

# If you don't care, I will switch: online retailers' behaviour on third-party logistics services

Online  
retailers'  
behaviour

813

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## Abstract

**Purpose** – The issue is which third-party logistics to engage, and escalating customer complaints about service quality of third-party logistics (3PL) enhances the tendency of online retailers to switch to another 3PL. The current study seeks to investigate the factors influencing the satisfaction and switching intention of 3PL services among online sellers in Malaysia.

**Design/methodology/approach** – Applying a purposive sampling method, data were gathered via an online survey among online sellers. Initially, the system gathered 418 respondents, but only 311 were useable for further analysis. Since we operationalised the measures as composites, a combination of reflective and formative measurement in the study and the study focuses on explanatory and predictive purposes, partial least squares structural equation modelling with SmartPLS 4 was applied to test the model developed.

**Findings** – The results indicated that conflict handling had a positive effect on satisfaction, and satisfaction had a negative relationship with the switching intention of 3PL among the online retailers. Moreover, satisfaction and customer relationship management sequentially mediated conflict handling and switching intention, whereas CRM strengthens the negative relationship between satisfaction and switching intention.

**Research limitations/implications** – The respondents only limit to the online sellers in Malaysia which based on purposive sampling method, thus the findings cannot be generalised to another countries.

**Practical implications** – The study offers insightful information for the managers of the 3PL in crafting a better policy to avoid switching behaviour among their customers. The conflict between customers and providers is unavoidable since consumers have unlimited demand and businesses have limited resources. The findings also benefit online sellers and 3PL service providers to create attractive marketing strategies for business sustainability.

**Originality/value** – The study developed a new model for the 3PL studies using the S-O-R model in introducing conflict handling and customer relationship management as the stimulus, customer's satisfaction as an organism and switching intention as a response. The study introduced single and sequential mediators



also contributes to the S-O-R theory to predict the switching intention among the online sellers towards the 3PL providers. Another important contribution, customer relationship management, was confirmed to play a moderating role to influence the relationship between satisfaction and switching intention.

**Keywords** Third-party logistics, Switching intention, S-O-R model, Online retailers

**Paper type** Research paper

## Introduction

Third-party logistics (3PL) delivery services for online sellers are crucial in the growth of online purchasing by providing excellent services to fulfil online shoppers' expectations. Most Malaysian online retailers utilise online platforms or social media to advertise their products and rely on 3PL services for product delivery. All online sellers with platforms, such as Shopee and Lazada or individual sellers rely significantly on local 3PL, such as Poslaju, or international 3PL providers (J&T or DHL). The tremendous growth of e-commerce activities in Malaysia results from government intervention in supporting e-commerce activities, which amounted to US\$3 billion in 2019 and is projected to reach US\$11 billion in 2025 (Yusof, 2021). Information and communication technology advancement has optimised the transaction experience and increased trust in online transaction security. This situation resulted in a surge in online shopping, which significantly increased the demand for 3PL services. The recent coronavirus disease (COVID-19) pandemic led to consumers' online purchasing to accommodate their needs. Consequently, numerous individuals or small-medium enterprises emerged to promote their online businesses. The reliance on 3PL services to deliver their packages has also escalated. Apart from major platforms (Amazon, Lazada and Shopee) that are competent in managing delivery logistics, various entrepreneurs and SMEs have strengthened their relationship with 3PL firms for supply chain efficiency.

Most 3PL providers have consistently ensured that their customers are satisfied (Cichosz *et al.*, 2020), which is a strong strategy to prevent them from switching to competitors. Attracting new customers or potential switchers from direct competitors is costly compared to retaining existing customers. Proper handling structure among the 3PL services could reduce customer complaints, thus preventing any switching intention towards the platform or online sellers (Parvin *et al.*, 2021). Online retailers still struggle to gain customer loyalty despite an increase in online shoppers (Singh and Rosengren, 2020). Selecting the right 3PL services is paramount for online retailers due to the crucial role of 3PL in building online shoppers' loyalty (Ngah *et al.*, 2021a, b, c, d). Competition is higher as most service providers in the logistics industry offer similar services, thus identifying factors influencing switching behaviour is critical for 3PL.

Most online sellers agree that the 3PL providers have improved customer delivery services and provided innovative ways to enhance logistics effectiveness. According to Langley (2020), 40% of shippers and 86% of the 3PL are willing to switch work with another 3PL or even with their competitors to reduce logistics costs and enhance service. Thus, online retailers are willing to switch to another 3PL provider to improve business success. Along with recent technology and new business models to meet new customer expectations, 3PL providers should continue enhancing their services by offering better after-sales services to prevent customers from shifting to competitors. The J&T logistics company originated from Hong Kong and started its operation in Malaysia in 2018 and was awarded the Best Delivery Excellence Award and Best Customer Service Excellence Award by MCMC in November 2019, thus becoming a significant competitor to current 3PL for retailers (Chandran Shankar, 2020).

Complaints about late delivery and other aspects of 3PL services are common in Malaysia, which highlights the importance of proper handling. Pos Malaysia is one of the main 3PL in this country that admitted to receiving complaints about their services (Kamal, 2019). The massive volume of packages that required managing during the pandemic raised comments and conflicts between online shoppers, online retailers and 3PL companies. Langley (2020, p. 18)

outlined long-listed common issues among the shippers and 3PL, specifically data inaccuracy, which creates conflict between retailers and 3PL. The vast number of online sellers via multiple platforms requires reducing customer complaints for high customer satisfaction (Gidener and Deveci, 2020).

Creating loyalty among Logistics Service Providers (LSP) customers is highly challenging. Although many empirical studies have highlighted the subject, LSP managers still require direction and insight on how to build and maintain loyal customers (Vlachos, 2020). Due to intense competition, customer retention has become a significant concern in numerous service industries (Mosavi *et al.*, 2018). This condition has led to increasing brand switching (Msaed *et al.*, 2017).

Comprehending the outcome of customers' and online retailers' willingness to switch to another 3PL provider for business sustainability is crucial, specifically the factors influencing online retailers' switching intention for the 3PL service providers. The 3PL providers have attempted to determine how to meet customer expectations to avoid switching intentions despite delivery accuracy. Otherwise, these companies will lose business to their competitors.

This study attempted to understand online retailers' behaviour towards 3PL services. Previous studies exploring the loyalty factor were based on a common version of service quality theory, such as Murfield *et al.* (2017) who used timeliness, condition and availability as a service quality dimension. Cotarelo *et al.* (2021) added return as another service quality dimension. Rafiq and Jaafar (2007) previously applied nine dimensions, while various authors used five dimensions of service quality from Parasuraman *et al.* (1988), such as Mathong *et al.* (2020) and Panayides and So (2005) to measure 3PL services. Although numerous studies focused on satisfaction, few have examined the relationship between satisfaction and switching intention (Liang *et al.*, 2018). Researchers have also investigated customer switching intention and its influential factors. Nonetheless, the complex structural mechanisms that reduce the switching intention of 3PL have remained understudied. Although satisfaction influences reuse intention or loyalty, this factor will not necessarily change the switching intentions from specific brands (Aw and Chong, 2019) or services.

