Nasrudin et al. *Journal of Consumer Sciences* (2025), *10*(2), 343-375
DOI: https://doi.org/10.29244/jcs.10.2.343-375

JOURNAL OF CONSUMER SCIENCES

MARKETING | RESEARCH ARTICLE

Unraveling the Dynamics Between Advanced Technology, Logistics Customer Service, and Logistics Performance to Boost Customer Retention: Evidence from Shopee Express

Muhamad Faisal Nasrudin[1*)], Agus Purnomo[1], Melia Eka Lestiani[1]

Article history:
Received
March 25, 2025

Revision submit
April 14, 2025
May 13, 2025
May 23, 2025
May 28, 2025
June 12, 2025

Accepted
July 24, 2025

Available online
July 31, 2025

Author Affiliation:
[1]Department of Logistics Management, Faculty of Logistics, Technology and Business, Universitas Logistik dan Bisnis Internasional, Jl. Sariasih No.54, Sarijadi, Kec. Sukasari, Kota Bandung, Jawa Barat, Indonesia 40151

*Corresponding author:
211230015@std.ulbi.ac.id

Abstract:
Background:
In a competitive logistics industry, companies face mounting pressure to meet customer expectations while maintaining operational efficiency. The adoption of advanced technology and enhanced logistics customer service has become essential for achieving timely delivery and customer satisfaction, directly influencing logistics performance and sustainable customer retention. However, empirical studies examining these factor interactions within West Java's logistics sector remain limited.
Purpose: This study investigates the direct influence of Advanced Technology (AT) and Logistics Customer Service (LCS) on Customer Retention (CR) and examines the mediating role of Logistics Performance (LP).
Method: This quantitative research employed a cross-sectional survey using structured questionnaires distributed to 385 Shopee Express customers in West Java through non-probability sampling. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) to assess both direct and indirect effects.
Findings: The analysis reveals that both AT and LCS have a significant and positive impact on CR. LP partially mediates these relationships, highlighting that operational improvements reinforce direct effects of technological and service enhancements while serving as a critical pathway to strengthening customer loyalty.
Conclusions: The study demonstrates that integrating advanced technological solutions with high-quality logistics customer service can significantly improve logistics performance, thereby strengthening customer retention.
Research implication: Logistics providers in competitive e-commerce contexts should invest in digital innovations and robust service frameworks to secure a sustainable competitive advantage. Future research should employ longitudinal or mixed-methods designs with a broader geographic scope and explore additional factors, such as operational innovation and organizational culture.

Keywords: advanced technology, customer retention, e-commerce logistics, logistics customer service, logistics performance

JEL Classification : 033, M31, R41

Muhamad Faisal Nasrudin

ABOUT THE AUTHORS

Muhamad Faisal Nasrudin completed his Bachelor of Logistics Management at the University of Logistics and International Business. He worked as a teaching assistant in the Bachelor of Logistics Management Study Program. He can be reached at 211230015@std.ulbi.ac.id.

Agus Purnomo is a full time Professor at the Department of Master Logistics Management, Universitas Logistik Dan Bisnis Internasional. His research experience is in the field of Logistics and Supply Chain Management. He can be contacted at email: aguspurnomo@ulbi.ac.id

Melia Eka Lestiani is a full time lecturer at the Magister of Logistics Management Department, University of Logistics and International Business. Her research experience is in the field of Logistics Transportation. She can be contacted via email: meliaeka@ulbi.ac.id

PUBLIC INTEREST STATEMENT

This study explores the integration dynamics between advanced technology, logistics customer service, and logistics performance in an effort to improve customer retention, specifically in the context of Shopee Express in West Java. This study has important value because it not only shows how digital innovation and improved service quality can drive operational efficiency and customer loyalty, but also provides a strategic contribution for practitioners in facing changes and competition in the e-commerce era. However, this research is also characterized by a number of challenges, including limitations in knowing the number of Shopee Express users in West Java, as well as a limited sample size, a specific focus on e-commerce logistics at Shopee Express, and a limited geographical context that only covers the West Java area. Nevertheless, by overcoming these challenges, this research still presents in-depth insights that can be used as a basis for developing logistics strategies and operational innovations in the e-commerce sector.

By acknowledging and elaborating on these challenges, this research not only enhances the understanding of the role of technology and customer service in maximizing logistics performance and customer retention, but also opens up opportunities for future research to address the existing limitations through a broader and more comprehensive approach. The results of this study are expected to provide strategic inputs for logistics service providers to effectively integrate technology solutions and improve service quality, and optimize innovation to retain customers and compete in the ever-evolving dynamics of the e-commerce market.

JOURNAL OF CONSUMER SCIENCES

1. Introduction

Digital transformation has become the cornerstone of competitive advantage in the logistics industry, leveraging cutting-edge tools such as big data analytics, artificial intelligence, and cloud computing to automate workflows, optimize resource allocation, and enable real-time decision making. Empirical evidence demonstrates that firms harnessing these technologies not only enhance service quality but also cultivate collaborative networks that strengthen operational agility and market responsiveness (Yang, 2023; Zadajali, 2024). Nowhere is this synergy more critical than in e-commerce logistics, where delivery speed and reliability decisively influence customer satisfaction and loyalty (Wu et al., 2024). By integrating advanced technology with superior logistics customer service, providers can significantly enhance logistics performance, which in turn supports long-term customer retention. Despite these insights, the interplay among these four constructs remains underexplored in region-specific settings. This study addresses that gap by investigating how advanced technology, customer service excellence, and performance outcomes jointly drive customer retention within the dynamic logistics corridors of West Java, Indonesia.

In the current highly competitive e-commerce landscape, the quality of logistics customer service is pivotal for maintaining customer loyalty. Providing superior logistics services is crucial for achieving high customer satisfaction; this dynamic, in turn, cultivates customer loyalty and promotes repeat patronage (Sutrisno et al., 2019). Research has shown that efficient logistics customer service is crucial for operational success, encompassing facets such as order fulfillment, communication, and responsiveness, which can markedly increase customer satisfaction levels (Ogunnowo & Sule, 2021). High-quality logistics services are increasingly recognized as a vital component of business effectiveness, directly influencing customer loyalty and the ability to sustain a competitive edge in the marketplace (Khairi & Cahyadi, 2023). As logistics companies strive to differentiate themselves in a crowded marketplace, improving customer service quality becomes critical to maintaining long-term relationships with clients (Garver & Williams, 2024).

The relevance of this research is underscored by the intensifying competition in the logistics industry within e-commerce, especially in regions such as West Java. As logistics providers face growing pressure to deliver superior service quality, understanding the dynamics between advanced technology, customer service, and logistics performance becomes critical (Ouyang, 2024). Indonesia’s e-commerce sector has expanded at an exceptionally rapid pace, positively influencing the logistics industry (Situmorang & Lestiani, 2022). As e-commerce businesses flourish, the demand for dependable and cost-effective freight forwarding services becomes increasingly vital to sustain this growth (Syafrianita et al., 2025). With the intensification of competition among delivery service providers, it is essential for these companies to strategically position themselves to sustain market presence. This is particularly important as rising consumer demand for reliable delivery services pushes providers to continuously enhance service quality (Wijaya & Rizani, 2022).

Shopee, a prominent e-commerce platform in Indonesia, has undergone continuous evolution since its launch on December 1, 2015. One of its developments is Shopee Express, an initiative by Shopee to establish its own logistics and shipping services. In 2018, Shopee launched an integrated logistics solution known as 'Service by Shopee', including inventory management and procurement services. This initiative became the forerunner to the emergence of Shopee Express. In 2019, the service was officially launched under the name Shopee Express (SPX) and has evolved to offer three main types of services: Shopee Express Standard, Shopee Express same-day network, and Shopee

JOURNAL OF CONSUMER SCIENCES

Express Instant. The Java Island and areas outside Java have a delivery duration of up to one week. Meanwhile, the same day and Instant services are intended for deliveries within a specific range, where the same day service can complete deliveries within 24 hours, and the Instant service can complete deliveries within a maximum of 3 hours. The SPX Standard service is intended for deliveries over longer distances (Wijaya & Rizani, 2022). Although this study focuses specifically on Shopee and SPX, the strategies employed, such as digital integration, service innovation, and performance optimization, reflect broader trends and best practices in the e-commerce and logistics sectors. Therefore, while contextual nuances exist, the insights drawn from Shopee's model offer meaningful implications for other logistics providers and e-commerce platforms operating under comparable market pressures and technological environments.

