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The links between e-logistics service quality, attitude and repurchase intention of Gen Z in e-commerce

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Abstract

Purpose – This study aims to identify the dimensions that represent e-logistics service quality (e-LSQ) in e-commerce from the perspective of Generation Z customers in Vietnam. Additionally, it seeks to evaluate the impact of these dimensions on repurchase intention, including their indirect effects through the mediating variable of attitude.

Design/methodology/approach – The study applied in-depth interviews and focus group discussions as methods for developing measurement scales and the research model. Quantitative analyses are conducted using a dataset gathered from 290 Gen Z customers in Vietnam. Partial least squares structural equation modeling (PLS-SEM) is employed to test the measurement model and validate the research hypotheses.

Findings – The results revealed that all four dimensions of e-LSQ – return, condition, timeliness and availability – significantly impact repurchase intention. Additionally, besides the direct impact on repurchase intention, the study found the mediating role of attitude in the relationships between availability, condition and return and the repurchase intention of Gen Z customers.

Practical implications – This study provides empirical evidence that enables enterprises to identify the critical determinants of e-LSQ in fostering the repurchase intention of Generation Z customers. Based on the findings, e-commerce businesses can formulate strategies to effectively enhance the repurchase intention of Generation Z customers through improvements in e-LSQ.

Originality/value – This study contributes to diversifying the body of knowledge on the topic of e-LSQ and significantly enhances the understanding of Gen Z customers' consumption behaviors in the context of e-commerce. Notably, the findings elucidate the mechanism through which e-LSQ influences repurchase intention through attitude. These results hold value both academically, by offering insights for researchers, and practically, by providing e-commerce managers with a deeper understanding of the pivotal role of e-LSQ in business operations.

Keywords Attitude, e-logistics service quality, Gen Z, Repurchase intention, Vietnam

Paper type Research paper

1. Introduction

Logistics has become a powerful differentiator for businesses by its contribution to achieving a cost or value advantage (Grant, 2012; Christopher, 2016). In e-commerce, logistics activities

Compliance with ethical standards: This study used self-rated and anonymous questionnaires; the respondents voluntarily participated in filling the questionnaires. So, it is not required to apply for the ethics statement for the research conducting on animal and human objects.

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are performed to support the e-commerce business; within the context of e-commerce, logistics encompasses the strategic planning, implementation of essential logistics systems and processes, as well as the management activities and operational structure of a company (Büyüközkan *et al.*, 2008). Logistics in e-commerce includes all activities that support the flow of goods from the point of supply to the point of consumption in electronic purchases and sale transactions, specifically as several basic activities: order receipt, inventory control, warehouse management, scheduling, organization of transportation and delivery (Joong-Kun Cho *et al.*, 2008; Turban *et al.*, 2018). With the rapid development of e-commerce over the past decade, logistics has emerged as a critical determinant of the success and sustainable development of e-commerce businesses (Gonzalez *et al.*, 2023). Consequently, enhancing the quality and control of logistics services has become imperative for businesses as these activities significantly impact customer experience and their loyalty to e-commerce companies (Vu *et al.*, 2025; Do *et al.*, 2023; Vasić *et al.*, 2021).

Gen Z, referring to individuals born between 1997 and 2012, grew up in an era of rapid technological advancements (Seemiller and Grace, 2016). Representing approximately one-third of the global population (Miller and Lu, 2018), Gen Z is poised to become a dominant force in the shopping landscape (Fromm, 2018). With their extensive technological proficiency, innovative mindset and high levels of educational attainment, Gen Z is projected to spearhead customer behavior in e-commerce in the coming years (Vieira *et al.*, 2020). According to the General Statistics Office of Vietnam, Gen Z is expected to account for nearly one-third of the working-age population (PwC, 2021) and approximately 30% of the consumer market by the end of 2025 (Minh, 2022a, b). The prominent role of Gen Z customers in business activities has attracted significant scholarly attention. As of 2024, around 57 million Vietnamese customers shop online, with Gen Z comprising 43% of this group. Gen Z customers are particularly recognized for their rapid adaptability to emerging e-commerce services and platforms, such as livestreaming and mobile shopping (Vu, 2024). Hence, understanding the consumption behavior of this customer segment can help businesses devise long-term market development strategies.

Numerous studies have investigated the consumption behavior of this demographic across various markets (Lestari, 2019; Dabija and Lung, 2019), including Vietnam (Nguyen and Nguyen, 2020). However, research examining the impact of logistics service quality on customer behavior in e-commerce remains relatively sparse in the Vietnamese context. While several studies have proposed and validated evaluation scales for e-service quality and e-LSQ (Grant, 2004; Mentzer *et al.*, 2001; Parasuraman *et al.*, 2005), and others have explored the effects of logistics service quality on customer perception and behavior (Murfield *et al.*, 2017; Jain *et al.*, 2020), the findings have been inconsistent, specifically regarding the considerable differences in the effects of various dimensions of e-LSQ on customer behavior.

For instance, Xing *et al.* (2010) emphasized the role of condition in customer satisfaction, whereas Murfield *et al.* (2017) refuted this relationship. Additionally, the role of timeliness in influencing customer perceptions and behavior has been found to be inconsistent, heavily dependent on the characteristics and operational methods of the services provided (Murfield *et al.*, 2017; Griffis *et al.*, 2012). Furthermore, research on logistics service quality often focuses on port services and business-oriented approaches, with emerging studies predominantly investigating e-service quality rather than logistics service quality (Vu *et al.*, 2020). Therefore, strengthening research on the role of e-LSQ carries significant implications both theoretically and practically.

This study was initiated to address specific research gaps in the relationship between e-LSQ and Gen Z customer behavior. Despite e-LSQ receiving significant academic attention regarding its definition, measurement and associated outcomes (Gil-Saura and Ruiz-Molina, 2011), previous studies have yielded inconsistent results in identifying the dimensions that represent e-LSQ (see Table 1). These inconsistencies have prompted scholars to call for further exploration of the topic (Wang *et al.*, 2024; Sun and Karia, 2023). To the best of our knowledge,

Table 1. Summary of dimensions of e-LSQ

Dimensions	References
Reliability	Wang *et al.* (2024), Abusalma *et al.* (2024), Junior *et al.* (2020)
Timeliness	Sun and Karia (2023), Ta *et al.* (2023), Xing and Grant (2006)
Shipping costs	Vasić *et al.* (2021), Rashid and Rasheed (2024)
Availability	Murfield *et al.* (2017), Rao *et al.* (2011), Xing and Grant (2006)
Return	Xing and Grant (2006)
Product quality/condition	Vasić *et al.* (2021), Rashid and Rasheed (2024), Jain *et al.* (2020)
Information quality	Vasić *et al.* (2021), Rashid and Rasheed (2024)
Customer service and responsiveness	Abusalma *et al.* (2024), Junior *et al.* (2020)
Convenience	Wang *et al.* (2024), Abusalma *et al.* (2024)
Security and privacy	Abusalma *et al.* (2024), Li and Suomi (2008)
Personnel contact quality	Wang *et al.* (2024)
Crowdsourced delivery	Ta *et al.* (2023, 2025)

Source(s): Authors' own creation

efforts to identify and establish a measurement scale for e-LSQ remain limited, particularly from the perspective of Gen Z customers.

Additionally, previous studies have focused heavily on customer satisfaction, treating this variable as a mediator transitioning to repurchase intention (Akıl and Ungan, 2022; Uvet *et al.*, 2024). As such, the direct effects of e-LSQ dimensions on repurchase intention have received insufficient attention. Specifically, we posit that in the context of Gen Z customers, who view e-commerce shopping as a habitual activity, the role of satisfaction may diminish significantly (Sharma and Dutta, 2025). These customers may continue to repurchase out of habit, even if their satisfaction with a product or service is not high. Therefore, clarifying the direct relationships between these dimensions and repurchase intention is even more meaningful.

Moreover, while attitude has been identified as a critical factor influencing young customers' behavior (Plötz *et al.*, 2023; Tiwari and Joshi, 2020; Lina *et al.*, 2022), there is limited research connecting this variable to the relationship between e-LSQ and customer behavior. Identifying and integrating new factors to elucidate the mechanisms through which e-LSQ influences customer behavior holds significant promise for advancing e-LSQ research and offering practical insights for e-commerce businesses. Given the importance of understanding Gen Z customer behavior and the aforementioned gaps, this study aims to address the following research questions:

RQ1. What dimensions are appropriate to represent e-LSQ as perceived by Generation Z customers in the Vietnamese market?

RQ2. To what extent can attitude effectively predict the repurchase intention of Generation Z customers in Vietnam?

RQ3. How does e-LSQ influence the repurchase intention of Generation Z customers in Vietnam?

RQ4. Does attitude serve as a mediator in the relationships between the dimensions of e-LSQ and the repurchase intention of Generation Z customers in Vietnam?

This study focuses on Vietnam, an emerging economy with one of the fastest growth rates in Southeast Asia. Notably, the e-commerce market in Vietnam has experienced rapid expansion, recording a market value of $5 billion in 2019 and it is projected to reach $33 billion by the end of 2025. This growth is primarily fueled by the increasing online purchase of products such as garments, electronics, home appliances and personal hygiene items (Van Nam *et al.*, 2022).

Furthermore, the logistics sector, which plays a critical role in supporting e-commerce, is expanding at an annual rate of 20–25%, with an estimated market value of $50–60 billion. This upward trajectory is anticipated to persist due to the high rate of internet penetration and the growing trend of online shopping (Hai and Quyet, 2023).