Grievances about 3PL service quality remain but few studies have investigated the role of conflict handling and customer relationship management. The tremendous amount of delivery that currently needs to be managed has increased online seller complaints. Thus, this study examined the role of conflict handling. Customer relationship management was also highlighted in other research areas, which is beneficial for reducing complaints and enhancing customer satisfaction. This study addressed the literature gap by employing the stimulus-organism-response model, which would benefit the 3PL service providers to comprehend online sellers' switching intentions better.

The current study enhances the literature by employing the stimulus-organism-response (S-O-R) theory, specifically used in studies utilising the supply chain theory. Furthermore, the study extended the knowledge about online retailers' behaviour by introducing customer relationship management and satisfaction as single and sequential mediators between conflict handling and switching intention. As customer relationship management (CRM) is one of the core elements of supply chain management (Das and Hassan, 2022), the current study applied CRM as a moderator between satisfaction and switching intention. The findings emphasised the 3PL approach to reduce customers' switching intention. The study also assessed the endogeneity using the Gaussian and copula analysis using Smart Partial Least Squares (SmartPLS 4).

The research objectives were achieved by utilising a purposive sampling method for data collection among online sellers in Malaysia. Partial least squares structural equation modelling (PLS-SEM) with SmartPLS was applied to test the model as the study operationalised theoretical measures as composites, combined reflective and formative measurements (Hair *et al.*, 2019), and concerned explanatory and predictive purposes (Cepeda-Carrion *et al.*, 2019). The PLS-SEM is a non-parametric approach that has become a standard tool for empirical studies (Hair *et al.*, 2022)

and is broadly applied to analyse complex models that include mediation and moderation (Cheah *et al.*, 2021). This causally-predictive technique highlights the best balance between explanation and prediction (Shmueli *et al.*, 2019). Moreover, the three-step approach (Becker *et al.*, 2023; Cheah *et al.*, 2019; Sarstedt *et al.*, 2019) was applied to validate a type II (reflective-formative) higher-order construct in the research framework.

The remainder of the study is categorised into five sections: literature review, methodology, analysis and findings, discussion and implications, and conclusion and future research directions.

## Literature review

### *Online business in Malaysia*

The National Strategic Roadmap 2.0 implemented by the Malaysian government catalysed online business and plays a significant role in the national economy. The numerous platforms offering extensive products from foods, cosmetics and automotive parts explain the predicted value of USD 35 billion in 2025. This condition encourages logistics providers to develop sufficient and responsive services to meet online shoppers' demands. The 3PLs play a substantial role in supporting online retailers' business by providing reliable service as customers nowadays have better expectations due to tremendous recent technology development. Excellent 3PL service supports the online business platform and reduces switching intention to other 3PLs.

Numerous complaints from online shoppers encourage 3PLs to establish an innovative approach to ensure online retailers' loyalty. Online retailers continue to seek the best 3PLs with excellent services. Several online platforms allow customers to choose a courier with several options, such as a higher price for faster delivery.

### *Stimulus-organism-response theory*

Mehrabian and Russell (1974) introduced the Stimulus-Organism-Response (S-O-R) theory, which has been widely used to predict individual future behaviour in various logistics, tourism and information system studies. The S-O-R model contains three constructs: stimulus, organism and response, which establish a specific behavioural outcome (Pandita *et al.*, 2021). Stimulus is an environmental factor or external force affecting an individual's psychological state. Organism denotes the "inner processes and structures of intervening affected by external stimuli, which drives the person and the final actions, reactions, or responses" (Fu *et al.*, 2021). Specific changes in a particular environment affect an individual's psychological and emotional balance, which influences behavioural changes (Donovan *et al.*, 1994). The flexibility of the S-O-R theory enables model development based on the study context (Ngah *et al.*, 2021a, b, c, d). The theory establishes specific environmental factors based on the study field, which impact specific organism factors and consumer purchase behaviour. Therefore, this theory is appropriate for the current study.

The current study used organism as a mediating variable for the relationship between stimuli and response. The capability of the S-O-R theory enables researchers to create their model based on various variables distinct from other models. Conflict handling, environmental stimulus, satisfaction as an organism and switching intention are the variables that complete the S-O-R theory requirements. Figure 1 depicts the study conceptual framework including customer relationship management as a moderator.

### *Conflict handling (stimulus)*

Conflict handling concerns the supplier's ability to diminish the detrimental emanation of manifested and potential conflicts (Sayil *et al.*, 2019). Customer complaint is an issue that requires management by all service providers (Mahmoud *et al.*, 2018) and could be a significant issue for small firms (Ratajczak-Mrozek *et al.*, 2019). Inappropriately managed complaints affect customer satisfaction. Thus, proper conflict management could ensure



Source(s): Figure by authors

Figure 1.  
Conceptual framework

positive outcomes to prevent complaints worsening, encouraging customer satisfaction. The lack of after-sale services is one of the reasons for customer dissatisfaction and reluctance to purchase online (Rahman *et al.*, 2018). Hence, 3PLs must provide efficient after-sales services to meet customer expectations and satisfaction. Conflict handling is also one of the after-sales services crucial to reduce customer complaints and increasing satisfaction. According to Grönroos (2004), appropriately handling customer complaints aligns with the desire to intensify customer satisfaction. A strong capability to address all conflicts provides a solid judgement to develop customer satisfaction (Ratajczak-Mrozek *et al.*, 2019). The study proposed the following hypothesis based on the abovementioned literature:

H1. Conflict handling has a positive relationship with customer satisfaction.

Conflicts exist at distinct levels and in small day-to-day routines and misjudgements, harsh, escalating conflicts that threaten the existence of the relationship (Ellegaard and Andersen, 2015). The 3PLs that could manage all the conflicts by providing proper and immediate responses to complaints and inquiries could significantly assist online retailers. Increased conflict and poor management hinder customers from maintaining the relationship (Sayil *et al.*, 2019), thus tarnishing customer relationship management. Hence, conflict handling positively impacts customer engagement (Salem, 2021). The study proposed the following based on the above discussions:

H2. Conflict handling has a positive relationship with customer relationship management.