Logistics companies such as Shopee Express face significant challenges in customer retention in the digital age, especially as customer expectations of delivery speed, service quality, and seamless communication throughout the logistics process increase (Araújo et al., 2022; Holloway, 2024). In the face of intensifying competition, companies must adapt to changing preferences and technological advances to maintain customer loyalty. Failing to meet customer expectations can result in higher customer turnover and a decline in market share (Digdowiseiso et al., 2024; Kuska et al., 2024; Liang, 2023).

This study examines how advanced technology and quality logistics customer service influence customer retention within the e-commerce logistics industry, with logistics performance serving as a key mediating factor. A significant gap exists in research linking advanced technology, logistics customer service, logistics performance, and customer retention. For instance, technologies such as blockchain, when incorporated into supply chain management, can improve operational efficiency and customer interaction, thereby potentially increasing retention rates (Yerpude et al., 2022). Conversely, Pasape (2022) mentioned that over-reliance on technology can reduce personal interactions, which in turn decreases customer satisfaction and results in decreased retention.

On the other hand, Nugroho et al. (2020) highlighted that effective logistics services are crucial in elevating customer satisfaction and strengthening loyalty, while Tejo (2021) indicated that if logistics service quality falls short of customer expectations, it can lead to decreased retention. Although empirical evidence supports both sides of the relationship, a significant research gap remains, namely the lack of exploration of the mediating role of logistics performance (LP) in connecting advance technology (AT) with customer retention (CR) and logistics customer service (LCS) with CR, particularly within the e-commerce arena. By incorporating logistics performance as a mediating variable, this study seeks to address this gap through a thorough investigation of how LP can strengthen understanding of the interaction between AT implementation, LCS quality, and customer retention. Moreover, it offers strategic insights for e-commerce organizations to simultaneously optimize technology deployment and logistics service quality, thereby boosting customer loyalty.

The grand theory employed in this study is the resource-based view (RBV), which emphasizes that competitive advantage is achieved through the strategic utilization of internal resources. In this context, advanced technology and logistics customer service are considered key resources that enhance logistics performance, which in turn drives customer retention in the e-commerce logistics environment, such as Shopee Express in West Java.

The urgency of this research stems from the intensified competition among e-commerce logistics providers, particularly in regions such as West Java, where rising consumer expectations demand rapid and reliable delivery, alongside transparent and responsive

JOURNAL OF CONSUMER SCIENCES

service. Despite the increasing adoption of digital technologies, many logistics firms still struggle to translate technological advancements into improved service performance and customer loyalty. This gap highlights the need for empirical evidence linking technological implementation, service quality, and tangible customer outcomes.

The novelty of this research lies in the comprehensive framework that investigates the mediating role of logistics performance in the relationship between advanced technology, logistics customer service, and customer retention —a topic that remains underexplored, especially in the context of e-commerce logistics in emerging markets. Unlike previous research that examined these factors in isolation, the current study offers a comprehensive framework that captures their interdependence.

The primary innovative contribution of this study lies in the development of a comprehensive framework that provides a nuanced understanding of how these interrelated factors impact customer retention, particularly within the rapidly growing e-commerce sector in West Java, where logistics providers must leverage advanced technology and enhance service quality to remain competitive. This research will not only provide insights to optimize logistics companies' operational strategies but also offer practical guidance to inform strategic decision-making in a landscape shaped by technological advancements and evolving consumer preferences. It holds significant implications for logistics practitioners and policymakers seeking effective strategies to improve logistics performance and customer retention, ultimately supporting the sustained growth of the e-commerce market in West Java.

2. Literature Review

2.1 Advanced Technology

Advanced technologies encompass cutting-edge solutions ranging from automation, the Internet of Things (IoT), and artificial intelligence (AI) to autonomous delivery platforms, which collectively drive significant gains in logistics efficiency, accuracy, and performance. In logistics operations, these innovations enable companies to optimize processes through real-time data analysis, predictive maintenance, and smarter inventory management (Ntule, 2024), while autonomous vehicles and AI-driven delivery systems further streamline last-mile fulfillment, reduce operational costs, and enhance service reliability (Engesser et al., 2023). By integrating these digital tools with a workforce skilled in technological applications, organizations can meet evolving customer expectations and achieve superior delivery speed, cost control, and overall customer satisfaction.

In e-commerce logistics, the shift from traditional practices to automated, data-driven processes is essential for meeting the exacting demands of online consumers. AI-powered systems enhance last-mile delivery and service reliability, while IoT-enabled tracking boosts transparency and customer trust, forming the backbone of strategies that drive both operational excellence and loyalty (Holloway, 2024; Oh et al., 2022; Shi, 2022; Tang & Wang, 2020). This dynamic is vividly illustrated by Trisolvena et al. (2024), who demonstrate that genetic algorithms for route planning not only accelerate delivery and strengthen reliability, key pillars of customer loyalty, but also deliver substantial cost savings and attractive returns on investment. Likewise, Ngah et al. (2023) demonstrate that embedding advanced technologies within third-party logistics (3PL) operations enhances conflict resolution and customer relationship management, elevating satisfaction and reducing sellers' likelihood of switching providers. Together, these insights confirm that technological innovation in e-commerce logistics simultaneously elevates operational performance and deepens stakeholder loyalty.

JOURNAL OF CONSUMER SCIENCES

2.2 Logistics Customer Services

Logistics customer service encompasses the range of activities and processes through which logistics providers interact with customers to ensure timely, accurate delivery, clear communication, and comprehensive support throughout the supply chain (Kawa & Światowiec-Szczepańska, 2021). Key elements include order fulfillment, delivery performance, returns and complaint handling, and the fulfillment of service promises, each critical not only for enhancing customer satisfaction and loyalty but also for providing logistics firms with a distinct competitive edge (Garver & Williams, 2024; Zia et al., 2024). By prioritizing these interconnected functions, LCS serves as a cornerstone of effective supply chain management and a driver of superior customer experience.

Within e-commerce logistics, where consumers demand rapid delivery, real-time tracking, and responsive complaint resolution, superior LCS is indispensable for maintaining loyalty in an intensely competitive landscape that compels providers to continually refine their operations (Lin et al., 2023; Tuan & Vo, 2024; Oh et al., 2022). Strategic investment in LCS encompassing enhanced service quality, robust customer relationship management (CRM) practices, and comprehensive customer support has been shown to stimulate economic growth by elevating both competitiveness and operational efficiency, underscoring its critical role in driving satisfaction and retention in online retail (Rizkallah, 2023). Yet, as e-commerce volumes expand, the very measures that bolster retention, streamlined returns, proactive after-sales care, and precise delivery management can simultaneously mitigate certain cost pressures and escalate overall logistics expenditures, necessitating a carefully calibrated balance between service excellence and cost control (Ouyang, 2024).

2.3 Logistics Performance

Logistics performance reflects how effectively and efficiently logistics operations manage the flow of goods, information, and resources to meet both customer expectations and organizational goals, often benchmarked by the logistics performance index (LPI) (Ismail & Mahran, 2021; Masudin et al., 2021). It is evaluated using key performance indicators such as delivery reliability, order accuracy, responsiveness, cost effectiveness, and inventory turnover, which collectively assess a logistics system's ability to fulfill orders on time, minimize errors, and control expenses (Cichosz et al., 2020; Sansaluna et al., 2024). By optimizing these metrics, companies not only enhance operational efficiency but also bolster customer satisfaction and loyalty, thereby strengthening their competitive position in the marketplace.

In the e-commerce logistics landscape, operational excellence in delivery speed, accuracy, and cost management is pivotal for securing customer satisfaction and loyalty (Götz et al., 2023; Ismail & Mahran, 2021; Sansaluna et al., 2024). As consumer expectations for rapid, seamless service intensify, providers must leverage advanced technologies and digitization, including real-time tracking, AI-driven routing, and innovative solutions such as drone delivery, to streamline processes and reduce shipping costs. Empirical evidence indicates that such efficiency improvements not only enhance the customer experience through on-time deliveries and minimized errors but also foster long-term trust and retention in a fiercely competitive market (Marsita & Maniah, 2024; Patro et al., 2024).