This paper is structured into five sections. The first section emphasizes the importance of the research and outlines the key research questions the study aims to address. The second section provides a comprehensive review of the relevant literature and develops the research hypotheses. The third section presents Study 1, which focuses on identifying appropriate dimensions of e-LSQ through qualitative research. The fourth section details the findings from Study 2, which involve in quantitative analyses to validate the measurement scales and test the proposed research hypotheses. Finally, the fifth section includes a thorough discussion of the findings, practical implications and the conclusion.

2. Literature review and hypotheses development

2.1 Cognitive-affective-conative theory

The Cognition-Affection-Conation (CAC) theory is a psychological framework that explains human behavior through three sequential stages: cognition (thinking), affection (feeling) and conation (acting). Specifically, cognition refers to the mental processes involved in acquiring knowledge and understanding through thought, experience and perception. Affection describes the emotional responses or feelings that arise from cognitive evaluations, while conation is often considered the behavioral intention or action resulting from cognitive and affective processes (Neyrinck *et al.*, 2006).

In the context of e-commerce, this theory offers a robust perspective for understanding how customers transition from perceiving services on online platforms to making purchasing decisions (Ding and Lee, 2024). This study proposes a conceptual model based on the CAC theory, wherein: e-LSQ represents cognition, describing customers' perceptions following their experiences; attitude serves as a variable representing their emotional responses to e-LSQ; and finally, repurchase intention is regarded as a behavioral outcome symbolizing conation.

2.2 Logistic service quality

Logistics activities, whether managed in-house or outsourced, aim to meet customer requirements by ensuring convenience in terms of location, timing and condition. This involves making sure that products are delivered to the right place, at the right time and in an undamaged state (Emerson and Grimm, 1996). The evolution of this concept to align with customer expectations signifies the outcome of the logistics process (Grant, 2012). Consequently, a number of studies in the field of logistics and supply chain management have adopted the approach of measuring service quality from the perspective of the service customers, as evidenced by the works of Emerson and Grimm (1996), Mentzer *et al.* (2001), Grant (2004), and Rafiq and Jaafar (2007).

To measure logistics service quality, some authors have focused on physical distribution (Emerson and Grimm, 1996). To evaluate the results of the distribution activities of enterprises to customers, Mentzer *et al.* (1989) introduced a model that was further developed by Bienstock *et al.* (1997), consisting of three factors: timeliness, availability and order condition. From the initial three factors, Mentzer *et al.* (2001) introduced a model with nine factors: information quality, ordering procedure, order release quantity, timeliness, accuracy, order quality/condition, order status, order mishandling and employee contact quality. However, the perspective of the logistics approach of the above studies is not consistent across studies. While Emerson and Grimm (1996) researched the quality of business logistics by surveying retail businesses as customers of a large tool manufacturer, Mentzer *et al.* (2001) surveyed customers of the Defense Logistics Agency, an enterprise providing inbound logistics services for their clients.

Grant (2004) and Rafiq and Jaafar (2007) modified the model of Mentzer *et al.* (2001) in their studies. Grant (2004) investigated logistics service quality in food processing in the UK with a model adapted the from Mentzer *et al.* (1989)'s, including core variables such as availability, time (order cycle time and delivery time) and customer service experience as outputs for a structured model based on actual service experience. Rafiq and Jaafar (2007) have inherited Mentzer *et al.* (2001) and replaced variables of information quality and ordering process with variables of communication, including timeliness, accuracy, completeness and reliability, and adding more variables to the ordering process, namely simplicity, flexibility, time and effort. Rafiq and Jaafar (2007) studied the quality of logistics services provided by 3PL service providers in the UK. The data used for analysis and evaluation is from a survey of corporate customers, including manufacturing companies, wholesalers, retailers and professional service enterprises providing output logistics services (outbound logistics) or both inbound and outbound logistics for your company. Among the studies on logistics service quality from customer experience, many focus on service quality performed by professional logistics service providers for corporate customers (Mentzer *et al.*, 2001; Rafiq and Jaafar, 2007; Phan *et al.*, 2021).

2.3 E-logistics service quality

E-logistics service quality (e-LSQ) comprises various dimensions that collectively define the efficacy and customer satisfaction of logistics services within the e-commerce sector. These dimensions encompass operational factors such as reliability and timeliness, relational elements including empathy and professionalism, and the technological influences that enhance service delivery (Ta *et al.*, 2025; Gil-Saura and Ruiz-Molina, 2011). A thorough understanding and continuous improvement of these dimensions is pivotal in enhancing customer satisfaction and fostering customer loyalty, positioning e-LSQ as a crucial focus area for e-commerce enterprises (Wang *et al.*, 2024; Rao *et al.*, 2011).

Similar to logistics service quality, e-LSQ has seen the continuous development of measurement scales over recent decades, primarily driven by the concurrent growth of e-commerce (Wang *et al.*, 2024; Ta *et al.*, 2025). The dimensions used to represent e-LSQ are varied, encompassing aspects such as operational (Wang *et al.*, 2024), social (Sun and Karia, 2023) and technological factors (Junior *et al.*, 2020). Many of these dimensions are inherited and evolved from theories of service quality and logistics service quality. A comprehensive summary of these dimensions and key studies is detailed in Table 1.

2.4 Attitude and repurchase intention

Attitude and repurchase intention are two pivotal concepts in customer behavior research, and fostering these factors is regarded as a key strategy for market development by businesses (Sahranavard *et al.*, 2024). Attitude towards online shopping is defined as a customer's emotional evaluation, either positive or negative, associated with the act of making purchases via the internet (Chiu *et al.*, 2005). Several prominent theoretical models of behavior, including the Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975), the Technology Acceptance Model (TAM) (Davis, 1989),and the Theory of Planned Behavior (TPB) (Ajzen, 1991), have identified attitude as a critical determinant of individual behavioral outcomes. Meanwhile, repurchase intention refers to a customer's inclination or willingness to repurchase the same brand or product in the future (Xu *et al.*, 2015). This factor is often conceptualized as an outcome of positive product or service experiences, particularly when customers feel satisfied, perceive high value or hold favorable attitudes toward the product or service (Sharma *et al.*, 2024).

3. Study 1: identifying dimensions of e-LSQ for this study

3.1 Methodology

In this study, the identification of dimensions representing e-LSQ was conducted following the procedure outlined by Nguyen *et al.* (2024). This process involved in-depth interviews with

three experts, including two PhD holders specializing in marketing and an experienced logistics professional from e-commerce enterprises. Additionally, focus group discussions were conducted, involving 15 Gen Z customers who actively use e-commerce platforms. The findings from this phase facilitated the selection of dimensions and refinement of measurement scales prior to the quantitative analysis in Study 2. The procedure was as follows:

Step 1: The authors proposed constructs and items for the research model based on a comprehensive literature review.

Step 2: Three in-depth interviews with experts and a focus group discussion with 15 Gen Z customers were conducted to refine the measurement scales and the research model.

Step 3: The reliability of the proposed scales was evaluated using exploratory factor analysis (EFA) and Cronbach's alpha analysis, incorporating feedback from the interviews and involving 75 respondents.

3.2 Results

The research scales were developed with reference to several studies on e-LSQ and customer behavior in e-commerce. Specifically, the items representing e-LSQ were derived from the works of Murfield *et al.* (2017), Griffis *et al.* (2012), Xing and Grant (2006), Rabinovich and Bailey (2004) and Rao *et al.* (2011). The attitude scale was adapted from Vu *et al.* (2023), incorporating items such as "Online shopping in E-commerce is a good idea," "Online shopping in E-commerce is a smart solution" and "I enjoy shopping in E-commerce." Similarly, the repurchase intention scale was informed by Sullivan and Kim (2018), consisting of three items: "If I were to buy the product again, I would likely buy it from the same E-commerce site," "If I could, I would like to reuse this e-commerce site for my next purchase" and "I would like to revisit this E-commerce site to purchase products in the near future."

Before conducting interviews, the items were translated from English to Vietnamese and cross-verified by two linguistic experts. The interviews facilitated the elimination of items that were unsuitable for the research context. Moreover, based on recommendations from experts and customers, several additional items were integrated into the scale, including "Customers can choose/suggest the time of day for delivery," "Deliveries are completed on time," "When out of stock, items are quickly replenished," "E-commerce site offers various delivery options" and "E-commerce site supports item exchanges after delivery." The additional items were selected through a rigorous process. First, they had to be proposed and endorsed by experts then thoroughly discussed during focus group interviews. To pass this stage, the items needed to be validated by customers — the respondents of the focus group interviews — ensuring their alignment with the customers' experiences of e-logistics services. Finally, the items were subjected to pre-testing to ensure their reliability before being officially included in the research measurement scale.

The selected items derived from the qualitative research phase were validated through EFA and Cronbach's alpha reliability analysis, with a sample size of 75 respondents. The results indicated that the items converged into four variable groups representing the four components of e-LSQ (see Table 2), with Cronbach's alpha values exceeding 0.7 for all components. These four concepts – timeliness, availability, condition and return – are components consistently highlighted in the literature on e-LSQ (see Table 3).

Thus, Study 1 identified four dimensions representing e-LSQ along with the corresponding items of the measurement scale. Based on these findings, Study 2 will proceed to formulate research hypotheses and validate the measurement scales as well as the proposed hypotheses.