Satisfied customers have a low tendency to switch if all conflicts are appropriately handled (Ndubisi, 2007). Apart from a positive relationship with customer satisfaction, conflict handling positively impacts customer loyalty (Mahmoud *et al.*, 2018). Additionally, conflict handling enhances customer loyalty (Ndubisi, 2007). The methods of conflict management also determine customer loyalty or intention to switch to another supplier (Singh *et al.*, 2017). Satisfied customers tend to remain with the provider. Contrarily, they may switch to another supplier if unsatisfied. As loyalty opposes the switching behaviour, a positive relationship with loyalty negatively affects switching intention. Thus, the study hypothesised as follows:

H3. Conflict handling has a negative relationship with switching intention.

#### *Customer relationship management (stimulus)*

Relationship marketing has transformed into customer relationship management due to technological changes and evolving business operations (Rahimi and Kozak, 2017). The

capability of CRM to stimulate the business environment encourages scholars to focus more on how CRM improves customer satisfaction and prevents current customers switching to their competitors (Soltani *et al.*, 2018) in online business. As online businesses and 3PL services offer similar services, the focus has shifted from product or service orientation towards customer orientation to pursue a better customer relationship and create sustainable revenue by inhibiting customers' switching intentions. According to Sivaraks *et al.* (2011), positive customer and organisational relationships positively impact the relationship between service providers and customers. Additionally, CRM positively affects relationship quality and outcome (Dubey and Sangle, 2019). For example, customer satisfaction in banking (Kumar *et al.*, 2022) positively influences customer satisfaction. Therefore, the following hypothesis was proposed as follows:

*H4.* The CRM has a positive relationship with customer satisfaction.

#### *Satisfaction (organism)*

Satisfaction results from comparing the expected and actual outcomes (Bhattacharjee, 2001) of the event regarding 3PL service. Customers are satisfied when 3PL can provide a logistic service that fulfils or exceeds customer expectations. Satisfaction is generally associated with customer loyalty. Customers tend to be loyal if they are satisfied with a specific service provider. Meanwhile, they will switch to another provider if they are dissatisfied or if other providers offer more benefits. The 3PLs that fail to meet the online shoppers' and online retailers' expectations increase the probability for online retailers to switch to another 3PL as many 3PL businesses provide similar services.

The 3PL can retain customers when customer satisfaction is enhanced by meeting their expectations given its significant influence on consumer decisions, specifically repeat purchase intention (Ahmed *et al.*, 2020). Nonetheless, these varying settings create different expectations. Most consumers during the pandemic have shifted from physical to online shopping, which highlights the turbulent demand affecting the service quality and online shoppers have different expectations than during normal conditions. Satisfaction negatively affects switching intention (Wieringa and Verhoef, 2007; Yang, 2014). Fontana *et al.* (2019) also discovered that higher satisfaction with the services negatively influences the switching intention among retailers in Italy. Thus, this study proposed the following:

*H5.* Satisfaction has a negative relationship with switching intention.

#### *Switching intention (response)*

Switching intention concerns the willingness of particular customers to shift to another brand (Wang *et al.*, 2019) or service provider. Apart from affecting business profitability, switching to a business competitor also raised substantial operation costs considering that acquiring new customers is five times the cost of treasuring current customers (Sun *et al.*, 2017). Customers are motivated to switch service providers if they perceive that other providers perform better. Online retailers intend to change the 3PL provider based on customer feedback. Online retailers can choose from numerous 3PLs willing to meet their demands and expectations. The 3PL commonly offers the same services with slight differences, thus justifying consumers' quick shift to another provider. Furthermore, scholars have examined the factors that might stimulate the switching intention (Liao *et al.*, 2020).

#### *Mediating effect of customer relationship management and satisfaction*

Apart from playing a significant role in inhibiting the switching intention, CRM significantly influences customer satisfaction. Previous studies suggested a positive relationship between CH and CS (Grönroos, 2004; Ratajczak-Mrozek *et al.*, 2019), while CS negatively influences SI

(Fontana *et al.*, 2019). The CRM is also used as a tool to reduce SI (Abekah-Nkrumah *et al.*, 2020), which implies that CRM is negatively linked with SI. The intricate relationship between conflict handling, CRM and customer satisfaction has been highlighted in previous research. This study suggests that CRM mediates the relationship between CH and CS. Moreover, proper execution of CRM increases customer satisfaction and reduces conflict. Therefore, CRM mediates the relationship between conflict handling and customer satisfaction. The following hypothesis is proposed based on the abovementioned literature:

*H6.* The CRM positively mediates the relationship between CH and CS.

Past literature has highlighted the relationship between conflict handling and satisfaction (Grönroos, 2004; Ratajczak-Mrozek *et al.*, 2019) and satisfaction and switching intention (Fontana *et al.*, 2019). Ndubisi (2007) mentioned that satisfied customers are less likely to switch to proper conflict management. The capability of the 3PL to handle conflicts positively impacts online sellers' and customer satisfaction. The 3PLs that manage their conflict effectively would prevent online sellers from switching to a competitor. Thus, the current study suggests that satisfaction mediates the relationship between conflict handling and switching intention and proposed the following:

*H7.* Satisfaction negatively mediates the relationship between conflict handling and switching intention.

Concerning *H6* and *H7*, past studies supported the requirement and justification for CS and CRM as mediators. The abovementioned literature also proposed that CS and CRM variables could sequentially mediate the relationship between CH and SI. Satisfied consumers and 3PLs that provide positive CRM services strongly indicate consumers' switching intention. In situations where no or few complaints on 3PL services from online shoppers are received, the 3PL creates positive CRM with the online sellers and retailers could justify why online sellers should not seek another service deliverer for their products. The study suggested the following hypothesis based on the abovementioned discussion:

*H8.* The CS and CRM negatively and sequentially mediate the relationship between CH and SI.

#### *Moderating role of customer relationship management*

Numerous studies have indicated that satisfaction is a primary predictor of loyalty (Murfield *et al.*, 2017), while dissatisfaction leads to switching behaviour. Nonetheless, many scholars disagreed. For instance, several studies (Chuah *et al.*, 2017; Liao *et al.*, 2017) revealed that satisfaction does not necessarily translate into loyalty, while certain circumstances in dissatisfaction do not result in switching behaviour. Despite various researchers examining this topic, the exact role of satisfaction in customer loyalty remains unclear (Mittal, 2016). Thus, moderating factors could explain this issue better where new moderators are required to explain further consumer continuity or switching behaviour.

Limited studies have introduced moderators between satisfaction and switching intention in the recent pandemic setting. Based on the application of CRM, which focuses on retaining customers, the current study suggests that this factor moderates the relationship between customer satisfaction and switching intention. Most service providers employ CRM to enhance their service, hence resulting in lower switching intention (Jung *et al.*, 2017). Moreover, satisfaction negatively influences the switching intention (Bansal and Taylor, 1991). Positive CRM enhances customer satisfaction, thus reducing the switching intention. Therefore, customers will unlikely switch to another service provider when satisfied with the service provider. The negative relationship between satisfaction and switching intention intensifies when CRM is low. The following hypothesis is proposed based on the discussion:

H9. The negative relationship between satisfaction and switching intention intensifies when CRM is low.