2.4 Customer Retention

Customer retention is a strategic imperative for businesses seeking to cultivate enduring relationships that encourage repeat purchases, strengthen brand loyalty, and mitigate

JOURNAL OF CONSUMER SCIENCES

the higher costs associated with acquiring new customers (Ekopriyono et al., 2021). Grounded in experiential learning and social exchange theories, retention relies on delivering superior product quality and memorable consumer experiences, alongside employing "lock-in" mechanisms such as loyalty programs and emotional that reinforce customer commitment and maintain their connection to the brand beyond the initial transaction (Gao et al., 2022; Mathew, 2021).

In e-commerce logistics, securing repeat business depends on the seamless integration of efficient operations and engaging customer experiences. From order placement to final delivery, consumers expect fast, reliable service with accurate tracking and responsive support to build trust and encourage return purchases (Ofori, 2024). Simultaneously, incorporating gamification elements into the online shopping experience enhances engagement by making interactions more immersive and rewarding, thereby strengthening brand affinity (Akbari & Bigdeli, 2022; Nugroho et al., 2020). These operational and experiential components together form a cohesive strategy that promotes customer satisfaction, loyalty, and long-term retention in the highly competitive e-commerce environment.

2.5 Relationship between Advanced Technology and Customer Retention

Growing attention is being directed to the relationship between advanced technologies and customer retention in the logistics sector, as innovations such as CRM, data analytics, and digital supply chain management (DSCM) are vital for streamlining operations and enhancing the overall service experience (Adenigbo et al., 2023; Yerpude et al., 2022). These technological innovations enable synchronization of marketing strategies and create a more seamless shopping experience, thereby fostering customer loyalty (Diaa & Wahab, 2023; Wilson et al., 2024). Moreover, features such as personalized services and efficient logistics operations enhance customer satisfaction (Evelina, 2022). In this context, technology-driven process innovation and improved service quality are recognized as key factors of customer retention (Duffour et al., 2022; Makinde et al., 2021). Thus, technology not only increases operational efficiency but also plays a strategic role in strengthening customer loyalty.

This topic remains subject to considerable debate in the literature. Although many studies indicate a positive correlation between advanced technology and customer retention, some findings challenge this assumption, suggesting that technological advancements do not always result in increased retention. Barker and Brau (2020) found that experienced customers do not necessarily associate sophistication with superior service quality, suggesting that technology-induced increases in operating costs do not automatically lead to enhanced customer loyalty. Morgeson et al. (2020) and Nyaga and Nkaabu (2024) assert that technology must be balanced with effective human interaction, particularly in complaint handling. They also emphasize that the effectiveness of technology-based CRM largely depends on an organization's ability to meaningfully engage with its customers. Trust rooted in customers' perceptions of honesty and care is a critical determinant of retention. They noted that the benefits of technologies such as blockchain only yield a positive impact when customers directly experience increased transparency and efficiency. Therefore, the success of technology in improving customer retention largely depends on the implementation of strategies that prioritize customer perception, engagement, and trust (Alifnur Harmawan & Mulyati, 2024; Pasape, 2022; Yerpude et al., 2022). Although technologies such as big data analytics, blockchain, and IoT can enhance efficiency, transparency, and responsiveness in logistics operations, their standalone application does not ensure outstanding overall performance. This research examines the direct relationship between advanced technology and logistics performance within Shopee Express operations in West

JOURNAL OF CONSUMER SCIENCES

Java, aiming to address this theoretical gap.

H1: Advanced technology exerts a direct and positive influence on customer retention.

2.6 Relationship between Advanced Technology and Logistics Performance

The link between advanced technology and logistics performance is increasingly gaining attention in modern supply chain management. Ntule (2024) demonstrates that digitalization improves visibility and operational effectiveness in Cameroonian logistics companies while Sapiński and Pochopień (2023) highlights the potential of IoT for real-time cargo tracking and logistics chain optimization in Europe. Pacheco-Velázquez et al. (2024) found that the implementation of Industry 4.0 technologies, including AI and IoT, improves efficiency through data-driven automation and smarter management systems. Similarly, AÇAR and Clarke (2021) and Purnomo et al. (2024) recommend the integration of artificial intelligence with blockchain to improve transparency and decision-making. Kuru and Ansell (2020) stated that smart technologies help address logistics challenges in smart cities. Shahparan (2024) and Li (2024) emphasized that IT integration improves both performance and competitiveness, particularly by enhancing efficiency and customer satisfaction in JD's e-commerce logistics system. (Moldabekova et al., 2021; Sirait & Waskito, 2024) also confirmed that incorporating digital technologies enhances logistics performance at both micro and macro levels, underscoring the pivotal role of technology in strengthening the competitiveness of logistics transformation.

The relationship between advanced technology and logistics performance has attracted significant attention in recent literature, although some studies suggest that the impact is not always straightforward and can be influenced by various factors. Modgil et al. (2021) state that while AI can improve flexibility and workforce management, results vary depending on organizational readiness and technology adoption rates. Belhadi et al. (2021) add that external factors such as market volatility, can affect performance even when AI-based technologies improve operational capabilities. Fatorachian and Kazemi (2020) argue that implementing Industry 4.0 technology requires a strong integration framework to generate improvements. Dubey et al. (2023) emphasize that the success of technological adoption is contingent upon institutional support and government policies. Meanwhile, Yang et al. (2021) caution that barriers such as resistance to change can diminish the positive impact of technological innovations.

While advanced technologies including comprehensive data analytics, distributed ledger systems, and connected device networks can enhance the efficiency, transparency, and responsiveness of logistics operations, their implementation alone does not guarantee improved performance. This study examines the direct relationship between sophisticated technology and logistics performance at Shopee Express in West Java to address theoretical gaps in the literature.

H2: Advanced technology exerts a direct and positive influence on logistics performance

2.7 Relationship between Logistics Customer Services and Customer Retention

Exploring the connection between logistics customer service and customer retention is essential, especially in operations where service quality significantly shapes customer experiences. Nugroho et al. (2020) found that a focus on service quality in the rice production industry increases customer satisfaction and loyalty. Similarly, Yu (2023) confirmed that express logistics companies emphasizing service quality are more likely to retain customers, reinforcing the importance of quality service in retention strategies. In addition, Chikazhe et al. (2023) indicated that effective communication strategies and

JOURNAL OF CONSUMER SCIENCES

robust customer engagement are key factors in boosting retention rates. Morgeson et al. (2020) showed that effective complaint handling can turn dissatisfied customers into loyal customers through responsive customer service. Lastly, Obafemi and Oyawa (2024) emphasized that high customer retention not only strengthens loyalty but also enhances organizational profitability, emphasizing the critical need to invest in logistics customer service to ensure enduring success.

A connection between logistics customer service and customer retention has become apparent as a key focus in logistics and supply chain management (SCM), although some findings suggest that logistics customer service does not invariably yield a direct and positive effect on customer retention. Research shows that although logistics service quality increases satisfaction, its effect on customer retention is not always direct. Ejdys and Gulc (2020) found that customer trust does not always result in retention, as price and availability can influence the decision to switch providers. Garcia et al. (2020) and Ngah et al. (2021) asserted that external factors such as competition and promotions can mask the influence of service on loyalty. Shrestha (2020) and Tejo (2021) state that product quality, price, and reputation also play important roles. Ginting et al. (2023) added that retention is more influenced by e-word of mouth and trust than by e-service quality; thus, logistics services alone are not enough to ensure customer loyalty.

While logistics service quality can increase satisfaction, empirical evidence suggests that logistics customer service alone is insufficient to guarantee increased customer retention. This study examines the direct relationship between LCS and CR at Shopee Express in West Java, aiming to bridge the existing theoretical gap.

H3: Logistics customer service exerts a direct and positive influence on customer retention.