4. Study 2: assessing the influence of e-LSQ on repurchase intention and mediating effect of attitude

4.1 Hypotheses development

4.1.1 Timeliness and repurchase intention. When an order is placed, customers start forming an expectation towards when they will receive the ordered products for consumption or wait

Table 2. Quantitative analysis and pre-test results

Items and coding	Component and factor loadings in EFA 1	2	3	4	In-depth interview result	Focused group interview result	Source
E-commerce site that supports customers to return items after delivery (RET1)	0.873				3/3	14/15	Adapted from Xing and Grant (2006)
E-commerce site that supports customers to exchange items after delivery (RET2)	0.851				3/3	13/15	
It's easy to exchange/ return items when shopping at e-commerce sites (RET3)	0.767				2/3	13/15	
I think the collection of exchange/return items is done quickly (RET4)	0.803				3/3	12/15	
Orders are always fulfilled (CON1)				0.811	3/3	15/15	Adapted from Murfield *et al.* (2017), Xing and Grant (2006), Rabinovich and Bailey (2004)
Orders made correctly (CON2)				0.861	3/3	15/15	
The item in the order is always delivered without loss (quantity, quality) (CON3)				0.731	3/3	15/15	
Items to buy are always available (AVA1)		0.686			3/3	15/15	Adapted from Murfield *et al.* (2017), Rao *et al.* (2011), Xing and Grant (2006)
When out of stock, items to be purchased are quickly replenished (AVA2)		0.774			3/3	13/15	
When out of stock, replacement items are always available (AVA3)		0.698			3/3	14/15	
E-commerce site with many delivery options (AVA4)		0.794			2/3	12/15	
Customers can track the delivery of orders (AVA5)		0.647			3/3	14/15	
The delivery is done quickly (TIM1)			0.719		3/3	15/15	Adapted from Murfield *et al.* (2017), Griffs *et al.* (2012), Xing and Grant (2006), Rabinovich and Bailey (2004)
The delivery date of the order is clearly/ specifically defined (TIM2)			0.844		3/3	13/15	
Customers can choose/ suggest the time of day to deliver the order (TIM3)			0.677		3/3	12/15	
Deliveries are completed on time (TIM4)			0.847		3/3	15/15	
Cronbach alpha (α) value	0.866	0.800	0.781	0.785			
Eigenvalues	4.415	2.419	2.057	1.668			
KMO = 0.695							
Sig of Bartlett test = 0.000							
The total variance = 65.993%							

Source(s): Authors' own creation

Table 3. Summary of the dimensions of e-LSQ

No	Dimension	Definition	Literature support
1	Timeliness	Timeliness measures the time aspect of logistics service quality. From the customer's perspective in e-commerce, the time they can observe to make a judgment is from when the order is placed to when the order is delivered	Mentzer *et al.* (1989), Murfield *et al.* (2017)
2	Availability	Availability relates to inventory which is ready in stock to satisfy consumer orders	Mentzer *et al.* (1989), Xing and Grant (2006)
3	Condition	Condition is the form and composition of the order delivered (Bienstock *et al.*, 1997). Condition criteria in logistics service quality is evaluated through the fact that orders are delivered in the correct category, in sufficient quantity and without loss of quality	Mentzer *et al.* (1989), Xing and Grant (2006) and Murfield *et al.* (2017)
4	Return	Return is a relevant and necessary element in e-commerce, and includes the process by which products are returned from the point of consumption to a retailer or supplier for repair, resale, recycling, etc.	Tarn *et al.* (2003)

Source(s): Authors' own creation

for the order to be delivered. Therefore, in this respect, customers can observe timeliness based on the speed at which orders are delivered and stability. In addition, in e-commerce, with the support of technology, orders are often delivered to personal addresses (e.g. private homes) where customers sometimes are not available to receive shipments. Therefore, logistics services are also expected to be flexible, allowing customers to choose the date and time to receive orders and the ability to deliver at the time chosen by the customer (Murfield *et al.*, 2017). Many studies found the positive impact of timeliness on satisfaction and loyalty of customer purchasing in e-commerce (Akıl and Ungan, 2022; Murfield *et al.*, 2017). Asghar and Mahmud (2020) indicated specifically that timeliness could improve online purchase intention. Furthermore, delivery speed is recognized as an essential aspect customers consider when selecting a retailer (Riley and Klein, 2021). However, there has not been much investigation into the role of timeliness on attitude and repurchase intention of the Gen Z customer. Based on these arguments, hypothesis H1a is proposed:

H1a. Timeliness has a positive effect on the repurchase intention of Gen Z customers.

4.1.2 Availability and repurchase intention. While shopping within the brick-and-mortar retailing sector, customers can observe availability bywhether an item is on the shelf or not; however, in e-commerce, thanks to the information integration function among the stakeholders and the view of e-commerce platforms, information will be displayed during the transaction whether the item has enough stock to purchase. Customer experience will be worse than their expectations when accessing an e-commerce site when the item they want to buy is unavailable, as well as alternative products and services. In addition, due to the distance between the place and time of purchase and receipt, customers expect logistics services to allow them to control the delivery of orders. Sousa and Voss (2012) stated that convenience, information availability and accessibility are advantages of online channels in the retail sector. Several studies, including one by Heim and Sinha (2001), demonstrated that product availability improves significantly customer loyalty. Particularly, Hausman and Siekpe (2009) and Kumar and Kashyap (2018) posited that product availability critically impacts purchase intention, thus promoting sales. Therefore, this study formulates the following hypothesis:

H1b. Availability has a positive effect on the repurchase intention of Gen Z customers.

4.1.3 Condition and repurchase intention. The successful delivery of an order also reflects the efficient operation of the supporting logistics system. Shopping on e-commerce platforms often does not allow customers to inspect products directly and products go through a shipping process to reach customers (Taher, 2021) and, as a result, customers bear risks when goods are damaged during transportation, when product quality is not as expected or when products are not delivered sufficiently (Xing *et al.*, 2010). Murfield *et al.* (2017) reported that condition is an important component of e-LSQ, promoting customer satisfaction and loyalty. Therefore, if the condition aspect is guaranteed, it can potentially improve customer attitudes and lead them to continue shopping on e-commerce platforms. As such, hypothesis H1c is proposed:

H1c. Condition has a positive effect on the repurchase intention of Gen Z customers.

4.1.4 Return and repurchase intention. Convenient and easy return methods are essential in helping customers use online shopping. Because shopping on e-commerce platforms is limited due to customer inability to check items directly when purchasing, the choice depends heavily on the product information provided on the interface (Taher, 2021). As a result, customers may perceive risks when purchasing goods if the product cannot meet their expectations. Pei *et al.* (2014) emphasize that retailer return policies can vigorously promote customer trust and purchase intention in e-commerce. Similarly, Yu and Kim (2019) stated that online retailers' return policy is an effective method to ensure benefits for customers and can promote customers' purchase intentions. Therefore, hypothesis H1d is proposed:

H1d. Return has a positive effect on the repurchase intention of Gen Z customers.

4.1.5 Attitude and repurchase intention. Several emprical studies have demonstrated that attitude significantly improves customer repurchase intention in various contexts. For example, Vu *et al.* (2023) found a positive influence of attitude on continuance intention of Gen Z customers using food delivery applications. Wang *et al.* (2013) emphasized attitude as a key determinant for improving repurchase intention in remanufactured products consumption. Riley and Klein (2021) illustrated promoting attitude on online purchasing intention of young customers. However, several studies explored the gap between attitude and behavioral intention (Vu *et al.*, 2024) and Nguyen *et al.* (2019) explained the differences between these factors due to financial barriers. Vermeir and Verbeke (2006) reported that the specific gap between attitude and behavioral intention of young customers is dependent on perceived effectiveness. Based on inconsistent results, this study proposes hypothesis H2 to investigate the impact of attitude on repurchase intention of Gen Z customer in the e-commerce context.

H2. Attitude has a positive effect on the repurchase intention of Gen Z customers.

4.1.6 The mediating role of attitude. Despite the significant interest of scholars in the relationship between service quality and purchasing intention, and the diverse array of studies evaluating the impact of service quality on purchasing intention across various contexts (Monoarfa *et al.*, 2024; Huang *et al.*, 2011), gaps in knowledge remain. These include result inconsistencies across different contexts and the subsequent need to explore underlying mechanisms to gain a deeper understanding of service quality's role of in influencing purchasing intention (Kuo *et al.*, 2012; Choudhury, 2013). Consequently, integrating intermediary factors into this relationship is a strategy widely adopted by researchers to provide more comprehensive insights.

Huang *et al.* (2011) identified the mediating role of satisfaction in the relationship between service quality and purchasing intention within the context of hospital studies. Similarly, in a Taiwanese study on mobile phone consumption Liao *et al.* (2022) indicated the existence of an indirect effect of perceived service quality on purchasing intention through two mediators: brand image and customer satisfaction. These studies suggest a transformative process whereby high-quality service perceptions enhance customers' positive attitudes and evaluations of products and services, which, in turn, facilitate outcomes such as repurchase and loyalty (Nasir *et al.*, 2024; Zarei *et al.*, 2019).

However, to the best of our knowledge, no studies have evaluated the mediating role of attitude in the relationships between the dimensions of e-LSQ and the repurchase intention of Gen Z customers in the e-commerce context. This represents a significant research gap, as attitude is often considered a crucial factor in predicting the customer behavior of young customers (Plötz *et al.*, 2023; Tiwari and Joshi, 2020; Lina *et al.*, 2022). According to scholars, service quality can substantially influence customer experience, leading to changes in perception and evaluation of products/services (Nasir *et al.*, 2024; Zarei *et al.*, 2019), thereby resulting in positive behavioral outcomes, potentially including repurchase intention.