## Methodology

### *Research instrument*

The study items were adopted from established articles regarding the study area. Conflict handling and customer satisfaction were adopted from [Mahmoud et al. \(2018\)](#), CRM technology capability referred to [Dubey and Sangle \(2019\)](#), while the switching intention was based on [Aw and Chong \(2019\)](#). Items for conflict handling, CRM and customer satisfaction were measured based on a scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), while items for switching intention were evaluated accordingly (Unlikely = 1 and Likely = 7, Improbable = 1 and Probable = 7, and No chance = 1 and Certain = 7). Given that the capability of CRM technology significantly depends on the ability to meet customer expectations and requirements ([Peterson et al., 2010](#)) and requires multiple resources, CRM with multiple dimensions was adopted. The current study referred to [Dubey and Sangle \(2019\)](#) to measure the CRM technology capability based on three dimensions: technology resource, people resource and process resource, which are fundamental for enabling a powerful CRM capability ([Chuang and Lin, 2017](#)).

Technology resource concerns the information technology arrangement to manage the organisational operations for sales, service and marketing ([Keramati et al., 2010](#)). People is the second dimension of CRM, which refers to organisational skills and knowledge that should be acquired to apply CRM implementation ([Rapp et al., 2010](#)). The dimension was evaluated through employee experience, training and attitude ([Keramati et al., 2010](#)). The importance of people resources towards CRM implementation success is critical. The absence of capable human resources raises issues despite having an efficient system and technology application by the organisation. The last dimension of the CRM technology capability is the processes. A business process is closely related to CRM initiatives, which link the integration of customer-facing and organisation-wide business activities to enable the right quality services to provide quality relationships ([Dubey and Sangle, 2019](#); [Roh et al., 2005](#)). Although other CRM measurements exist, this study focused on CRM technology capability. Hence, the measurement from [Dubey and Sangle \(2019\)](#) was employed based on relevancy to the service industry.

The study also concerns second-order construct CRM, which is Type II reflective-formative. Hence, guidelines from [Becker et al. \(2023\)](#) and [Sarstedt et al. \(2019\)](#) were applied to develop the CRM scores. The disjoint two-stage approach was also utilised, which was initially based on the LOCs and connects them to all of the higher-order construct antecedents and consequences in the model. In the second stage, the latent variable scores of the LOCs were indicators for the second order. The study relied on Type II given that first-order constructs define characteristics of the second-level constructs. Thus, excluding one of the first-order constructs would alter the conceptual domain of the second-level construct, while changes in the first-order constructs would alter the construct considering that the first-order constructs are not interchangeable.

### *Sampling method*

Online sellers who advertise their products via social media are valid study respondents. Therefore, the purposive sampling method was used considering that the population was unknown with specific criteria for the valid respondents ([Sarstedt et al., 2018](#)). The questionnaire link was provided via social media channels, namely Facebook, Instagram and WhatsApp groups concerning the online seller from early January 2021 until April 2021. To gain more respondents, potential individuals were strongly encouraged to share the link with



colleagues involved in online selling activities, which added a dimension of snowball or chain-link sampling to the purposive approach (Rowley, 2014).

As filter questions are appropriate in studies that require a particular type of respondent (Oppenheim, 1992), this study included a filter question to confirm that the respondents are online sellers. The system is voluntary and does not allow an unqualified respondent to answer the entire questionnaire to enhance respondent validity. Additionally, the respondents had to declare the logistics companies they utilise to deliver their products. The system gathered an initial 418 respondents but only 311 were useable for further analysis. Out of 418, 82 respondents did not meet the criterion, while 36 were discarded due to incomplete data and straight-lining.

Hair *et al.* (2019) suggested applying the power of analysis to determine the minimum study sample size determined by model complexity. Based on the power of 0.8 according to Gefen *et al.* (2011), the minimum sample should be 85 for the medium effect size and using the four study predictors. Hence, the sample size of 311 respondents was sufficient to evaluate the research model. Most respondents (59.8%) were female, 54.9% were 18–24 years old, 70.7% were single, 53.5% possessed a Bachelor's degree as the minimum qualification and 33.5% had less than two years of experience in online selling. Meanwhile, 64.9% of the respondents sold between four to six products, 75.5% delivered the products twice a week and 48.2% sold healthcare products. Table 1 presents the respondent profile.

### Analysis and findings

The study used the statistical package for social sciences SPSS to illustrate the respondent's profiles. The PLS-SEM technique with SmartPLS 4 (Ringle *et al.*, 2022) was also used to test the research hypotheses. The study concerns the explanation of variances, thus aligning with the prediction-oriented approach to predicting the study subject (Hair *et al.*, 2019). Composites create an interconnected component, which enhances understanding of variables that cannot be measured directly to establish a relationship (Henseler, 2017). Moreover, all measures were estimated using Mode A except CRM, which was modelled as a second-order variable using Type II (reflective-formative) and estimated using Mode B based on Becker *et al.* (2023).

#### *Common method bias*

Single-source data could lead to the common method bias, which originated due to how the data was collected (Podsakoff *et al.*, 2012). In situations where the same respondent simultaneously answers the predictor and criterion variables using the same method, common method bias should be remedied to prevent questionable findings (MacKenzie and Podsakoff, 2012). Previous research (Podsakoff *et al.*, 2012) applied procedural and statistical methods to confirm that the data does not experience CMB. Although the respondents were informed of no right or wrong answer and that participation is voluntary, the study used various anchor scales to measure the predictor variables (1–5 Likert scale) and the criterion (1–7 Likert scale). Full collinearity (Kock, 2015) was employed for the statistical approach. Table 2 demonstrates the full collinearity test results. Given that all the variance inflated factor (VIF) values were less than 5 (Hair *et al.*, 2017a, b), the data indicated no CMB issue.

The study involved explanatory purposes where exogenous variables correlate with endogenous variables, hence endogeneity might be an issue (Hult *et al.*, 2018). Hair *et al.* (2019) proposed to address the endogeneity issue while testing the hypothesis based on Hult *et al.* (2018). Introducing appropriate control variables is sufficient for the study to address the issue of endogeneity. Therefore, two control variables were introduced: type and number of products offered by the online sellers. As introducing both control variables only produces marginal changes, the control variables did not significantly affect all endogenous variables, thus suggesting that the endogeneity issue was not severe for the study.

