than the predictive relevance, strong predictive power is ascertained, moderate predictive power is ascertained when most item differences are less than the predictive relevance, and low predictive power is established when the minority of the item has a lower value [77]. Although, if all item differences are greater than the predictive relevance, high predictive power cannot be established. Results indicate that openness to change (SD, STI, and HED) has strong predictive power whereas intention to use exhibit predictive power cannot be confirmed. Table 5 illustrated the results for prediction.

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Table 5 PLS Predict

Items	PLS RMSE	LM RMSE	PLS-LM	Q²_predict
SD	0.928	0.930	-0.002	0.146
STI	0.942	0.956	-0.014	0.121
HED	0.907	0.909	-0.002	0.185
BI1	1.339	1.171	0.167	0.161
BI2	1.306	1.104	0.202	0.166
BI3	1.362	1.185	0.177	0.148

The outcomes of the mediation and moderation analysis are H4 and H5. A bootstrapping analysis was performed with a two-tail test setting. Table 6 shows that openness to change mediates the association between time constraints and intention to use, as well as the association between supplier image and intention to use. As a result, H4 and H5 are accepted.

Table 6 Hypothesis testing for mediation

Hypothesis	Relationship	Beta	SE	t-value	p-value	LL	UL	Decision
H4	TC -> OTC -> BI	-0.057	0.024	2.384	0.017	-0.103	-0.011	Supported
H5	SI -> OTC -> BI	0.177	0.036	4.976	0.001	0.111	0.251	Supported

5 Discussion and conclusions

The goal of this study was to discover the influencing factors of online buyers' intention to use automated parcel lockers in Malaysia. The SOR model was found to be useful in explaining customer behaviour. First, time constraint was found to be a negative predictor of openness to change in the current study, hence H1 is supported. As time constraint is one of the factors influencing user openness to change, the automated parcel locker provider should try to overcome the issue by eliminating factors such as location inconvenience. Spending more time to travel to retrieve the parcel at a designated parcel locker location can impair the online buyers' openness to change. The providers should place the locker close to the residential area, especially in the rural area., thus decreasing extra effort for travelling to urban areas. Reducing the time needed for a collection process will positively influence online buyers' openness to change and is crucial in helping the providers to attract customers.

Secondly, H2 was supported since supplier image was found to have a positive relationship on the openness to change. As the supplier image is one of the factors affecting openness to change, the service providers should enhance the company's image positively. Building a positive image is crucial in helping online buyers change their preferences from using the old method to using automated parcel lockers. Therefore, providing good services such as fast parcel delivery and keeping the parcel in good condition could contribute positively to enhancing the company's image. Besides, the automated parcel locker should be maintained in good condition to prevent any issues when customers are retrieving their parcels.

Third, openness to change was found to have a positive association with intention to use, indicating that H3 was supported, which is in accordant with prior studies by [54] and [55]. Therefore, the automated parcel locker provider should strive to influence online buyers' intention to use automated parcel lockers by targeting factors that influence their openness to change.

The study proposed mediation to further explain the study model. Openness to change acts as a mediator between association between time constraints and intention to use, as well as between the relationship between supplier image. The result confirms the mediation effect of openness to change on the relationship for the H4 and H5. Thus, these findings proved that openness to change is crucial in determining online buyers' intention to use automated parcel locker. Analysis for H4 indicates that the level of openness to change tends to decrease when online buyers perceived that they need to spend more time on parcel collection and; subsequently affecting their intention to use automated parcel locker. However, for H5, the result indicated that buyers who have a high level of openness to change and are aware of the good image of automated parcel locker providers are willing to use the automated parcel locker. Therefore, the provider which promotes the use of automated parcel locker focuses on empowering the online buyers with the company's good image. Additionally, the providers also need to strive to reduce the time accumulated for parcel collection in order to enhance the buyers' openness to change.

6 Theoretical and practical implications

Overall, the assessment of time constraint, supplier image, openness to change, and intention to use in the SOR model offers valuable insights regarding online buyers' intention to use automated parcel lockers. As a result, the SOR model suggested in this study has theoretical and practical implications in terms of predicting online buyers' intention to use.

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In terms of theoretical implications, this study adds to the body of knowledge in the field of behavioural intention research by assessing openness to change on the intention to use automated parcel lockers in Malaysia. This study's SOR model is among the earliest to investigate the influence of time constraints, supplier image, and openness to change on online buyers' intention to use in a single study. The findings proved the existing model able to predict online buyers' behaviour, as well as guidance for future studies aimed at gaining a better understanding of the intention to use automated parcel lockers.

Besides, the current study confirmed time constraints and supplier image as factors affecting online buyers' cognitive process. As such, the current study created new links in consumer behaviour studies. Additionally, the mediation conducted provides strong evidence of time constraints and supplier image in shaping openness to change and intention to use, gaining new insight into online buyers' behaviour toward automated parcel lockers.

In terms of practicality, having a better comprehension of online buyer behaviour might be beneficial to the service providers in identifying the factors that influence intention to use. The factors proposed in the study offer decision-makers information about the elements that influence the online buyers' openness to change and, which can affect their behavioural intentions. The current study identified that time constraint and supplier image influence openness to change and subsequently influence intention to use.

These results imply that service providers should reduce online buyers' duration of travelling to parcel locker locations. Since the buyers are not opted to use the parcel locker if more time is needed for travel, it will impair their openness to change. However, online buyers are willing to use it if the parcel collection process requires less time to travel. Results confirmed that exhibiting a good image is crucial. The buyers are willing to change their preferences if the providers have a good image. Hence, current study identified that buyers will fostering a favourable openness to change toward using and automated parcel locker services when the service provider image is good and the parcel collection do not consume much time.

7 Limitation and future studies

There are certain limitations to the current study. Because the current study's model is based on Malaysian online buyers, it should be replicated in other countries with distinct cultures to extends its application and transferability. Furthermore, the SOR model was used in this study to investigate influencing factors for intention to use. As a result, examining online buyers' behavioural intentions to use automated parcel lockers from various theoretical viewpoints would enrich the literature. In addition, future study could expand on this model by include other factors that influence a person's willingness to use self-service technology, such as technology awareness and facilitating conditions.

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