This study proposes to evaluate the mediating role of attitude in the relationships among the four dimensions of e-LSQ - timeliness, availability, condition and return–and the repurchase intention of Gen Z customers. The proposed hypotheses are as follows:

H3a. Attitude positively mediates the relationship between timeliness and Gen Z customer repurchase intention.

H3b. Attitude positively mediates the relationship between availability and Gen Z customer repurchase intention.

H3c. Attitude positively mediates the relationship between condition and Gen Z customer repurchase intention.

H3d. Attitude positively mediates the relationship between return and Gen Z customer repurchase intention.

4.2 Research model

Based on hypotheses development section, the proposed research model is depicted as Figure 1.

4.3 Methodology

4.3.1 Data analysis approach. Data from the official survey were collected, and the study employed Structural Equation Modeling (SEM) techniques to assess both measurement and structural models. SEM methodologies are typically categorized into two principal approaches: Covariance-Based SEM (CB-SEM) and Partial Least Squares SEM (PLS-SEM). The PLS-SEM approach is particularly advantageous in predictive research, as it

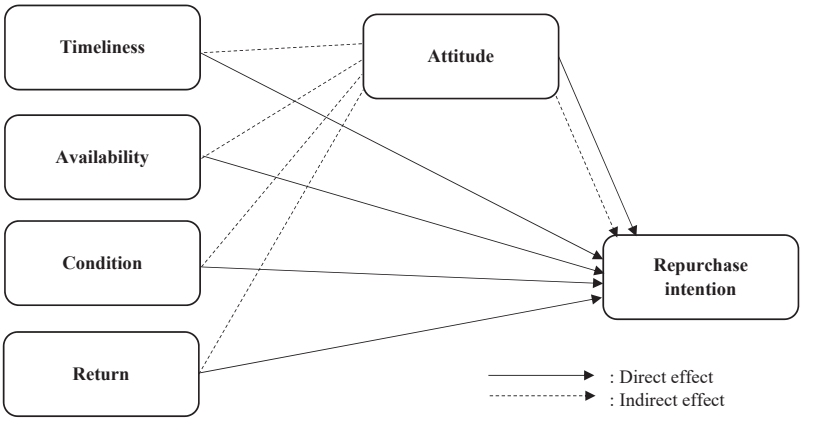

Figure 1. Proposed research model. Source: Authors' own creation

prioritizes maximizing the explained variance of dependent variables. This characteristic renders it especially suitable for studies aimed at identifying key drivers or forecasting outcomes. Furthermore, PLS-SEM is highly appropriate for exploratory research contexts, where uncovering and testing new relationships between latent variables is a critical objective. This method enables researchers to iteratively refine models, ensuring their robustness. A notable strength of PLS-SEM lies in its reduced sensitivity to non-normal data distributions, making it a preferred analytical tool in cases where the dataset does not meet the normality assumptions required by CB-SEM (Usakli and Rasoolimanesh, 2023). In this study, there is a focus on certain paths between the dimensions of e-LSQ and repurchase intention that have remained unexplored in prior research. Additionally, examining the mediating role of attitude represents a novel approach aimed at providing a more comprehensive explanation for repurchase intention. To perform the quantitative analyses, the study utilized SmartPLS software version 4.0.9.2, with evaluation criteria aligned to the thresholds recommended by Hair *et al.* (2017).

4.3.2 Data collection and sample. Following the development of statements to capture observed variables across four dimensions – timeliness, availability, condition and return – as suggested by expert feedback, the authors designed a questionnaire to evaluate customer perceptions of each statement using a seven-point Likert scale. Due to the unavailability of precise information regarding the required sample size for this study, a convenience sampling method was applied. The questionnaires were distributed to various online shopping communities on social media platforms and included a comprehensive introduction to the research topic, ethical assurances stating that the collected data would be used solely for research purposes and clear explanations of the relevant terms before presenting the assessment content. To minimize issues related to self-selection bias, the survey links were continuously reposted on social media platforms to attract a wider range of participants. The data collection process adhered strictly to the principles outlined in the Declaration of Helsinki (General Assembly of the World Medical Association, 2014), ensuring participants were fully informed that their data would be used exclusively for research purposes. In addition, participants were required to confirm their adequate knowledge of the topic and affirm their voluntary participation. Furthermore, to ensure respondents had sufficient recent online shopping experience, the study targeted participants who had completed e-commerce transactions within the past month and who had a clear understanding of e-LSQ during the shopping process. The data collection phase took place from June 2024 to the end of September 2024. After excluding invalid or incomplete responses, the authors retained 290 valid responses from Gen Z customers. A summary of the demographic details of these respondents is presented in Table 4.

4.4 Results

4.4.1 Common method bias. To prevent the appearance of common bias method issue, this study followed the recommendation of Podsakoff *et al.* (2003) during the data collection process. In addition, Harman's single test was performed to evaluate the likelihood of the common bias method before submitting the data to the tests. Harman's single factor test result indicated that the single factor supported less than 50% (32.30%) of the total variance. Notably, the full collinearity assessment indicates that all variance inflation factor (VIF) coefficients for the variables were below 3.3. Hence, the common bias method did not appear in this study (Malhotra *et al.*, 2006; Kock, 2015).

4.4.2 Measurement model assessment. All Cronbach's alpha (α) values for the variables exceed 0.7, ranging from 0.704 to 0.879, and the composite reliability (CR) values are also above 0.7, ranging from 0.834 to 0.917 (Table 5). Each items outer loadings are greater than 0.7, ranging from 0.755 to 0.886. Therefore, the measurement's reliability is confirmed (Hair *et al.*, 2017). The average variance extracted (AVE) values exceed 0.5, with a range from 0.609 to 0.734, ensuring that the convergent validity test results meet the thresholds recommended by Hair *et al.* (2017).

Table 4. Demographic characteristics of sample

Characteristic	*N*	%
Gender		
Male	121	41.72
Female	169	58.28
Age		
15–18	22	7.59
19–23	137	47.24
23–27	131	45.17
Monthly income		
No more than 5,000,000 VND	62	21.38
>5,000,0000 VND – 10,000,000 VND	124	42.76
>10,000,000 VND – 15,000,000 VND	74	25.52
Above 15,000,000 VND	30	10.34
Married status		
Single	179	61.72
Married	104	35.86
Divorced	7	2.42
Education level		
High school or less	3	1.03
Vocational diploma	17	5.86
College degree	53	18.28
University undergraduate degree	170	58.62
Postgraduate degree	47	16.21
Frequency		
Under 1 order/month	18	6.21
1–2 orders/month	41	14.14
3–5 orders/month	73	25.17
6–7 orders/month	80	27.59
8–10 orders/month	52	17.93
11–15 orders/month	12	4.14
Above 15 orders/month	14	4.83

Note(s): 1 USD approximately 25,000,000 VND in conduct survey period
Source(s): Authors' own creation

The analysis of the heterotrait-monotrait (HTMT) ratio revealed that all correlation values were below 0.85. Therefore, in line with the criteria established by Henseler *et al.* (2015), the thresholds for discriminant validity were satisfied (Table 6).

4.4.3 Hypotheses testing. The results of the proposed model testing with 5,000 bootstrap samples are presented in Table 7 and indicate that all four dimensions of e-LSQ have significantly positive impacts on repurchase intention. Timeliness has a specific positive impact on repurchase intention at $\beta = 0.299$, t-value $= 7.409$ and $p < 0.001$. Similarly, the availability has coefficient at $\beta = 0.252$, t-value $= 6.240$, $p < 0.001$; the condition has the impact at $\beta = 0.247$, t-value $= 4.400$ and $p < 0.001$; and the return has $\beta = 0.314$, t-value $= 6.763$ and $p < 0.001$. Thus, hypotheses 1a, 1b, 1c and 1d are supported. H2 tested the positive effect of attitude on the repurchase intention of Gen Z customers. The result confirmed the positive influence of attitude on repurchase intention at $\beta = 0.201$, t-value $= 5.383$ and $p < 0.001$. Thus, H2 is supported.