Measure	Items	Frequency	Percentage
Gender	Male	125	40.2
	Female	186	59.8
Education	Secondary School	47	15.1
	Diploma	72	23.2
	Degree	166	53.4
	Others	26	8.4
Age	18–24	171	55
	25–31	93	29.9
	32–38	39	12.5
	39 and above	8	2.6
Status	Single	220	70.7
	Married	91	29.3
Experience	Less than 2 years	104	33.4
	2.1–4 years	100	32.2
	4.1–6 years	72	23.2
	More than 6	35	11.3
No of products	1–3	76	24.4
	4–6	202	65.0
	7–9	29	9.3
	10 and above	4	1.3
Delivery Frequency	1	22	7.1
Weeks	2	235	75.6
	3 and above	54	17.4
Types of Products	Healthcare	150	48.2
	Cosmetics	60	19.3
	Apparel	69	22.2
	Others	32	10.3
3PL	Poslaju	203	65.3
	GDex	39	12.5
	DHL	15	4.8
	City Link	19	6.1
	J&T Express	29	9.3
	Others	6	1.9
Total		311	100

**Table 1.**  
Respondent's profile

**Source(s):** Table by authors

**Table 2.**  
Full collinearity  
analysis

Construct	Conflict handling	CRM	Satisfaction	Switch
VIF	2.755	2.827	1.588	1.442

**Source(s):** Table by authors

*The endogeneity analysis using Gaussian copula*

The Gaussian Copula procedure was performed using Smart PLS 4 to test the endogeneity issue through several steps: (1) selecting Gaussian Copula function on the top right of the Smart PLS menu bar on the readily available model, (2) adding the GC term by clicking on the relationship paths based on piece-wise approach and (3) calculating the selected GC path using PLS algorithm to estimate the model and inspect their significance using bootstrapping (a 5,000 subsample, percentile bootstrap confidence interval and two-tailed test  $\alpha = 0.05$  were used). Table 3 suggests that none were significant ( $p$  value  $>0.05$ ). Thus, no endogeneity issues were present, which verified model robustness (Hult *et al.*, 2018).

**Table 3.**  
Testing Endogeneity  
using Gaussian Copula

Copula term	Std. Beta	Std. Dev	t-value	p value	LLCI	ULCI
<sup>c</sup> GC(CH) → CRM	-0.150	-0.158	0.093	1.613	0.032	-0.332
<sup>c</sup> GC(CH) → CS	0.162	0.166	0.090	1.799	-0.021	0.334
<sup>c</sup> GC(CH) → SI	0.087	0.081	0.091	0.957	-0.077	0.280
<sup>c</sup> GC(CRM) → CS	-0.154	-0.158	0.162	0.950	-0.488	0.143
<sup>c</sup> GC(CS) → SI	-0.063	-0.057	0.110	0.572	-0.260	0.172
<sup>c</sup> GC(No of Product) → SI	0.005	0.008	0.090	0.061	-0.174	0.184
<sup>c</sup> GC(Types of Products) → SI	-0.273	-0.265	0.274	0.997	-0.862	0.233

**Note(s):** <sup>c</sup>Indicates the copula term in the model; the Kolmogorov–Smirnov test with Lilliefors correction (Sarstedt and Mooi, 2019) on the latent variable scores of CRM, CS, SI, CS and SI were significant, thus allowing us to proceed with Park and Gupta's (2012) Gaussian copula approach

**Source(s):** Table by authors

*Measurement model*

The two-step approach was applied, which comprised the measurement and structural model by Anderson *et al.* (1988). The measurement model is established once convergent and discriminant validity is confirmed (Hair *et al.*, 2017a, b; Ngah *et al.*, 2019). As for the reflective measurement, convergent validity requires confirming that all the items measuring the same construct is valid and reliable if the loading is  $\geq 0.708$ , composite reliability (CR)  $\geq 0.7$  and the average variance extracted (AVE) is  $\geq 0.5$  (Hair *et al.*, 2017a, b). Table 4 lists all the values for

Higher order construct	Lower order construct	Item	Loading	CR	AVE	
Customer Relationship Management	Conflict Handling	CH1	0.898	0.879	0.645	
		CH2	0.819			
		CH3	0.795			
	Satisfaction	CS1	0.928	0.944	0.850	
		CS2	0.932			
		CS3	0.905			
	Switch	SI1	0.956	0.951	0.865	
		SI2	0.910			
		SI3	0.924			
	People	People	Peop1	0.821	0.885	0.606
			Peop2	0.779		
			Peop3	0.773		
			Peop4	0.736		
			Peop5	0.782		
	Process	Process	Proc1	0.758	0.877	0.588
			Proc2	0.801		
			Proc3	0.798		
			Proc4	0.731		
			Proc5	0.745		
	Technology	Technology	Tech1	0.731	0.864	0.560
			Tech2	0.747		
			Tech3	0.712		
			Tech4	0.791		
			Tech5	0.758		
	Type of product	Type	1.000	SIM	SIM	
No of Products		No	1.000	SIM	SIM	

**Note(s):** CH4 has been deleted due to cross loading

**Source(s):** Table by authors

**Table 4.**  
Convergent validity for  
reflective measurement

each category higher than the threshold values, hence indicating that convergent validity has been established.

The study measured CRM as a higher-order construct based on [Becker et al. \(2012\)](#), thus higher order should be measured by type II, which is reflective-formative. [Sarstedt et al.'s \(2019\)](#) guidelines were applied by applying the three steps approaches that test the redundancy, VIF and significance of the outer weight. The findings revealed a path coefficient of 0.841, which exceeds the 0.8 proposed by [Hair et al. \(2017a, b\)](#), thus confirming the validity of people, processes and technology to measure CRM. The VIF values were under 3.3 ([Diamantopoulos and Siguaw, 2006](#)) and the significance of the outer weight was  $p \leq 0.001$ , hence confirming the convergent validity of CRM as higher order construct measured in formative-reflective mode. [Table 5](#) illustrates convergent validity results for the CRM as a type II higher-order construct.

As recommended by recent literature, the discriminant validity could be established if all the heterotrait–monotrait ratio (HTMT) values were under 0.9 ([Franke and Sarstedt, 2019](#)). [Table 6](#) indicates that all the values were under 0.9, hence establishing the discriminant validity of the study. As suggested by [Cheah et al.'s \(2023\)](#) suggestion that the interconstruct correlations between the CRM as a formative construct in Mode B with all other constructs, the results demonstrated values under 0.7 proposed sufficient discriminant validity (see [Table 5](#)).

*Structural model*

The PLS-SEM analysis resembles regression analysis, confirming that the multi-collinearity was not severe in the study is critical. The analysis revealed that all VIFs were under five as proposed by [Hair et al. \(2017a, b\)](#), thus confirming that collinearity was not severe in the study.