2.8 Relationship between Logistics Customer Services and Logistics Performance

The interplay between logistics customer service and logistics performance is a critical subject in supply chain management research, with effective customer service believed to enhance overall logistics performance through improved efficiency, responsiveness, and customer satisfaction. Studies indicate that effective logistics management encompassing cost efficiency and elevated customer satisfaction demonstrates that high-quality logistics services, characterized by reliability and responsiveness, are directly linked to enhanced satisfaction and performance, particularly within the pharmaceutical and e-commerce sectors (Gizaw et al., 2021; Masudin et al., 2022). Hu et al. (2022) and Lin et al. (2023) highlight that delivering tailored, high-caliber logistics services significantly enhances both customer satisfaction and operational efficiency, ultimately contributing to organizational success. (Adawiyah & Mulyati, 2024; Ambrose et al., 2024; Sin et al., 2024) further note that innovations in service and vehicle performance help companies optimize routes and meet customer expectations, thereby improving logistics performance.

Although numerous studies indicate a positive association between logistics customer service and logistics performance, some findings challenge this view by indicating that improved customer service does not automatically lead to better logistics performance. Huge-Brodin et al. (2020) demonstrate how misalignments in environmental goals can hinder performance even when providing high quality logistics services. Restuputri et al. (2021) and Wang et al. (2020) reveal that while effective logistics integration and quality service are important, external factors such as contractual governance and market conditions are also crucial in shaping overall performance. Bahamdain et al. (2022) add that operational efficiency and costs influence performance outcomes. Meanwhile,

JOURNAL OF CONSUMER SCIENCES

Mutuma and Meteur (2024) emphasize the essential role of collaboration among supply chain stakeholders in enhancing overall performance.

Although effective logistics customer service can improve efficiency, responsiveness, and satisfaction, empirical evidence suggests that it alone does not guarantee improved logistics performance. Accordingly, this research investigates the direct link involving logistics customer service and overall performance at Shopee Express in West Java, thereby filling an important gap in the theoretical literature.

H4: Logistics customer service exerts a direct and positive influence on logistics performance.

2.9 Relationship between Logistics Performance and Customer Retention

The connection between logistics performance and customer retention is a fundamental element of supply chain management, with strong logistics performance widely regarded as a key driver of customer retention. According to Ahmad et al. (2024), that in the telecommunications industry, effective logistics services increase trust and retention through positive experiences. Yu (2023) emphasized that performance metrics such as accuracy and responsiveness are crucial for customers. Trisolvena et al. (2024) found that in product, distribution, especially cold chain logistics, efficient delivery and inventory management support increased satisfaction and competitive advantage. The previous study noted that organizations prioritizing service quality and logistics performance have higher retention rates, and asserted that, in e-commerce, meeting expectations related to cost and delivery time increases loyalty and retention (Chikazhe et al., 2023; Tokar et al., 2020).

Understanding the relationship between logistics performance and customer retention remains a key focus in supply chain management research, but while many studies show a positive correlation, there are significant findings that challenge the hypothesis that logistics performance directly improves customers. Pasape (2022) confirms that trust, characterized by the provider's empathy and honesty, determines retention more than logistics performance alone. Leiria et al. (2021) and Sohail et al. (2023) found that loyalty programs, engagement strategies, and overall shopping satisfaction and experience have a greater influence on customer retention. In addition, Saoula et al. (2023) indicate that emotional and psychological elements, such as efficient website design and ease of use, are essential in building electronic trust and fostering online customer retention Kristanti and Mranani (2024) also showed that cost management, although important for operational efficiency, does not directly improve logistics performance or retention customer.

While effective logistics performance characterized by on-time delivery and accurate order fulfillment can improve customer satisfaction, empirical evidence suggests that logistics performance alone is insufficient to guarantee increased customer retention. This investigation analyzes the direct relationship between logistics performance and CR at Shopee Express in West Java, aiming to address the theoretical gap.

H5: Logistics performance exerts a direct and positive influence on customer retention

2.10 Relationship between Advanced Technology and Customer Retention Mediated by Logistics Performance

Investigating the influence of advanced technology on customer retention through the mediating role of logistics performance is a critical focus within logistics and supply chain

JOURNAL OF CONSUMER SCIENCES

management research. Advanced technologies such as automation, data analytics, and AI driven systems can streamline logistics operations, improve delivery accuracy, and increase responsiveness to customer needs. These operational enhancements directly contribute to superior logistics performance, which, in turn, fosters customer satisfaction, trust, and long-term retention. Thus, logistics performance functions as a strategic bridge connecting technological innovation to sustain customer loyalty. Jou et al. (2024) and Shahparan (2024) revealed that green logistics management practices among online sellers improve operational performance and customer loyalty through advanced technologies. They also highlighted that integrating innovations such as IoT and AI within the Logistics 4.0 framework improves service delivery, thereby meeting customer expectations. Similarly, Akoğlu et al. (2022) found that strategically leveraging information technology improves the quality of logistics services, directly contributing to improved customer satisfaction and retention. Additionally, Hu et al. (2022) emphasized that customizing logistics services to meet customer needs in online retail mediates the relationship between advanced technology and retention. Tuan and Vo (2024) and Ntule (2024) confirmed that in Vietnam's logistics industry, information technology improves perceived performance and service quality, thereby supporting customer retention in a competitive market. Furthermore, their study demonstrated that digital transformation initiatives in Cameroonian logistics firms are positively correlated with increased customer satisfaction and retention.

The interplay between advanced technology, logistics performance, and customer retention is a critical issue in supply chain management. While many studies argue that leveraging advanced technology can enhance logistics performance and, in turn, support customer retention, some findings challenge this perspective. Tuan and Vo (2024) stated that although information technology improves the quality of logistics services in Vietnam, such improvements do not automatically result in customer retention, as they are influenced by market conditions and expectations. Similarly, Viu-Roig and Alvarez-Palau (2020) found that while advanced technology enhances operational efficiency in last-mile logistics improves operational efficiency, its direct impact on customer retention is influenced by external factors such as urban planning and regulatory framework. Kwon and So (2023) showed that smart technology adoption has an indirect impact on customer retention through service customization and customer engagement. Similarly, Kadłubek et al. (2022) asserted that service improvements enabled by smart transportation systems do not guarantee retention without effective customer relationship management strategies. Boysen et al. (2020) highlighted that although technological advances in last-mile delivery optimize processes, advances in logistics, customer retention is also strongly influenced by service speed, cost, and quality. Therefore, technology must be integrated into a comprehensive strategy to increase customer loyalty.

While implementing advanced technologies including artificial intelligence, the Internet of Things, and big data analytics can markedly enhance operational efficiency and elevate the quality of logistics services, its implementation alone is insufficient to ensure exceptional overall performance. Moreover, enhanced logistics performance by itself does not ensure customer retention. Therefore, this study explores the indirect effect of advanced technology on customer retention, mediated by logistics performance, at Shopee Express in West Java, aiming to fill the theoretical gap.

H6: Advanced technology exerts a direct and positive influence on customer retention through logistics performance

JOURNAL OF CONSUMER SCIENCES

2.11 Relationship between Logistics Customer Service and Customer Retention Mediated by Logistics Performance

The relationship among logistics customer service, overall logistics performance, and customer retention is a vital topic in supply chain management. Effective customer service is believed to enhance logistics performance, thereby reinforcing customer retention. Tuan and Vo (2024) demonstrated that logistics service quality, supported by advanced technology, improves logistics performance and positively influences customer retention, highlighting the importance of customer service in fostering loyalty. Similarly, Yu (2023) confirmed that performance metrics such as delivery accuracy and responsiveness are critical for maintaining satisfaction that drives retention. Ngah et al. (2021) further found that logistics customer service meeting customer expectations serves as a mediator between performance improvement and retention. Research by Ginting et al. (2023) has shown that e-service quality substantially enhances both customer satisfaction and loyalty in the e-commerce sector. Similarly, (Duffour et al., 2022) found that superior logistics customer service in the Ghanaian shipping industry increases customer trust and retention. Adzhigalieva et al. (2022) and Ejdys and Gulc (2020) stated that while logistics performance can perceive service quality, customer retention relies more heavily on trust built through effective service delivery. They further emphasized that optimal complaint handling and service recovery are vital factors that enhance customer satisfaction and foster long-term loyalty.

The interaction among various dimensions of logistics customer service, logistics performance, and customer retention remains a critical focus in supply chain management. Although some studies argue that improved logistics customer service can enhance retention through better performance, several findings challenge this notion. Kurdi et al. (2023) emphasize that adopting a strategic approach that integrates multiple dimensions of customer service can increase value and operational excellence; however, high logistics performance does not automatically guarantee customer retention.