To test mediation effect attitude in the relationship between four dimensions of e-LSQ and repurchase intention, we tested the indirect effects. The results showed that attitude mediates three out of the four relationships connecting the dimensions–namely, availability, condition

Table 5. Measurement model assessment and descriptive analysis results

Variables	Mean	SD	VIF	Ols	α	rho_a	CR	AVE
Timeliness								
TIM1	4.241	0.817	1.620	0.775	0.834	0.840	0.889	0.668
TIM2	4.414	0.807	1.728	0.812				
TIM3	4.341	0.796	1.868	0.793				
TIM4	4.276	0.767	2.472	0.886				
Availability								
AVA1	4.231	0.910	1.822	0.783	0.840	0.846	0.886	0.609
AVA2	4.293	1.016	2.022	0.829				
AVA3	4.224	0.908	1.664	0.755				
AVA4	4.214	0.931	1.611	0.758				
AVA5	4.290	0.880	1.833	0.775				
Condition								
CON1	4.614	0.874	1.412	0.790	0.739	0.744	0.852	0.658
CON2	4.690	0.884	1.446	0.782				
CON3	4.707	0.781	1.681	0.859				
Return								
RET1	4.928	0.822	2.544	0.859	0.879	0.881	0.917	0.734
RET2	4.741	0.852	2.339	0.860				
RET3	4.593	0.880	2.019	0.840				
RET4	4.731	0.813	2.380	0.867				
Attitude								
ATT1	4.383	0.920	1.473	0.824	0.704	0.709	0.834	0.627
ATT2	4.279	0.949	1.457	0.776				
ATT3	4.572	0.928	1.268	0.775				
Repurchase intention								
RI1	4.617	0.741	1.632	0.835	0.780	0.780	0.872	0.694
RI2	4.583	0.790	1.598	0.829				
RI3	4.676	0.793	1.614	0.835				

Source(s): Authors' own creation

Table 6. The Heterotrait-monotrait (HTMT) ratio analysis result

	(1)	(2)	(3)	(4)	(5)	(6)
(1) Attitude						
(2) Availability	0.353					
(3) Condition	0.457	0.532				
(4) Repurchase intention	0.626	0.638	0.779			
(5) Return	0.380	0.337	0.527	0.679		
(6) Timeliness	0.232	0.283	0.442	0.642	0.278	

Source(s): Authors' own creation

and return — to repurchase intention. In particular, the indirect effects of availability ($\beta = 0.028$, $t = 2.307$, $p < 0.05$), condition ($\beta = 0.037$, $t = 2.301$, $p < 0.05$) and return ($\beta = 0.035$, $t = 2.209$, $p < 0.05$) on repurchase intention through attitude were all statistically significant. In addition, the direct effects between availability, condition and return and repurchase intention with the presence of attitude were still significant. Therefore, attitude partially mediates the relationship between availability, condition, return and repurchase

Table 7. Hypotheses testing and paths analysis result

Paths		β	f^2	*t*-value	*p*-value	95% CIs (bias corrected)	Result
Direct effect							
	Timeliness → Repurchasing intention	0.290	0.203	7.402	0.000	[0.207; 0.363]	Significant
	Availability → Repurchasing intention	0.224	0.110	5.734	0.000	[0.149; 0.303]	Significant
	Condition → Repurchasing intention	0.210	0.082	4.043	0.000	[0.108; 0.316]	Significant
	Return → Repurchasing intention	0.280	0.170	6.371	0.000	[0.193; 0.364]	Significant
H2	Attitude → Repurchasing intention	0.201	0.095	5.383	0.000	[0.129; 0.275]	Significant
	Timeliness → Attitude	0.043		0.663	0.507	[−0.084; 0.169]	Non-significant
	Availability → Attitude	0.140		2.346	0.000	[0.016; 0.253]	Significant
	Condition → Attitude	0.184		2.635	0.008	[0.044; 0.316]	Significant
	Return → Attitude	0.172		2.341	0.019	[0.022; 0.306]	Significant
Total effect							
H1a	Timeliness → Repurchasing intention	0.299		7.409	0.000	[0.216; 0.374]	Significant
H1b	Availability → Repurchasing intention	0.252		6.240	0.000	[0.174; 0.328]	Significant
H1c	Condition → Repurchasing intention	0.247		4.400	0.000	[0.136; 0.360]	Significant
H1d	Return → Repurchasing intention	0.314		6.763	0.000	[0.222; 0.403]	Significant
Indirect effect							
H3a	Timeliness → Attitude → Repurchasing intention	0.009		0.660	0.510	[−0.017; 0.036]	No mediation
H3b	Availability → Attitude → Repurchasing intention	0.028		2.307	0.021	[0.006; 0.055]	Partial mediation
H3c	Condition → Attitude → Repurchasing intention	0.037		2.301	0.021	[0.009; 0.073]	Partial mediation
H3d	Return → Attitude → Repurchasing intention	0.035		2.209	0.027	[0.007; 0.067]	Partial mediation

Note(s): f^2 – effect size; β – standardized estimate
Source(s): Authors' own creation

intention. Thus, H3b, H3c and H3d are supported. In contrast to H3a, the indirect effect of timeliness and repurchase intention through attitude was not significant ($\beta = 0.009$, $t = 0.660$, $p = 0.510$). Thus, H3a is not supported.

Additionally, based on the R-square value, The SEM model accounts for 64.4% of the variance in repurchase intention and 16 per cebt of the variance in attitude. The effect size coefficients (f^2) range from 0.082 to 0.203, corresponding to small and medium levels, respectively.

5. Discussion and conclusion

5.1 Discussion and theoretical implications

This study makes several theoretical contributions. Firstly, building upon prior research conducted in markets such as India, the UK and the US (Jain *et al.*, 2020; Xing and Grant, 2006; Murfield *et al.*, 2017; Rao *et al.*, 2011), this study has developed a measurement scale by incorporating relevant items and validating them in Vietnamese context. Consequently, it provides a highly reliable measurement scale to evaluate e-LSQ from the perspective of Gen Z customers in the Vietnamese market–a rapidly growing economy with substantial potential for e-commerce expansion. These findings contribute significantly to the existing body of research on e-LSQ, enhancing both the understanding and methodologies for assessing service quality.

Furthermore, this study is a pioneering effort in applying the CAC theory by considering e-LSQ as the cognition factor to explain attitude and repurchase intention. The findings reinforce the relevance of CAC theory in predicting customer behavior (Neyrinck *et al.*, 2006; Ding and Lee, 2024). Additionally, the identification of a new role for e-LSQ within the CAC framework opens up further avenues for exploring diverse approaches to evaluating e-LSQ and its impact on customer behavior. With these contributions, the study establishes a solid foundation for future research on related topics, supporting the refinement of measurement scales and the development of research models.

Secondly, this study not only developed a measurement scale reflecting e-LSQ but also assessed the impact of four dimensions – timeliness, availability, condition and return – on the repurchase intention of Gen Z customers. These dimensions collectively explain 64.4% of the variance in repurchase intention, a notably high level compared to similar studies. Specifically, timeliness was identified as a key determinant affecting repurchase intention and this finding aligns with the perspectives of Akıl and Ungan (2022), Murfield *et al.* (2017) and Asghar and Mahmud (2020) regarding the significance of this factor. However, in this study, timeliness emerged as the most influential factor, highlighting that young customers place considerable importance on the delivery of goods being on time as well as their ability to customize delivery times.

This study also highlights the significant role of return in predicting repurchase intentions. These findings align with the observations of Pei *et al.* (2014) and Yu and Kim (2019) regarding the importance of return policies in encouraging customers' purchasing intentions. Gen Z customers, who are typically tech-savvy and have high expectations for their shopping experiences, place considerable importance on return policies (Serravalle *et al.*, 2022). Therefore, return is seen as a critical dimension that enhances the repurchase intention of Gen Z customers.

Furthermore, this study indicates that availability positively impacts the repurchase intention of Gen Z customers. These results support the view that availability can boost sales and attract customers to choose products on e-commerce platforms (Hausman and Siekpe, 2009; Kumar and Kashyap, 2018). In addition, the study demonstrates the roles of availability and condition in influencing the repurchase intention of Gen Z customers, reinforcing the perspectives of several previous studies (Xing *et al.*, 2010; Murfield *et al.*, 2017; Hausman and Siekpe, 2009; Kumar and Kashyap, 2018). The diversity of products and the ability to ensure the quality of goods during transportation are essential to customers' purchasing intentions in

e-commerce. Notably, the gap between attitude and intention does not appear in this study, as attitude has been shown to significantly predict repurchase intention.

Notably, this study makes significant theoretical contributions by uncovering the mediating role of attitude in the relationship between the dimensions of e-LSQ and repurchase intention. To the best of our knowledge, this is the first attempt to demonstrate the mediating role of attitude in these relationships. The findings regarding the indirect effects of condition, availability and return through attitude enrich the understanding of the mechanisms through which e-LSQ influences the repurchase intention of Gen Z customers. Thus, attitude not only has a direct impact but also enhances the influence of e-LSQ on repurchase intention, improving the explanatory power of the research model's dependent variable.

However, contrary to expectations, timeliness does not exhibit a mediating effect through attitude. This outcome can be partly attributed to the fact that many Gen Z customers are still students (ages 15–23) who often have ample time since they are not yet working, reducing time-related pressures and awareness, leading to differences in evaluation and behavior. Additionally, in the Vietnamese market, where customers can receive goods multiple times and on behalf of others, the role of timeliness in repurchase intention through attitude remains unclear. As operational issues related to timeliness are not yet fully addressed, considering timeliness as a criterion for evaluating logistics services in e-commerce may not be widely recognized, resulting in attitude not serving as a mediator between timeliness and repurchase intention.

Finally, this study indicated that attitude positively influenced repurchase intention and its findings strengthen the opinions of Chiu *et al.* (2005), and Riley and Klein (2021) in that a good attitude leads Gen Z customers to shop on e-commerce platforms. Therefore, businesses trading on e-commerce platforms can focus on several communication strategies to raise customer awareness of the advantages of shopping via these methods. In addition, businesses need to improve essential aspects such as the quality of products, perceived usefulness, ease of use and customer service.

5.2 Practical implications

In addition to its theoretical contributions, this study offers practical implications for businesses aiming to enhance their e-commerce operations based on e-LSQ. Identifying the four crucial dimensions that constitute e-LSQ allows businesses to strategically and efficiently allocate resources to improve these specific aspects. This study suggests solutions for managing delivery teams, optimizing order distribution systems and meeting strict time requirements to enhance timeliness. Moreover, providing options for customizing delivery locations and times should be considered to increase customer convenience.