Percentile bootstraps ([Chin, 1998](#)) were applied at a 95% confidence interval with 5,000 subsamples to estimate the direct effect, moderation effect and indirect effects. The hypothesis was accepted if the beta value is in the same direction as the hypothesis proposed,

**Table 5.**  
Convergent validity  
for formative  
measurement

Construct	Item	Convergent validity	Weight	VIF	t-value (weight)	p value
Customer Relationship Management	People	0.841	0.400	2.064	25.257	0.001
	Process		0.371	2.096	18.398	0.001
	Technology		0.363	2.314	27.279	0.001

**Source(s):** Table by authors

**Table 6.**  
Discriminant validity  
(HTMT ratio)

Construct	CH	CS	No of products	People	Procedure	SI	Tech	Type
CH								
CS	0.613							
No of Product	0.030	0.115						
People	0.897	0.625	0.060					
Procedure	0.791	0.425	0.073	0.757				
SI	0.601	0.462	0.039	0.562	0.382			
Tech	0.858	0.656	0.082	0.816	0.833	0.513		
Type	0.065	0.037	0.057	0.086	0.080	0.043	0.067	

**Source(s):** Table by authors

Hypothesis	Relationship	Beta	SE	t-value	p value	5% CI Lo	95% CI Hi	VIF	f <sup>2</sup>
H1	CH → CRM	0.822	0.020	41.184	0.001	0.785	0.849	1.003	2.076
H2	CH → CS	0.312	0.065	4.814	0.001	0.142	0.351	3.086	0.030
H3	CH → SI	-0.174	0.065	2.676	0.001	-0.397	-0.111	3.178	0.033
H4	CRM → CS	0.415	0.074	5.588	0.000	0.273	0.524	3.082	0.093
H5	CS → SI	-0.255	0.083	3.072	0.019	-0.275	-0.073	1.665	0.020
H6	CH → CRM → CS	0.342	0.061	5.597	0.001	0.216	0.427		0.117
H7	CH → CS → SI	-0.079	0.039	2.025	0.037	-0.074	-0.009		0.006
H8	CH → CRM → CS → SI	-0.087	0.041	2.121	0.040	-0.108	-0.014		0.007
H9	CS*CRM → SI	0.143	0.071	2.082	0.019	0.030	0.258		0.02
	Type → CRM	0.060	0.035	1.694	0.045	-0.002	0.114	1.006	
	Type → Satisfaction	-0.023	0.045	0.502	0.308	-0.103	0.049	1.017	
	Type → Switch	-0.007	0.047	0.142	0.444	-0.084	0.068	1.018	
	No → CRM	-0.023	0.036	0.646	0.259	-0.083	0.037	1.004	
	No → Satisfaction	-0.087	0.063	1.376	0.085	-0.201	0.012	1.005	
	No → Switch	-0.005	0.036	0.145	0.443	-0.068	0.053	1.018	

Note(s): t-values for 1-tail test

Source(s): Table by authors

Table 7.  
Hypothesis testing

$t$ -value  $\geq 1.645$ ,  $p$  value  $\leq 0.05$ , and confidence interval has no zero value in between the Lower Level (LL) and Upper level (UL) of confidence interval (Hair *et al.*, 2019). Table 7 outlines all the findings of the hypothesis testing where the relationship between CH $\rightarrow$ CRM ( $\beta = 0.822$ ;  $p$  value  $\leq 0.001$ ), CH $\rightarrow$ CS ( $\beta = 0.312$ ;  $p$  value  $\leq 0.001$ ), CH  $\rightarrow$  switch ( $\beta = -0.174$ ;  $p$  value  $\leq 0.01$ ), CRM $\rightarrow$ CS ( $\beta = 0.415$ ;  $p$  value  $\leq 0.001$ ), CS $\rightarrow$ Switch ( $\beta = -0.255$ ;  $p$  value  $\leq 0.05$ ) suggested that all the direct hypotheses (H1 to H5) were supported.

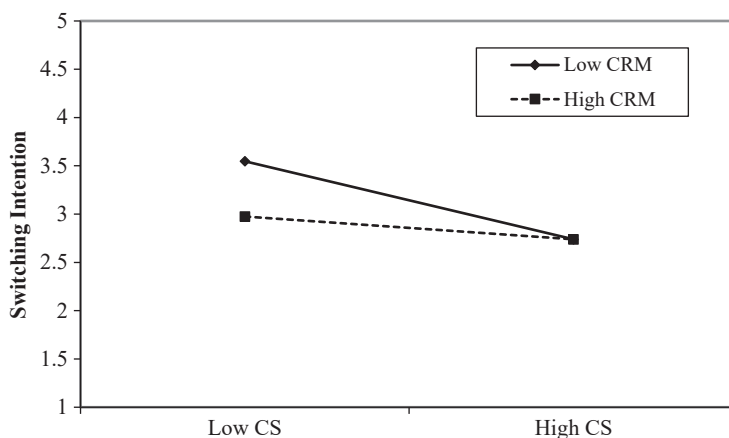
In terms of mediation, the segmentation approach was applied based on Rungtusanatham *et al.* (2014) and Nitzl *et al.*'s (2016) guidelines. Furthermore, the use of PLS-SEM for estimating the entire model addressed recent concerns regarding applying latent approaches to test the mediation effect (Sarstedt *et al.*, 2020). In testing the mediating effect, researchers should bootstrap the sampling distribution of the indirect effect for simple or multiple mediators (Hair *et al.*, 2017a, b). Furthermore, using bootstrapped is sufficient to interpret complex mediating effects (Sarstedt *et al.*, 2020).

Three mediation effects were introduced, which include one sequential mediation. Regarding the simple mediation, CRM positively mediates the relationship between CH and CS ( $\beta = 0.342$ ;  $p$  value  $\leq 0.001$ , LL = 0.216, UL = 0.427), therefore supporting H6. Meanwhile, CS negatively mediates the relationship between CH and SI ( $\beta = -0.079$ ;  $p$  value  $\leq 0.05$ , LL = -0.074, UL = -0.009), thus supporting H7. As for the sequential mediation, CRM and CS negatively mediate the relationship between CH and SI, therefore supporting H8. Kenny (2021) stated that for mediation analysis, 0.01 is considered a small effect size, 0.09 is medium and 0.25 is large. The analysis indicated that all the mediation hypotheses were supported apart from H6 (CH $\rightarrow$ CRM $\rightarrow$ CS), which indicated a medium effect size for the mediation. Meanwhile, other mediations under H7 and H8 signified no effect size. Although H7 and H8 were supported, the mediation did not influence the relationships. Nevertheless, the BCI LL and UL did not straddle a 0, thus strengthening the support for mediation (Preacher and Hayes, 2008). As the VAF value determines whether the mediation is full or partial mediation (Preacher and Hayes, 2008), full or partial is not significant. Thus, the study ignored the rule of VAF.