Similarly, Altalhi and Basiouni (2023) revealed that e-service quality significantly increases both satisfaction and loyalty in e-commerce and overall supply chain effectiveness in e-commerce; enhancements in service quality do not automatically lead to higher retention if logistics operations fail to meet market expectations. Ahmed (2021) shows that effective communication in supply chain management contributes to customer satisfaction and retention by enabling services to be tailored to evolving customer needs. Garcia et al. (2020) highlighted that perceived service quality can drive loyalty; however, subjective assessments of service shaped by external perceptions, competitive actions, and market dynamics are key determinants in customer retention. Meanwhile, Tejo (2021) asserts that trust and perceived value are critical components of retention strategies, emphasizing that excellent customer service may not be sufficient to maintain loyalty if logistics performance fails to meet customer expectations.

While effective logistics customer service facilitated through process standardization and information technology can improve logistics performance, such improvements alone are insufficient to guarantee customer retention. This research investigates the indirect relationship, as studies have demonstrated that customer satisfaction serves as a mediator between service performance and its outcomes. Focusing on logistics performance at Shopee Express in West Java, this study aims to address a notable theoretical gap.

H7: Logistics customer service exerts a direct and positive influence on customer retention through logistics performance.

JOURNAL OF CONSUMER SCIENCES

3. Conceptual Framework

Previous studies support the hypothesis that the implementation of advanced technology and improved logistics customer service not only directly influences customer retention but also exerts an indirect effect through improved logistics performance as a mediating variable. Furthermore, improved logistics performance strengthens the relationship between advanced technology and logistics customer service, enhancing customer retention and creating optimal synergy to sustain customer loyalty in the digital era. The conceptual framework of this study is illustrated in Figure 1.

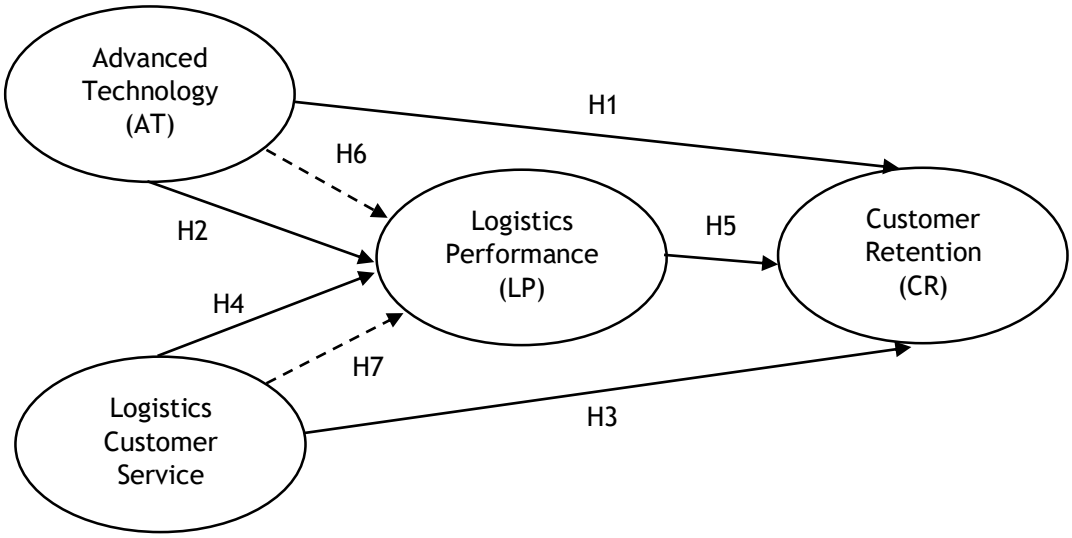


Figure 1. Conceptual framework of research on the effect of advanced technology and logistics customer service on customer retention through logistics performance: the mediating role of logistics performance.

Based on Figure 1, the hypotheses of this study are as follows:
H1: Advanced technology exerts a direct and positive influence on customer retention.
H2: Advanced technology exerts a direct and positive influence on logistics performance.
H3: Logistics customer service directly and positively influences customer retention.
H4: Logistics customer service directly and positively influences logistics performance.
H5: Logistics performance exerts a direct and positive influence on customer retention.
H6: Advanced technology directly and positively influences customer retention through logistics performance.
H7: Logistics customer service directly and positively influences customer retention through logistics performance.

4. Methods

4.1 Research Design

This study employs a cross-sectional research design with a quantitative approach to examine the causal relationship among variables. Data were collected at a single point in time to capture a snapshot of actual conditions, and the analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM). The research was conducted in the West Java region, with respondents drawn from users of Shopee Express services, ensuring that the findings reflect market dynamics and real operational conditions in the field. The selection of this method is based on its ability to explain causal relationships and assess the impact of the independent variable (X) on the dependent variable (Y) (Sari et al., 2022).

JOURNAL OF CONSUMER SCIENCES

4.2 Sampling

The sampling technique employed in this study is non-probability sampling, with respondents purposefully selected based on specific criteria, namely, being active Shopee Express users with in-depth knowledge of the service. Given the large and variable target population, the minimum required sample size was determined using Lemeshow's formula, which is particularly suitable for estimating respondent numbers when the population size is extensive and not precisely known (Yang & Sihotang, 2022). The resulting minimum sample size was 385 respondents. To ensure adequate coverage, 400 questionnaires were distributed, and all were returned. Of the respondents, 50.7% were female and 49.3% male. The majority were aged 25-34 years (35.1%), followed by 15-24 years (31.2%). A total of 385 respondents were deemed valid and suitable for analysis, yielding a response rate of (385/400) × 100% = 96.25%.

4.3 Measurement

This study integrates several previously validated constructs to examine logistics performance and customer retention. The independent construct, advanced technology, is operationalized through three main dimensions: GPS and GPRS, Internet of Things, and Artificial Intelligence. Indicators under the GPS and GPRS dimension measure the accuracy of location tracking and the speed of information updates, while IoT indicators assess real-time monitoring capabilities and improvements in delivery process efficiency (Awang Kechil et al., 2022; Gowri, 2022; Restuputri et al., 2022). For the AI dimension, the indicators include predicted delivery times, route optimization, and customer satisfaction with the use of technology (Restuputri et al., 2022; Mo et al., 2023). Another independent construct of this study, namely the logistics customer services variable, is measured through the dimensions of clarity and reliability, policy transparency, warranty availability, and the ease and speed of claim settlement, in accordance with studies conducted by Ekarani et al. (2022), Maziyah and Vitasari (2022), Semenda (2023), as well as Khairi and Cahyadi (2023).

Meanwhile, the mediating variable, logistics performance, is operationalized through three dimensions: efficiency, effectiveness, and differentiation of delivery services. The efficiency dimension includes indicators such as delivery time and shipping costs. The effectiveness dimension is measured through indicators such as delivery timeliness, customer satisfaction, and problem resolution. The differentiation of delivery services is assessed through indicators of service uniqueness and service flexibility (Khairi & Cahyadi, 2023; Septyarani & Nurhadi, 2023). Meanwhile, customer retention has a role that serves as the dependent construct and includes indicators such as word of mouth communication, purchase intention, price sensitivity, customer loyalty, and complaint behaviour, adapted from Rahayu et al. (2024). All constructs and indicators were analyzed simultaneously to examine direct and indirect relationships influencing logistics performance and customer retention strategies. The operational definitions of variables and their indicators are presented in Table 1.