Businesses must also focus on forecasting market demand to develop effective storage solutions and ensure product availability for customers. Since transactions occur online, enterprises need to improve the quality of information provided, ensuring it is accurate, timely and detailed to support customers effectively. In addition, given that young customers often have limited financial budgets, guaranteeing the condition of goods is crucial for customer retention. This study provides empirical evidence that Gen Z customers prioritize the condition of products when deciding whether to continue using logistics and e-commerce services. Therefore, inadequate quantity or quality of delivered goods can significantly impact the perceived financial benefits, making it essential for businesses to have commitment policies to fulfill orders accurately and adequately. It is also vital that emphasis is put on product packaging practices to prevent damage during delivery.

Furthermore, this study highlights the importance of the return dimension and illustrates that product return policies should focus on enhancing customer benefits. The current e-commerce business environment in Vietnam faces ethical challenges where products may not match their advertisements. Therefore, return and exchange activities are crucial for creating a transparent business environment and protecting customer interests.

The discovery of the mediating mechanism of attitude suggests that improving customers' attitudes involves helping them recognize the usefulness and advantages of e-commerce shopping, particularly regarding aspects based on e-LSQ such as convenience, time savings, diverse choices and return policies. These solutions will make the enhancement of e-LSQ more meaningful and effective.

5.3 Conclusion, limitations and future research

E-commerce has grown rapidly over the past 2 decades, significantly altering customer habits and increasing market competition for customer goods. This study utilizes various research methods to identify and evaluate the impact of several e-LSQ dimensions on the repurchase intentions of Gen Z customers in Vietnam. The findings diversify academic resources and offer new insights into the role of e-LSQ in customer behavior. Additionally, the results reveal novel findings, such as the mediating role of attitude, suggesting that future studies should continue to explore and incorporate new factors to better explain the relationship between e-LSQ and customer behavior in the e-commerce context. Moreover, the study proposes practical implications for businesses to enhance the repurchase intentions of Gen Z customers based on e-LSQ, aiming for sustainable development.

Although this study has addressed the proposed research questions, there remain certain limitations that future studies should aim to overcome for a more comprehensive understanding. Due to the limited scope of sample collection, which was restricted to Vietnam, and the use of convenience sampling methods, this study is unable to compare findings across different national markets. This may limit the generalizability of the research. Moreover, the relatively modest sample size compared to the overall population raises concerns about representativeness. In particular, demographic and personal characteristics were not included in the analysis, suggesting that future research could focus on these variables to provide additional valuable insights for businesses. Additionally, the measurement scales developed in this study are based solely on customer perceptions and other stakeholders, such as suppliers and e-commerce business partners, have not been considered, indicating that future studies should adopt a multi-stakeholder approach to develop various measurement scales tailored to different groups. Lastly, the remarkable technological advancements in recent years underscore the need for future studies to continue exploring and updating new dimensions that represent e-LSQ, as well as their impact on customer behavior.

References

Abusalma, A., Al-Daoud, K.I., Mohammad, S.I. and Vasudevan, A. (2024), "Elevating customer satisfaction: the crucial role of electronic service quality in today's digital landscape'", *International Review of Management and Marketing*, Vol. 14 No. 6, pp. 372-377, doi: 10.32479/irmm.17601.

Ajzen, I. (1991), "The theory of planned behavior", *Organizational Behavior and Human Decision Processes*, Vol. 50 No. 2, pp. 179-211, doi: 10.1016/0749-5978(91)90020-t.

Akıl, S. and Ungan, M.C. (2022), "E-commerce logistics service quality: customer satisfaction and loyalty", *Journal of Electronic Commerce in Organizations*, Vol. 20 No. 1, pp. 1-19.

Asghar, S. and Mahmud, B. (2020), "Impact of efficient logistics and e-WOM regarding online purchase intentions of university students in Karachi", *IOP Conference Series: Materials Science and Engineering*, Vol. 780 No. 6, 062015, doi: 10.1088/1757-899x/780/6/062015.

Bienstock, C.C., Mentzer, J.T. and Bird, M.M. (1997), "Measuring physical distribution service quality", *Journal of the Academy of Marketing Science*, Vol. 25 No. 1, pp. 31-44, doi: 10.1177/0092070397251004.

Büyüközkan, G., Feyzioğlu, O. and Nebol, E. (2008), "Selection of the strategic alliance partner in logistics value chain", *International Journal of Production Economics*, Vol. 113 No. 1, pp. 148-158, doi: 10.1016/j.ijpe.2007.01.016.

Chiu, Y.B., Lin, C.P. and Tang, L.L. (2005), "Gender differs: assessing a model of online purchase intentions in e-tail service", *International Journal of Service Industry Management*, Vol. 16 No. 5, pp. 416-435, doi: 10.1108/09564230510625741.

Choudhury, K. (2013), "Service quality and customers' purchase intentions: an empirical study of the Indian banking sector", *International Journal of Bank Marketing*, Vol. 31 No. 7, pp. 529-543, doi: 10.1108/ijbm-02-2013-0009.

Christopher, M. (2016), *Logistics and Supply Chain Management*, Pearson, Harlow, England.

Dabija, D.C. and Lung, L. (2019), "Millennials versus Gen Z: online shopping behaviour in an emerging market", *Applied Ethics for Entrepreneurial Success: Recommendations for the Developing World: 2018 Griffiths School of Management Annual Conference (GSMAC) on Business, Entrepreneurship and Ethics 9*, Springer International Publishing, pp. 1-18.

Davis, F.D. (1989), "Perceived usefulness, perceived ease of use, and user acceptance of information technology", *MIS Quarterly*, Vol. 13 No. 3, pp. 319-340, doi: 10.2307/249008.

Ding, J. and Lee, E.S. (2024), "Promoting consumers' sustainable consumption of online retail cold chain logistics services: extended applications of SOR and cognitive-affective-conative theories", *Behavioral Sciences*, Vol. 14 No. 9, p. 771, doi: 10.3390/bs14090771.

Do, Q.H., Kim, T.Y. and Wang, X. (2023), "Effects of logistics service quality and price fairness on customer repurchase intention: the moderating role of cross-border e-commerce experiences", *Journal of Retailing and Consumer Services*, Vol. 70, 103165, doi: 10.1016/j.jretconser.2022.103165.

Emerson, C.J. and Grimm, C.M. (1996), "Logistics and marketing components of customer service: an empirical test of the Mentzer, Gomes and Krapfel model", *International Journal of Physical Distribution and Logistics Management*, Vol. 26 No. 8, pp. 29-42, doi: 10.1108/09600039610128258.

Fishbein, M. and Ajzen, I. (1975), *Belief, Attitude, Intention and Behaviour: an Introduction to Theory and Research*, Addison-Wesley, Reading, MA.

Fromm, J. (2018), "How much financial influence does Gen Z have?", available at: https://www.forbes.com/sites/jefffromm/2018/01/10/what-you-need-to-know-about-the-financial-impact-of-gen-z-influence/?sh=37fc8cf556fc

General Assembly of the World Medical Association (2014), "World medical association declaration of Helsinki: ethical principles for medical research involving human subjects", *The Journal of the American College of Dentists*, Vol. 81 No. 3, pp. 14-18.

Gil-Saura, I. and Ruiz-Molina, M.E. (2011), "Logistics service quality and buyer–customer relationships: the moderating role of technology in B2B and B2C contexts", *The Service Industries Journal*, Vol. 31 No. 7, pp. 1109-1123, doi: 10.1080/02642060903100380.

Gonzalez, J.N., Garrido, L. and Vassallo, J.M. (2023), "Exploring stakeholders' perspectives to improve the sustainability of last mile logistics for e-commerce in urban areas", *Research in Transportation Business and Management*, Vol. 49, 101005, doi: 10.1016/j.rtbm.2023.101005.

Grant, D.B. (2004), "UK and US management styles in logistics: different strokes for different folks?", *International Journal of Logistics Research and Applications*, Vol. 7 No. 3, pp. 181-197, doi: 10.1080/13675560412331298433.

Grant, D.B. (2012), *Logistics Management*, Pearson, Harlow.

Griffis, S.E., Rao, S., Goldsby, T.J., Voorhees, C.M. and Iyengar, D. (2012), "Linking order fulfillment performance to referrals in online retailing: an empirical analysis", *Journal of Business Logistics*, Vol. 33 No. 4, pp. 279-294, doi: 10.1111/jbl.12002.

Hai, D.T. and Quyet, N.X. (2023), "Analysis of factors affecting e-logistics services on urban management at Hochiminh City, Vietnam", *E3S Web of Conferences*, Vol. 403, 04002, EDP Sciences, doi: 10.1051/e3sconf/202340304002.

Hair, J.F. Jr, Matthews, L.M., Matthews, R.L. and Sarstedt, M. (2017), "PLS-SEM or CB-SEM: updated guidelines on which method to use", *International Journal of Multivariate Data Analysis*, Vol. 1 No. 2, pp. 107-123, doi: 10.1504/ijmda.2017.087624.

Hausman, A.V. and Siekpe, J.S. (2009), "The effect of web interface features on consumer online purchase intentions", *Journal of Business Research*, Vol. 62 No. 1, pp. 5-13, doi: 10.1016/j.jbusres.2008.01.018.

Heim, G.R. and Sinha, K.K. (2001), "Operational drivers of customer loyalty in electronic retailing: an empirical analysis of electronic food retailers", *Manufacturing and Service Operations Management*, Vol. 3 No. 3, pp. 264-271, doi: 10.1287/msom.3.3.264.9890.