The moderation effect was determined by applying the two-stage approach (Becker *et al.*, 2018). Observably, CRM moderates the relationship between CH and SI ( $\beta = 0.143$ ;  $p$  value  $\leq 0.05$ ). The effect was still significant to the study implications despite the small effect size of the interaction (Cheah *et al.*, 2020). The study highlighted further details on the moderation effect by applying the interaction plot by Dawson (2014). Figure 2 depicts that CRM moderates the relationship between CS and SI, the negative effect of Satisfaction $\rightarrow$  Switching Intention weakens when CRM is at a high level compared to low levels (negative relationship is stronger), which outlines the contingent effect of CRM in mitigating the negative relationship.

The explained variance ( $R^2$ ), effect size and predictive power using the PLS-predict were examined to enhance the explanatory power of the study. The model illustrates sufficient explanatory capacity as CH explained 66.4% of the variance in CRM. Meanwhile, CS, CH and CRM explained 36.8% variances in CS, and the CH, CRM and CS explained 35.6% variance in SI. As for the effect size ( $f^2$ ), Cohen's (1988a) guidelines were referred to where an  $f^2$  of 0.02, 0.15 and 0.35 are considered small, medium and large effect sizes. Table 6 indicates that only the relationship between CH $\rightarrow$  and CRM has a significant effect size, while other supported hypotheses suggested a negligible effect size.

As this study emphasised prediction, PLS-Predict was used to determine the predictive power of the model (Shmueli *et al.*, 2019). The method compares PLS-SEM errors with the benchmark model errors known as Linear Model (LM). Item differences (PLS-LM) that are lower imply a strong predictive power. Nonetheless, predictive relevance is not confirmed if all PLS-LM values are higher. A lower majority indicates moderate predictive power while a lower minority suggests a low predictive power. For PLS-Predict, RMSE was used as the criterium as the errors were symmetrically distributed based on Shmueli *et al.* (2019). Table 8 illustrates the PLS-predict analysis. Given that RMSE for PLS is lower than LM RMSE, the



Source(s): Figure by authors

**Figure 2.**  
CRM's moderating  
effect on the  
satisfaction →  
switching intention  
relationship

Item	PLS-RMSE	LM-RMSE	PLS-LM RMSE	Q <sup>2</sup> _predict
CS3	1.033	1.030	0.003	0.180
CS2	0.962	0.978	-0.016	0.243
CS1	0.930	0.938	-0.008	0.390
SI1	1.028	1.037	-0.007	0.240
SI2	1.020	1.015	0.005	0.260
SI3	1.072	1.080	-0.008	0.228
People	0.683	0.679	0.004	0.537
Process	0.781	0.781	-	0.394
Technology	0.731	0.733	-0.002	0.470

Source(s): Table by authors

**Table 8.**  
PLS predict

model denotes good predictive power. The value of  $Q^2$  must also be positive. The analysis revealed that most items indicated a negative value for all variables, which suggests a moderate predictive power of the model (Shmueli *et al.*, 2019).

### Discussion and implications

The study objectives aimed to determine the effect of conflict handling on satisfaction, CRM and the influence of CRM and satisfaction on SI. Single and sequential mediators of CRM satisfaction and the moderating effect of CRM on the relationship between satisfaction and SI were explored to increase the explanatory power. Resultantly, CH indicated a positive relationship with CRM, CS and SI, which aligned with past studies (Mahmoud *et al.*, 2018; Ndubisi, 2007; Salem, 2021). This finding indicates the importance of the CH in the logistics industry, specifically regarding online retailers relying on the 3PL to deliver their products. The findings also explained why the 3PL provides better after-sales service to improve its conflict handling to reduce customer complaints and meet online shoppers' and retailers' expectations. The appropriate CH method would significantly benefit online sellers and 3PL. Based on the CH method, online sellers' customers would be satisfied, thus creating loyalty and discouraging online sellers from switching to other 3PLs. The study also discovered the

positive effect of CRM on CS, which indicates the extensive role of CRM in enhancing customer satisfaction in line with past research (Kumar *et al.*, 2022). Hence, the 3PL should concentrate on CRM to ensure customers, online shoppers and retailers are satisfied with their services.

The online retailer's satisfaction was negatively linked to the switching intention regarding the last direct effect. Online retailers that are satisfied with the 3PL services have a lower intention to switch to another 3PL, which aligns with past literature (Fontana *et al.*, 2019) investigating the Italian retail market. Satisfied customers are normally reluctant to switch to other providers as the new providers might not provide a better service than the current provider. Therefore, the 3PL should prioritise online retailers' satisfaction to ensure no switching to another 3PL.

The findings revealed the mediation effect of CRM on the relationship between CH and satisfaction, which indicates the importance of CRM towards online sellers' satisfaction. Therefore, 3PL should not dismiss the role of CRM in influencing their customers' satisfaction. The analysis suggested that satisfaction mediates the relationship between CH and SI. Furthermore, the findings highlighted the sequential mediation effect of CRM and satisfaction on the relationship between CH and SI. Despite the significant effect of the mediation analysis, only H6 (CH→CRM→CS) indicated a medium effect size. Hence, CRM significantly influences the relationship between CH and CS. The hypotheses were supported in the other mediation analyses, but H7 and H8 denoted no effect size, which implied that the mediation had no significant effect. Therefore, the findings did not discover the relevance of CRM and CS as mediators between CH and SI. The 3PLs should consider these findings based on the lack of effect size on the mediation analysis.

The CRM moderates the relationship between CS and SI for the moderating effect. Dawson's plot denotes that the effect is more substantial when the 3PL provides low CRM than high CRM. Low CRM produces a higher impact than high CRM. Thus, 3PLs must avoid low CRM if they are serious about evading the switching intention among online sellers. The issues include managing large delivery numbers with numerous destinations, product sizes, and specifications, different people and processes, and minor futile deliveries. Customers understand the scenario, specifically during this critical situation. Nonetheless, if CRM fails to play its role in easing and harmonising the situation, online sellers will switch to another provider. As most 3PLs provide almost similar services, even minor mistakes that continuously happen will encourage them to seek another service provider.

#### *Theoretical contributions*

This study contributed to enhancing the literature in numerous ways. First, the study developed a new model for 3PL studies using the S-O-R model by introducing CH and CRM as the stimulus, CS as an organism, and SI as a response. Despite the importance of SI towards 3PL services, limited studies have explored factors influencing SI among online sellers, specifically applying the SOR model. Thus, the study enriches the literature on online sellers' behaviour towards SI. The study also indicates the importance of conflict handling by the 3PL provider to ensure their customers (online sellers) are satisfied. In the logistics industry, the findings outlined the importance of CRM in increasing CS and lowering the SI among online sellers. Thus, the 3PL providers should start to invest further in the CRM technology capability to remain competitive in the business.