JOURNAL OF CONSUMER SCIENCES

Table 1. Operational definition and indicators of advanced technology, logistics customer service, logistics performance, and customer retention

Variables	Operational Definition	Indicators
Advanced technology (Moldabekova et al., 2021)	Advanced technologies including IoT, cloud computing, big data analytics, and artificial intelligence, and robotics help automate and improve connectivity and decision-making speed in the supply chain, thereby increasing efficiency, productivity, and competitiveness in logistics and manufacturing.	1) Location tracking accuracy (Gowri, 2022). 2) Speed of information (Awang Kechil et al., 2022). 3) Real-time monitoring (Restuputri et al., 2022). 4) Improved efficiency (Gowri, 2022). 5) Delivery time prediction (Awang Kechil et al., 2022). 6) Delivery route optimization (Mo et al., 2023). 7) Customer satisfaction (Restuputri et al., 2022).
Logistics customer service (Purwoko et al., 2022)	Logistics customer service is the foundation of a logistics system that focuses on meeting customers' delivery and communication needs through three critical stages pre transaction, transaction, and post-transaction to ensure optimal supply chain integration.	1) Policy clarity (Semenda, 2023). 2) Policy transparency (Semenda, 2023). 3) Warranty availability (Khairi & Cahyadi, 2023). 4) Ease of warranty claims (Ekarani et al., 2022). 5) Speed of warranty claim settlement (Maziyah & Vitasari, 2022). 6) Packaging quality (Khairi & Cahyadi, 2023). 7) Packaging safety (Khairi & Cahyadi, 2023). 8) Ease of claim process (Maziyah & Vitasari, 2022). 9) Speed of claims handling (Ginting, 2022). 10) Ease of return process (Khairi & Cahyadi, 2023). 11) Return processing speed (Khairi & Cahyadi, 2023).
Logistics performance (Liang et al., 2020)	Logistics performance can be defined as a concept that involves various aspects, namely efficiency (with economic and operational indicators), effectiveness (through customer service and quality), and differentiation (highlighting the uniqueness of logistics activities compared to competitors), to thoroughly assess the operational performance of a company.	1) Delivery time 2) Shipping. (Septyarani & Nurhadi, 2023). 3) Speed of delivery time 4) Customer satisfaction 5) Problem solving 6) Service uniqueness, service's flexibility

JOURNAL OF CONSUMER SCIENCES

Table 2. Operational definition and indicators of advanced technology, logistics customer service, logistics performance, and customer retention (Continue)

Variables	Operational Definition	Indicators
Customer retention (Altalhi & Basiouni, 2023)	Customer retention encompasses the strategies and steps companies take to reduce customer churn and encourage repeat transactions. It involves the ability to consistently retain customers, which is crucial for maintaining revenue and profits. Research indicates that a successful customer retention strategy can increase loyalty as well as business profitability in the long run.	The indicators below are adopted from research (Rahayu et al., 2024). 1) Positive assessment 2) Service recommendation 3) Priority choice 4) Order reduction 5) Price competition 6) Customer loyalty 7) External complaints 8) Internal complaint

4.4 Data Collection

The data collection process was conducted online using Google Form-based questionnaires. This approach allowed respondents to complete the questionnaire independently without requiring direct interaction with researchers. Data collection was carried out within a predetermined time frame to minimize time bias and ensure uniformity across responses. This method also facilitates replication by other researchers and ensures the confidentiality of the respondent's identity, thereby increasing the validity of the collected data.

4.5 Data Analysis

The PLS-SEM analysis was executed in two stages: first, the external (measurement) model was assessed by confirming convergent validity, ensuring that factor loadings were at least 0.7 and the average variance extracted (AVE) was no less than 0.5. Subsequently, discriminant validity was examined using the Fornell-Larcker criterion, which requires that correlations between each pair of latent constructs are lower than the square root of the AVE for each respective construct. Additionally, model reliability was affirmed by verifying that both composite reliability and Cronbach's alpha exceeded the 0.70 threshold. The relationship among latent variables was analyzed using t-statistics, p-values, and R-squared measures. According to Hair et al. (2021), an R-squared of 0.75 indicates a strong effect, 0.5 signifies a moderate influence, and 0.25 signifies a weak effect of the exogenous variables on the endogenous variables. These effects are considered statistically significant at the 5% level when the t-value exceeds 1.65 and the p-value is below 0.05.

5. Findings

5.1 Outer Structural Model

As presented in Table 2, the analysis confirms that all indicators meet the criteria for convergent validity, with factor loadings of at least 0.7 and AVE values of 0.5 or higher. These outcomes establish a reliable foundation for evaluating external models.

JOURNAL OF CONSUMER SCIENCES

Table 3. The outcomes of the validity and reliability tests for each variable

Var	Ind	FL	Crb_α	Cps_Re	AVE
Advanced technology (AT)			0.939	0.950	0.731
T1	Location tracking accuracy	0.875			
T2	Speed of information	0.865			
T3	Real-time monitoring	0.889			
T4	Efficiency improvement	0.854			
T5	Predicted delivery time	0.834			
T6	Delivery route optimization	0.826			
T7	Customer satisfaction	0.841			
Logistics customer service (LCS)			0.965	0.969	0.742
S1	Policy clarity	0.883			
S2	Policy transparency	0.902			
S3	Warranty availability	0.887			
S4	Ease of warranty claims	0.899			
S5	Speed of warranty claim settlement	0.878			
S6	Packaging quality	0.856			
S7	Packaging safety	0.831			
S8	Ease of claim process	0.825			
S9	Speed of claims handling	0.814			
S10	Ease of return process	0.837			
S11	Return processing speed	0.860			
Logistics performance (LP)			0.916	0.933	0.664
P1	Delivery time	0.792			
P2	Shipping cost	0.801			
P3	Speed of delivery time	0.815			
P4	Customer satisfaction	0.816			
P5	Problem solving	0.823			
P6	Service uniqueness	0.832			
P7	Service flexibility	0.825			
Customer retention (CR)			0.920	0.934	0.641
R1	Positive assessment	0.811			
R2	Service recommendation	0.720			
R3	Priority choice	0.793			
R4	Order reduction	0.808			
R5	Price competition	0.829			
R6	Customer loyalty	0.819			
R7	External complaints	0.808			
R8	Internal complaint	0.812			

Note: Var = Variables, Ind = Indicators; FL = Factor Loading; Crb_α = Cronbach' alpha; Cps_Re = Composite Reliability; AV_E = AVE

Table 3 also confirms discriminant validity, as the AVE square roots (following Fornell-Larcker principles) exceed the correlations between latent structures. Moreover, the model meets reliability standards, with both composite reliability and Cronbach's alpha values meeting or exceeding the 0.70 threshold.

JOURNAL OF CONSUMER SCIENCES

Table 4 Fornell-Larcker criterion for discriminant validity

Variable	AT	CR	LCS	LP
Advance technology	0.855			
Customer retention	0.531	0.801		
Logistics customer service	0.022	0.619	0.862	
Logistics performance	0.508	0.715	0.529	0.815

5.2 Inner Structural Model

In evaluating the Inner Model, three main criteria are considered: the coefficient of determination (R-squared), t-statistics, and p-values. According to Table 4, the R-squared value for CR exceeds 0.67, suggesting that AT and LCS, as exogenous variables, have a strong and significant impact on CR. In contrast, the R-squared value for LP is above 0.33, indicating a moderately significant effect of AT and LCS on LP.

Table 5. Coefficient of determination (R-squared)

	R. Square	R. Square Adjusted
Customer retention	0.687	0.685
Logistics performance	0.527	0.524

Note: CR = Customer Retention; LP = Logistics Performance

To confirm that the relationship between variables is statistically significant at the 5% level, the criteria require that the t-value exceeds 1.65 and the p-value is below 0.05. Based on the data presented in Table 5 and Figure 2, all hypotheses were accepted, indicating that the proposed relationships, whether direct or mediated, are statistically significant and positive.