Henseler, J., Ringle, C.M. and Sarstedt, M. (2015), "A new criterion for assessing discriminant validity in variance-based structural equation modeling", *Journal of the Academy of Marketing Science*, Vol. 43 No. 1, pp. 115-135, doi: 10.1007/s11747-014-0403-8.

Huang, Y.Y., Li, S.J. and Yang, M.M. (2011), "How and when service quality and satisfaction simultaneously influence purchase intentions?", *Health Services Management Research*, Vol. 24 No. 3, pp. 121-129, doi: 10.1258/hsmr.2011.011007.

Jain, N.K., Gajjar, H. and Shah, B.J. (2020), "Electronic logistics service quality and repurchase intention in e-tailing: catalytic role of shopping satisfaction, payment options, gender and returning experience", *Journal of Retailing and Consumer Services*, Vol. 59, 102360, doi: 10.1016/j.jretconser.2020.102360.

Joong-Kun Cho, J., Ozment, J. and Sink, H. (2008), "Logistics capability, logistics outsourcing and firm performance in an e-commerce market", *International Journal of Physical Distribution and Logistics Management*, Vol. 38 No. 5, pp. 336-359, doi: 10.1108/09600030810882825.

Junior, D.S.G., Sant'anna, C.H.M.D., Soares, E.J.O., Melo, F.J.C.D. and Medeiros, D.D.D. (2020), "Measurement of logistics service quality of e-commerce", *International Journal of Logistics Systems and Management*, Vol. 37 No. 1, pp. 1-17, doi: 10.1504/ijlsm.2020.109668.

Kock, N. (2015), "Common method bias in PLS-SEM: a full collinearity assessment approach", *International Journal of E-Collaboration*, Vol. 11 No. 4, pp. 1-10, doi: 10.4018/ijec.2015100101.

Kumar, A. and Kashyap, A.K. (2018), "Leveraging utilitarian perspective of online shopping to motivate online shoppers", *International Journal of Retail and Distribution Management*, Vol. 46 No. 3, pp. 247-263, doi: 10.1108/ijrdm-08-2017-0161.

Kuo, N.T., Chang, K.C., Chen, M.C. and Hsu, C.L. (2012), "Investigating the effect of service quality on customer post-purchasing behaviors in the hotel sector: the moderating role of service convenience", *Journal of Quality Assurance in Hospitality and Tourism*, Vol. 13 No. 3, pp. 212-234, doi: 10.1080/1528008x.2012.645200.

Lestari, D. (2019), "Measuring e-commerce adoption behaviour among Gen Z in Jakarta, Indonesia", *Economic Analysis and Policy*, Vol. 64, pp. 103-115, doi: 10.1016/j.eap.2019.08.004.

Li, H. and Suomi, R. (2008), "Dimensions of e-service quality: an alternative model", *2008 Second International Conference on Future Generation Communication and Networking Symposia*, Vol. 1, pp. 29-35, doi: 10.1109/fgcns.2008.104.

Liao, S.H., Hu, D.C. and Chou, H.L. (2022), "Consumer perceived service quality and purchase intention: two moderated mediation models investigation", *Sage Open*, Vol. 12 No. 4, doi: 10.1177/21582440221139469.

Lina, Y., Hou, D. and Ali, S. (2022), "Impact of online convenience on Generation Z online impulsive buying behavior: the moderating role of social media celebrity", *Frontiers in Psychology*, Vol. 13, 951249, doi: 10.3389/fpsyg.2022.951249.

Malhotra, N.K., Kim, S.S. and Patil, A. (2006), "Common method variance in IS research: a comparison of alternative approaches and a reanalysis of past research", *Management Science*, Vol. 52 No. 12, pp. 1865-1883, doi: 10.1287/mnsc.1060.0597.

Mentzer, J.T., Gomes, R. and Krapfel, R.E. (1989), "Physical distribution service: a fundamental marketing concept?", *Journal of the Academy of Marketing Science*, Vol. 17 No. 1, pp. 53-62, doi: 10.1177/009207038901700107.

Mentzer, J.T., Flint, D.J. and Hult, G.T.M. (2001), "Logistics service quality as a segment-customized process", *Journal of Marketing*, Vol. 65 No. 4, pp. 82-104, doi: 10.1509/jmkg.65.4.82.18390.

Miller, J. and Lu, W. (2018), "Gen Z is set to outnumber millennials within a year", available at: https://www.bloomberg.com/news/articles/2018-08-20/gen-z-to-outnumber-millennials-within-a-year-demographic-trends?leadSource=uverify%20wall

Minh, A. (2022a), "Hanoi is the second in the rank of e-commerce index", Vietnam Government Portal, available at: https://thanglong.chinhphu.vn/ha-noi-dung-thu-hai-trong-xep-hang-chi-so-thuong-mai-dien-tu-103220519143109051.htm

Minh, N. (2022b), "Gen Z generation 'holds' the future of consumption", available at: https://vneconomy.vn/the-he-gen-z-nam-giu-tuong-lai-tieu-dung.htm

Monoarfa, T.A., Sumarwan, U., Suroso, A.I. and Wulandari, R. (2024), "The crucial role of e-logistic service quality to integrated theories to predict continuance intention on fresh produce e-commerce", *Cogent Business and Management*, Vol. 11 No. 1, 2379569, doi: 10.1080/23311975.2024.2379569.

Murfield, M., Boone, C.A., Rutner, P. and Thomas, R. (2017), "Investigating logistics service quality in omni-channel retailing", *International Journal of Physical Distribution and Logistics Management*, Vol. 47 No. 4, pp. 263-296, doi: 10.1108/ijpdlm-06-2016-0161.

Nasir, M., Rajkumari, Y. and Adil, M. (2024), "After-sales service and brand reputation: a case of kitchen appliance industry", *International Journal of Quality and Service Sciences*, Vol. 16 No. 3, pp. 413-431, doi: 10.1108/ijqss-08-2023-0115.

Neyrinck, B., Vansteenkiste, M., Lens, W., Duriez, B. and Hutsebaut, D. (2006), "Cognitive, affective and behavioral correlates of internalization of regulations for religious activities", *Motivation and Emotion*, Vol. 30 No. 4, pp. 321-332, doi: 10.1007/s11031-006-9048-3.

Nguyen, L.H. and Nguyen, H.P. (2020), "Generation Z in Vietnam: the quest for authenticity", in *The New Generation Z in Asia: Dynamics, Differences, Digitalisation*, Emerald Publishing, pp. 135-148.

Nguyen, H.V., Nguyen, N., Nguyen, B.K., Lobo, A. and Vu, P.A. (2019), "Organic food purchases in an emerging market: the influence of consumers' personal factors and green marketing practices of food stores", *International Journal of Environmental Research and Public Health*, Vol. 16 No. 6, p. 1037, doi: 10.3390/ijerph16061037.

Nguyen, H.V., Vu, T.D., Saleem, M. and Yaseen, A. (2024), "The influence of service quality on student satisfaction and student loyalty in Vietnam: the moderating role of the university image", *Journal of Trade Science*, Vol. 12 No. 1, pp. 37-59, doi: 10.1108/jts-12-2023-0032.

Parasuraman, A., Zeithaml, V.A. and Malhotra, A. (2005), "ES-QUAL: a multiple-item scale for assessing electronic service quality", *Journal of Service Research*, Vol. 7 No. 3, pp. 213-233.

Pei, Z., Paswan, A. and Yan, R. (2014), "E-tailer′s return policy, consumer′s perception of return policy fairness and purchase intention", *Journal of Retailing and Consumer Services*, Vol. 21 No. 3, pp. 249-257, doi: 10.1016/j.jretconser.2014.01.004.

Phan, T.M., Thai, V.V. and Vu, T.P. (2021), "Port service quality (PSQ) and customer satisfaction: an exploratory study of container ports in Vietnam", *Maritime Business Review*, Vol. 6 No. 1, pp. 72-94, doi: 10.1108/mabr-01-2020-0003.

Plötz, S., Martinez, L.M., Martinez, L.F. and Ramos, F.R. (2023), "The influence of TikTok videos on German Gen Z consumers' attitude and purchase intention towards sustainable brands'", *Digital Marketing & eCommerce Conference*, Cham, Springer Nature Switzerland, pp. 270-289.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y. and Podsakoff, N.P. (2003), "Common method biases in behavioral research: a critical review of the literature and recommended remedies", *Journal of Applied Psychology*, Vol. 88 No. 5, p. 879.

Rabinovich, E. and Bailey, J.P. (2004), "Physical distribution service quality in Internet retailing: service pricing, transaction attributes, and firm attributes", *Journal of Operations Management*, Vol. 21 No. 6, pp. 651-672, doi: 10.1016/j.jom.2003.11.004.

Rafiq, M. and Jaafar, H.S. (2007), "Measuring customers' perceptions of logistics service quality of 3PL service providers", *Journal of Business Logistics*, Vol. 28 No. 2, pp. 159-175, doi: 10.1002/j.2158-1592.2007.tb00062.x.

Rao, S., Goldsby, T.J., Griffis, S.E. and Iyengar, D. (2011), "Electronic logistics service quality (e-LSQ): its impact on the customer's purchase satisfaction and retention", *Journal of Business Logistics*, Vol. 32 No. 2, pp. 167-179, doi: 10.1111/j.2158-1592.2011.01014.x.

Rashid, D.A. and Rasheed, D.R. (2024), "Logistics service quality and product satisfaction in e-commerce", *Sage Open*, Vol. 14 No. 1, doi: 10.1177/21582440231224250.