The SOR model capability to explain the subjects of the study by using CH and CRM as a stimulus, satisfaction as an organism, and SI as the response for the model, and introducing single and sequential mediators contributes to the ability to predict SI among the online sellers towards the 3PL providers. Although a mediator is common in social science studies, applying the sequential mediator remains scarce in the literature. The study introduced CRM



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and satisfaction as single mediators and as sequential mediators between CH and SI to fill the literature gap. The findings also provided a better explanation and prediction power to better understand SI in the model.

Another important contribution is discovering that CRM plays a moderating role in influencing the relationship between satisfaction and SI. Thus, CRM is significant in predicting SI from the online seller's perspective. Expanding the SOR model with positive mediating and moderating factors revealed more information on the SI and encouraged future studies to develop new mediators and moderators in the SOR study.

### *Practical implications*

The study offered insightful information for 3PL managers in crafting a better policy to avoid customers' switching behaviour. The conflict between customers and providers is unavoidable as consumers possess unlimited demand and businesses have limited resources. Additionally, too many parameters must be covered to ensure everybody is appeased. Providing an excellent procedure to solve the conflicts could facilitate business sustainability. Hence, all the comments and conflicts will be adequately managed by the customer services department. This department has a supporting role but crucially ensures that everybody is satisfied. Failure at this stage will significantly affect business image and performance, which will lead to customer dissatisfaction and switching intentions.

The CRM and satisfaction also produce a significant impact as predictors and mediating factors. Therefore, the 3PL managers focus closely on this issue if they intend to dismiss the SI among their customers. Efficient technology, the right personnel, and a proper working process would improve the 3PL capability on the CRM. Efficient CRM would also impact their customers' satisfaction, thus encouraging managers to emphasise the role of CRM in their business process.

All companies must retain satisfied customers, who have a low tendency to switch (Mittal, 1998). Customers are always right and demand numerous requirements. The 3PL managers should be more tolerant of online sellers in this highly competitive business as they possess different products and numerous conditions. Therefore, managers that can provide unique services that comply with various conditions ensure customer satisfaction. Overpromising and lack of compromise lead to dissatisfaction and switching intentions (Ngah *et al.*, 2021a, b, c, d). The 3PLs must provide the best services to the online sellers to ensure no inclination for them to switch to other providers, specifically individuals or SMEs with unique product requirements. Nevertheless, these customers hold the power or recommendation online. Their online comments or word of mouth significantly influence the company image, which impacts their potential customers' behaviour. Moreover, the power of social media or viral impact significantly influences viewers' trust. Thus, the ability to meet the demands, entertain customers' unique requirements and provide reliable services could discourage online sellers' switching intention.

### **Conclusion and directions for future studies**

A significant issue involves seeking the best logistics provider to deliver products remains an ongoing concern. Hence, the study discovered that conflict handling by 3PL is crucial in enhancing customer satisfaction and CRM and dismissing SI among online sellers. The findings revealed the mediation and sequential mediation effect of CRM and satisfaction on the relationship between CH and SI. Moreover, low CRM affects online sellers' SI.

This study has limitations despite the highlighted contributions. First, the study is limited to the CH, CRM and satisfaction variables to predict SI. More variables could be used as

another stimulus, namely experience, personnel contact or relation with the 3PL staff, which could be a good stimulus for future studies. Apart from satisfaction as an organism, other variables, such as intrinsic motivation or price fairness should be explored. Second, the respondents were limited to online sellers in Malaysia based on a purposive sampling method. Thus, the findings cannot be generalised to other countries. Furthermore, [Lim et al. \(2021\)](#) proposed that consumer behaviour is reflected by national cultures. Therefore, a similar study should be conducted in different settings to explain SI behaviour better and make a better generalisation. A proper modification should be applied before replicating to a different context of studies in different countries. Based on the lack of effect size for CRM and CS as mediators between CH and SI, future studies should assess these factors as mediating variables to establish the role of CRM and CS as single and sequential mediators in last-mile delivery studies.

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**Further reading**

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**Appendix:**

*Conflict handling* (Mahmoud *et al.*, 2018)

- CH1 My current 3PL solves commonly solved problems promptly
- CH2 My current 3PL provides service delivery compensation
- CH3 My current 3PL solved problem before manifestation
- CH4 My current 3PL listens to complaints

*Customer satisfaction* (Mahmoud *et al.*, 2018)

- CS1 I am completely happy with my current 3PL services
- CS2 I have a good experience with my current 3PL services
- CS3 Overall, I am happy with my current 3PL services

*Switching intention* (Aw and Chong, 2019)

Rate the probability that you would switch from current 3PL you currently use to another 3PL in the next 3 months

- SI1 Unlikely . . . Likely
- SI2 Improbable . . . Probable
- SI3 No chance . . . Certain

*Customer Relationship Management (CRM):* (Dubey and Sangle, 2019)

Technology

- Tech1 My current 3PL able to provide me accurate and correct information about their product and services across channels
- Tech2 My current 3PL has proper IT systems, so that I do not have to wait because their IT system is down or it is not working
- Tech3 They have right system to schedule and track delivery of services and product
- Tech4 My current 3PL maintains proper information about service requests and enquiries
- Tech5 The information that I get from various channels (Internet/call center/branch) is consistent and reliable

People

- Peop1 My current 3PL's employees are committed to provide superior service to their customers
- Peop2 My current 3PL's employee truly value their customers
- Peop3 When required, my current 3PL's employees will make personal sacrifices to serve their customers
- Peop4 My current 3PL's employees are knowledgeable and experienced to perform their job effectively
- Peop5 My current 3PL's employees are trained to perform their jobs effectively

Process

- Proc1 My current 3PL follows well defined process while delivering their services
- Proc2 My current 3PL's various functional areas/departments co-ordinate their activities to enhance the quality of customer experience
- Proc3 My current 3PL's process ensures that my requests, problems and complaints are handled personally by their employees who are responsible for solving the same
- Proc4 My current 3PL's processes are designed to enhance the quality of customer interactions
- Proc5 My current 3PL has streamlined processes to conduct transactions which are normally correct and fast

*Global Overall, I am happy with my current 3PL's customer relationship management*

**Table A1.**  
Measurement items  
of the study



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Abdul Hafaz Ngah is a senior lecturer at Faculty of Business, Economic and Social Development, Universiti Malaysia Terengganu. She received her PhD in Technology Management focusing on halal supply chain. His research interest includes supply chain management, maritime management, halal studies, tourism and technology adoption. He has published a number of articles in many reputable journals in those area of studies. Also, as an active reviewer for many reputable journals in wide area of studies.

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