Table 6. Summary of the hypothesis testing results for all research hypotheses

Hypothesis	B_P.c	O-SP	S_D	T_Stcs	P_VLE	Hpt_T.Co
Hpt 1 : AT → CR	0.381	0.381	0.035	10.755	0.000	Accepted
Hpt 2 : AT → LP	0.497	0.497	0.039	12.626	0.000	Accepted
Hpt 3 : LCS → CR	0.465	0.465	0.030	15.480	0.000	Accepted
Hpt 4 : LCS → LP	0.518	0.518	0.037	14.025	0.000	Accepted
Hpt 5 : LP → CR	0.275	0.275	0.044	6.229	0.000	Accepted
Hpt 6 : AT → LP → CR	0.137	0.137	0.024	5.765	0.000	Accepted
Hpt 7 : LCS → LP → CR	0.143	0.143	0.025	5.704	0.000	Accepted

Note: Hpt = Hypothesis; ß_P.c = Path-Coefficients O-SP = Original-Sample; S_D = Standard Deviation; T_Scs = T-Statistics; P_VLE = P-Value; Hpt.T.Co = Hypothesis-Testing-Conclusion; AT = Advance Technology; CR = Customer Retention; LCS = Logistics Customer Service; LP = Logistics Performance

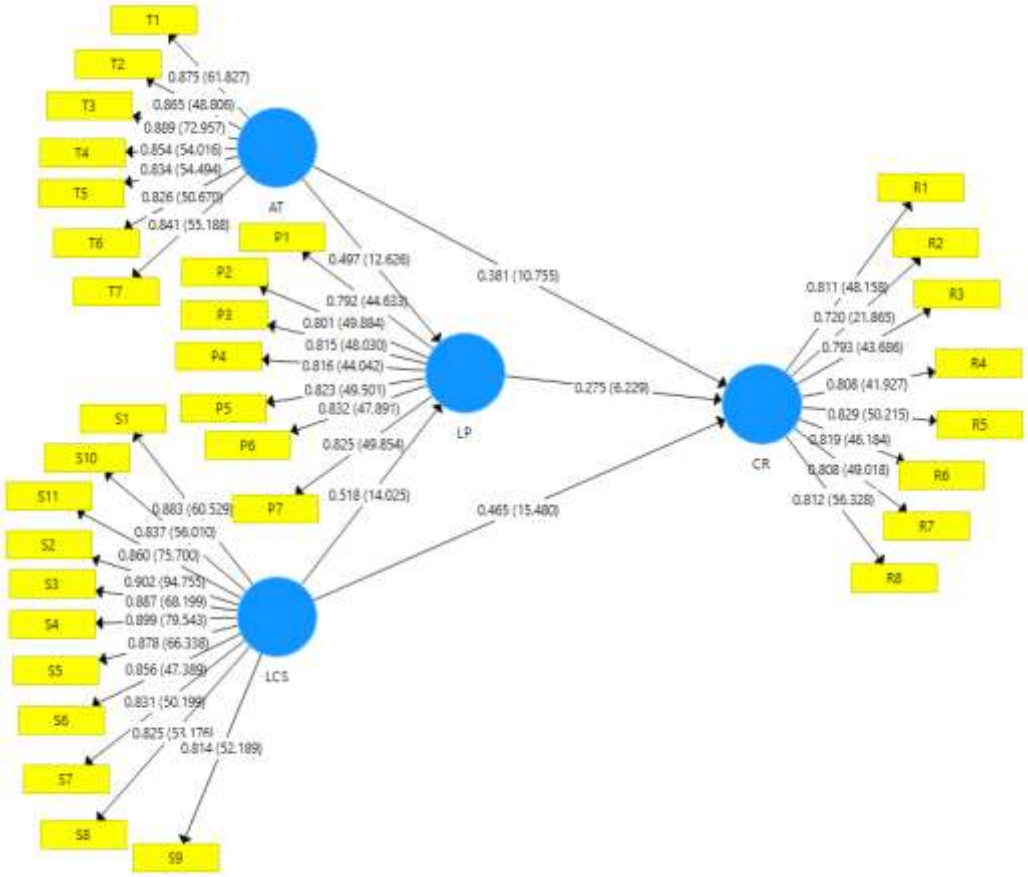
Additionally, the model analysis in Table 6 shows that the cumulative indirect effect of AT to CR through LP mediation is 0.137, while the indirect effect of LCS on CR through LP mediation is 0.143.

Table 7. Overall indirect effect

Variables	Customer Retention
Advance Technology	0.137
Logistics Customer Service	0.143

JOURNAL OF CONSUMER SCIENCES

As shown in Figure 2, all indicators have high factor loading generally above 0.8 and significant t-statistic values, confirming their validity in measuring the intended construct.



Note: AT = Advance Technology; CS = Customer Retention; LCS = Logistics Customer Service; LP = Logistics Performance.

Figure 2. A comprehensive model overview derived from bootstrapping analysis, encompassing path coefficients, factor loadings, and t-values.

6. Discussion

6.1 The Effect of Advanced Technology on Customer Retention

The findings from H1 indicate that advanced technology directly and positively affects CR. AT encompasses innovations such as big data analytics, customer relationship management systems, and automated service processes, which enable the consolidation of insights from multiple customer interaction points. This consolidation facilitates personalized service offerings tailored to customer preferences, thereby potentially increasing retention (Khan et al., 2024). Furthermore, the employment of advanced logistics technologies, including predictive analytics and machine learning, has proven effective in assessing customer behavior (Cahyani, 2024; Ismail & Mahran, 2021). This capability enables businesses to proactively address customer needs, resulting in enhanced satisfaction and loyalty (Elsaed et al., 2023). The results indicate that effective AT integration not only improves service efficiency and creates a more cohesive customer experience but also drives long-term engagement and loyalty, thereby strategically contributing to improved customer retention in a competitive marketplace (Rosário & Casaca, 2023; Sari et al., 2025; Wilson et al., 2024).

JOURNAL OF CONSUMER SCIENCES

Based on these findings, a stronger implementation of integrated advanced technologies from customer data analysis to service process automation will enhance the company's understanding of behavioral patterns and specific needs within each segment, enable the development of more proactive and personalized retention strategies, and minimize the risk of churn in the highly competitive logistics market.

6.2 The Effect of Advanced Technology on Logistics Performance

The findings from H2 show that advanced technology directly and positively affects LP. AT such as blockchain, AI, and IoT simplify operations by enabling real-time tracking, predictive analytics, and improved coordination among supply chain partners (Saqib & Qin, 2024; Verbivska et al., 2023). Studies demonstrate that implementing these technological advancements significantly enhances key logistics performance indicators, including delivery precision, processing velocity, and the minimization of operational expenses (Bakhriddinovich & Rashidovna, 2024; Burinskienė & Daškevič, 2024). Studies show that adopting these innovations significantly enhances logistics performance metrics, including delivery accuracy, fulfillment speed, and reduced operational costs (Bugarčić et al., 2024; Rahman et al., 2021). This advancement supports a more responsive customer service approach. The integration of advanced technologies not only optimizes logistics processes but also fosters a resilient and adaptive operational framework (Li, 2024). Thus, harnessing advanced technology is vital for attaining superior logistics performance and sustaining a competitive edge in today's rapidly evolving digital environment (Ghadge et al., 2020; Lyu et al., 2023).

In addition, the application of advanced technologies enhances predictive analytics capabilities, enabling early detection of potential supply chain bottlenecks or disruptions before they occur. This enables companies to take proactive corrective actions, such as rescheduling routes or performing preventive equipment maintenance, thus reducing downtime and unexpected costs. The real-time data integration among logistics partners also strengthens collaboration, facilitating more responsive and targeted decision making amid demand fluctuations and external disruptions. Ultimately, this adaptive logistics framework not only improves operational performance but also strengthens the overall resilience of the supply chain in today's dynamic digital environment.

6.3 The Effect of Logistics Customer Service on Customer Retention

Findings from H3 demonstrate that logistics centered customer service directly and positively impacts customer loyalty. Customer service components, specifically responsiveness, consistency, and individualized engagement significantly contribute to heightened customer experiences and satisfaction levels (Yu, 2023). By providing services that meet or exceed expectations, logistics providers can sustainably increase customer trust and loyalty (Ouyang, 2024). Research indicates that an effective LCS encourages repeat business and generates positive word of mouth, a critical factor in CR (Barusman et al., 2020; Nugroho et al., 2020). Moreover, aligning LCS practices with customer needs and preferences thereby helps reduce churn (Ciechomski & Strojny, 2022). Overall, the findings confirm that a strong LCS framework is essential for cultivating customer loyalty and retention, thereby supporting the long-term sustainability of logistics companies in a highly competitive market (Mardika, 2022).

Based on these findings, the more responsive and consistent logistics providers are in serving customers combined with their ability to tailor approaches to individual needs the stronger the resulting emotional connection and customer trust. This, in turn, encourages repeat purchase behavior and positive word-of-mouth recommendations while reducing the risk of customer churn. Thus, implementing a structured LCS

JOURNAL OF CONSUMER SCIENCES

framework that prioritizes customer preferences not only increases sustainable loyalty but also enhances the competitiveness of logistics companies amidst increasingly fierce competition.