Riley, J.M. and Klein, R. (2021), "How logistics capabilities offered by retailers influence millennials' online purchasing attitudes and intentions", *Young Consumers*, Vol. 22 No. 1, pp. 131-151, doi: 10.1108/yc-12-2018-0889.

Sahranavard, S.A., Oney, E. and Aghaei, I. (2024), "Consumer's e-lifestyle and repurchase intention in online food ordering services: exploring the role of e-WOM and habit", *Technological Forecasting and Social Change*, Vol. 208, 123647, doi: 10.1016/j.techfore.2024.123647.

Seemiller, C. and Grace, M. (2016), *Generation Z Goes to College*, Jossey-Bass, San Francisco.

Serravalle, F., Vannucci, V. and Pantano, E. (2022), "'Take it or leave it?': Evidence on cultural differences affecting return behaviour for Gen Z", *Journal of Retailing and Consumer Services*, Vol. 66, 102942, doi: 10.1016/j.jretconser.2022.102942.

Sharma, N. and Dutta, N. (2025), "Generational dynamics of omnichannel customers: analysing shopping preferences across diverse product types", *International Journal of Retail and Distribution Management*, Vol. 53 No. 4, pp. 312-330, doi: 10.1108/IJRDM-04-2024-0173.

Sharma, P., Srivastava, A., Sharma, V., Singh, N. and Nijjer, S. (2024), "Understanding consumer repurchase intentions towards luxury retail brands: evidence from an emerging market", *Journal of Retailing and Consumer Services*, Vol. 76, 103570, doi: 10.1016/j.jretconser.2023.103570.

Sousa, R. and Voss, C. (2012), "The impacts of e-service quality on customer behaviour in multi-channel e-services", *Total Quality Management and Business Excellence*, Vol. 23 Nos 7-8, pp. 789-806, doi: 10.1080/14783363.2012.661139.

Sullivan, Y.W. and Kim, D.J. (2018), "Assessing the effects of consumers' product evaluations and trust on repurchase intention in e-commerce environments", *International Journal of Information Management*, Vol. 39, pp. 199-219, doi: 10.1016/j.ijinfomgt.2017.12.008.

Sun, J. and Karia, N.B. (2023), "Innovative approaches to assessing cold chain logistics in B2C e-commerce environments", *Journal of the Knowledge Economy*, Vol. 15 No. 3, pp. 1-30, doi: 10.1007/s13132-023-01669-z.

Ta, H., Esper, T.L., Rossiter Hofer, A. and Sodero, A. (2023), "Crowdsourced delivery and customer assessments of e-logistics service quality: an appraisal theory perspective", *Journal of Business Logistics*, Vol. 44 No. 3, pp. 345-368, doi: 10.1111/jbl.12327.

Ta, H., Esper, T.L., Hofer, A.R. and Sodero, A.C. (2025), "Reconceptualizing e-logistics service quality (e-LSQ) in emerging contexts: the case of crowdsourced delivery", *Journal of Business Logistics*, Vol. 46 No. 1, e12401, doi: 10.1111/jbl.12401.

Taher, G. (2021), "E-commerce: advantages and limitations", *International Journal of Academic Research in Accounting, Finance and Management Sciences*, Vol. 11 No. 1, pp. 153-165, doi: 10.6007/ijarafms/v11-i1/8987.

Tarn, J.M., Razi, M.A., Wen, H.J. and Perez, A.A. Jr (2003), "E-fulfillment: the strategy and operational requirements", *Logistics Information Management*, Vol. 16 No. 5, pp. 350-362.

Tiwari, P. and Joshi, H. (2020), "Factors influencing online purchase intention towards online shopping of Gen Z", *International Journal of Business Competition and Growth*, Vol. 7 No. 2, pp. 175-187, doi: 10.1504/ijbcg.2020.111944.

Turban, E., Outland, J., King, D., Lee, J.K., Liang, T.P., Turban, D.C. and Turban, D.C. (2018), "Order fulfillment along the supply chain in e-commerce", in *Electronic Commerce 2018: A Managerial and Social Networks Perspective*, pp. 501-534.

Usakli, A. and Rasoolimanesh, S.M. (2023), "Which SEM to use and what to report? A comparison of CB-SEM and PLS-SEM", in *Cutting Edge Research Methods in Hospitality and Tourism*, Emerald Publishing, pp. 5-28.

Uvet, H., Dickens, J., Anderson, J., Glassburner, A. and Boone, C.A. (2024), "A hybrid e-logistics service quality approach: modeling the evolution of B2C e-commerce", *The International Journal of Logistics Management*, Vol. 35 No. 4, pp. 1303-1331, doi: 10.1108/ijlm-06-2023-0238.

Van Nam, T., Quynh, N.T.N., Chung, P.D. and Giglione, T.G. (2022), "Megatrends for e-commerce online dispute resolution in Vietnam", *International Journal of Ecosystems and Ecology Sciences*, Vol. 12 No. 3, pp. 175-184, doi: 10.31407/ijees12.323.

Vasić, N., Kilibarda, M., Andrejić, M. and Jović, S. (2021), "Satisfaction is a function of users of logistics services in e-commerce", *Technology Analysis and Strategic Management*, Vol. 33 No. 7, pp. 813-828, doi: 10.1080/09537325.2020.1849610.

Vermeir, I. and Verbeke, W. (2006), "Sustainable food consumption: exploring the consumer 'attitude–behavioral intention' gap", *Journal of Agricultural and Environmental Ethics*, Vol. 19 No. 2, pp. 169-194, doi: 10.1007/s10806-005-5485-3.

Vieira, J., Frade, R., Ascenso, R., Prates, I. and Martinho, F. (2020), "Generation Z and key-factors on e-commerce: a study on the Portuguese tourism sector", *Administrative Sciences*, Vol. 10 No. 4, p. 103, doi: 10.3390/admsci10040103.

Vu, N.H. (2024), "Vietnam's e-commerce sector outlook in 2024", available at: https://www.vietnam-briefing.com/news/vietnams-e-commerce-sector-outlook-in-2024.html/#:~:text=As%20of%202024%2C%20approximately%2057,consumers%20belonging%20to%20Gen%20Z

Vu, T.P., Grant, D.B. and Menachof, D.A. (2020), "Exploring logistics service quality in Hai Phong, Vietnam", *The Asian Journal of Shipping and Logistics*, Vol. 36 No. 2, pp. 54-64, doi: 10.1016/j.ajsl.2019.12.001.

Vu, T.D., Nguyen, H.V., Vu, P.T., Tran, T.H.H. and Vu, V.H. (2023), "Gen Z customers' continuance intention in using food delivery application in an emerging market: empirical evidence from Vietnam", *Sustainability*, Vol. 15 No. 20, 14776, doi: 10.3390/su152014776.

Vu, T.D., Nguyen, T.M.N. and Vu, P.T. (2024), "Exploring young customers' purchasing intention for solar appliances in an emerging market: evidence from structural equation modeling approach", *International Journal of Energy Sector Management*. doi: 10.1108/IJESM-07-2024-0031.

Vu, T.D., Vu, P.T., Tran, T.H.H. and Nguyen, T.H. (2025), "'Fostering providers' continuance intention to participate sharing economy: insights from food delivery application service in Vietnam'", *Journal of Asia Business Studies*. doi: 10.1108/JABS-07-2024-0415.

Wang, Y., Wiegerinck, V., Krikke, H. and Zhang, H. (2013), "Understanding the purchase intention towards remanufactured product in closed-loop supply chains: an empirical study in China", *International Journal of Physical Distribution and Logistics Management*, Vol. 43 No. 10, pp. 866-888, doi: 10.1108/ijpdlm-01-2013-0011.

Wang, L., Tang, Y.M., Chau, K.Y. and Zheng, X. (2024), "Empirical research of cold-chain logistics service quality in fresh product e-commerce", *Journal of Theoretical and Applied Electronic Commerce Research*, Vol. 19 No. 3, pp. 2543-2556, doi: 10.3390/jtaer19030122.

Xing, Y. and Grant, D.B. (2006), "Developing a framework for measuring physical distribution service quality of multi-channel and 'pure player' internet retailers", *International Journal of Retail and Distribution Management*, Vol. 34 Nos 4/5, pp. 278-289, doi: 10.1108/09590550610660233.

Xing, Y., Grant, D.B., McKinnon, A.C. and Fernie, J. (2010), "Physical distribution service quality in online retailing", *International Journal of Physical Distribution and Logistics Management*, Vol. 40 No. 5, pp. 415-432, doi: 10.1108/09600031011052859.

Xu, C., Peak, D. and Prybutok, V. (2015), "A customer value, satisfaction, and loyalty perspective of mobile application recommendations", *Decision Support Systems*, Vol. 79, pp. 171-183, doi: 10.1016/j.dss.2015.08.008.

Yu, Y. and Kim, H.S. (2019), "Online retailers' return policy and prefactual thinking: an exploratory study of USA and China e-commerce markets", *Journal of Fashion Marketing and Management: International Journal*, Vol. 23 No. 4, pp. 504-518, doi: 10.1108/jfmm-01-2019-0010.

Zarei, G., Asgarnezhad Nuri, B. and Noroozi, N. (2019), "The effect of Internet service quality on consumers' purchase behavior: the role of satisfaction, attitude, and purchase intention", *Journal of Internet Commerce*, Vol. 18 No. 2, pp. 197-220, doi: 10.1080/15332861.2019.1585724.

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