6.4 The Effect of Logistics Customer Service on Logistics Performance

The findings from H4 indicate that logistics customer service directly and positively affects logistics performance. This research shows that LCS characterized by responsiveness, reliability, and effective communication ensures consistent fulfillment of customer expectations, streamlines order processing, reduces lead times, and improves delivery accuracy, thereby increasing customer satisfaction and operational efficiency (Ouyang, 2024; Zadajali, 2024). Furthermore, LCS contributes to cost optimization by minimizing errors and delays, which fosters customer loyalty and repeat business (Baral et al., 2021). LCS integration also improves cost effectiveness and service reliability, highlighting that effective implementation of an LCS framework is essential for achieving superior LP and sustaining competitiveness in a dynamic market environment (Gupta et al., 2022; Nuraina et al., 2022; Akoğlu et al., 2022; Rahman et al., 2021).

Based on these findings, the application of responsive, reliable, and effective communication principles in logistics services directly enhances order fulfillment and status monitoring, thereby reducing lead times and minimizing operational errors. Structured collaboration between service and operational teams facilitates smooth information flow, allowing for quick and targeted resource adjustments. Consequently, cost efficiency increases while service reliability is maintained, establishing a sustainable positive cycle in logistics performance and strengthening the company's position in a dynamic market environment.

6.5 The Effect of Logistics Performance on Customer Retention

Findings from H5 reveal that operational excellence in logistics directly and positively influences customer loyalty. The research underscores that dimensions of logistics performance, including reliability, speed, accuracy, and service quality, collectively enhance customer satisfaction (Oh et al., 2022). Timely and accurate delivery builds trust and long-term commitment, with improvements in LP correlating with increased retention through greater satisfaction and positive recommendations (Khan & Alhumoudi, 2022; Duffour et al., 2022). Moreover, effective logistics operations reduce disruptions and increase responsiveness to customer needs, thereby strengthening loyalty (Halim, 2024). This finding affirms that a superior LP strategy is essential for improving CR, confirming the need for logistics companies to prioritize operational excellence in their business models (Shailaja, 2024).

The more optimally reliability, speed, and accuracy are implemented in logistics operations, the more consistent and predictable customer experience becomes, thereby strengthening trust and long-term commitment. A proactive approach to anticipating potential disruptions and promptly responding to customer needs also increases responsiveness, encourages positive recommendations, and confirms operational excellence as a strategic foundation for maintaining customer loyalty and market competitiveness.

JOURNAL OF CONSUMER SCIENCES

6.6 The Effect of Advanced Technology on Customer Retention Mediated by Logistics Performance

The findings from H6 indicate that advanced technology (AT) effectively enhances CR through LP as a mediating variable. This study focuses on the relationship between AT, CR, and LP with results showing that AT can increase CR, without an increase in LP. Although AT such as artificial intelligence, blockchain, and IoT are designed to improve operational efficiency and connectivity, research shows that the lack of integration between AT and LP leads to inconsistent improvements in service quality, delivery accuracy, and customer experience in building loyalty (Jezierski, 2020; Kwon & So, 2023; Ntule, 2024). Thus, significant investment in advanced technology will not contribute significantly to customer retention strategies unless it is synergized with effective LP improvement (Shahparan, 2024).

The more synergistic the integration of advanced technology with improved logistics performance, the greater the resulting improvements in service quality, delivery accuracy, and consistency of the customer experience. This integration facilitates faster problem-solving processes and enables real-time, data-driven decision-making, thereby creating a positive cycle that strengthens customer retention. Therefore, a strategic focus on the simultaneous advancement of AT and LP is essential to maximizing the impact of technological innovation on customer loyalty and satisfaction.

6.7 The Effect of Logistics Customer Service on Customer Retention Mediated by Logistics Performance

The findings from H7 show that logistics customer service positively and directly influences customer retention through logistics performance. Effective LCS characterized by timely communication, efficient problem resolution, and high service quality plays a crucial role in shaping customer perceptions and fostering loyalty (Oh et al., 2022). Enhancements in LCS significantly improve LP by increasing order accuracy, delivery speed, and responsiveness, all of which contribute to a more positive customer experience (Yu, 2023). This optimization of LP, in turn, leads to higher customer retention, as customers tend to remain loyal to providers who consistently meet their expectation (Masudin et al., 2020). Therefore, incorporating logistics customer service into logistics operations not only enhances logistics performance but also reinforces customer retention through improved performance metrics that strengthen customer loyalty (Artha et al., 2022; Ricadonna et al., 2021). Strategic investment in LCS initiatives is therefore essential for fostering long-term customer relationships and supporting sustainable business growth (Mathew, 2021).

The findings illustrate that improving logistics customer service through timely communication, optimal problem resolution, and superior service standards indirectly strengthens customer retention by boosting logistics performance. Increased order accuracy, consistent delivery speeds, and responsiveness, contribute to a more satisfying and predictable customer experience. This fosters trust and loyalty, as customers are more likely to remain with providers who consistently meet their expectations. Thus, integrating LCS initiatives into operational processes not only improves logistics performance but also creates a continuous cycle that supports sustained customer retention.

6.8 Managerial Implication

This research underscores the necessity of a synergistic strategic approach integrating AT, LCS, and LP to achieve sustainable competitive advantage. A key recommendation is

JOURNAL OF CONSUMER SCIENCES

to develop a comprehensive framework that links technological innovation with responsive customer service and superior operational performance. Implementation strategies should recognize that investments in advanced technologies like blockchain, AI, and IoT cannot stand alone; ongoing improvements in service quality and logistics performance must complement them. Companies are advised to make smart investments in predictive and analytics technologies, such as advanced customer relationship management systems and automation processes that enable service personalization and deep insights into customer preferences. The advancement of technological capabilities should be closely aligned with initiatives aimed at enhancing customer service quality, with a particular focus on responsiveness, reliability, and effective communication. This strategy entails the deployment of real-time tracking systems, the use of predictive analytics to anticipate customer needs, and the establishment of transparent and timely communication channels. By integrating advanced technology, high-quality service, customer reliability, and logistics performance, companies can deliver a cohesive and high-value customer experience that strengthens retention and supports sustainability in an increasingly complex and competitive logistics environment.

The practical implications of these findings offer strategic guidance for logistics companies to invest in technologies such as blockchain, AI, and the IoT, while simultaneously improving responsive and efficient customer service systems. This integrated approach is expected to foster a sustainable competitive advantage amidst intensifying market competition.

6.9 Theoretical Contribution

This research makes a significant theoretical contribution by extending and strengthening the conceptual framework that links advanced technology, logistics customer service, and logistics performance in the context of improving customer retention. Beyond confirming previous findings, this study identifies a critical gap in the literature by demonstrating the mediating role of logistics performance as a key variable that optimizes the synergistic impact of technological innovation and logistics service quality. Accordingly, this study offers a deeper understanding of the operational mechanisms that drive customer retention and provides a foundation for more comprehensive theory development in logistics management and e-commerce.

6.10 Limitations

This study has two limitations. First, the scope of this study is limited to a single logistic platform Shopee Express in the West Java region. Therefore, the findings may not be applicable to other e-commerce logistics providers or regions with different levels of infrastructure and digital access, warranting further research. Second, the use of a cross-sectional survey design captures relationships at a single point in time, limiting the ability to observe how these dynamics evolve in response to technological advancements and market developments.

7. Conclusions

This study concludes that advanced technology and logistics customer service have a significant and positive direct effect on customer retention. Conversely, logistics performance functions both as a key outcome and as a mediating mechanism that strengthens these relationships. The empirical findings demonstrate that the effectiveness of AT in enhancing CR depends on its integration with strong LP practices, highlighting the conditional nature of technological investment outcomes. Moreover, LCS is proven to enhance LP, which in turn significantly contributes to CR, indicating a clear

JOURNAL OF CONSUMER SCIENCES

causal pathway. These findings confirm that achieving customer retention in the e-commerce logistics sector requires not only individual excellence in technology and service but also their alignment through strong logistics performance. Therefore, strengthening logistics operations emerges as a strategic lever to integrate innovation and service quality, ultimately ensuring sustainable customer loyalty in a highly dynamic and competitive environment.

8. Recommendation

Therefore, it is recommended that future research adopt a more comprehensive methodological approach with broader geographical coverage to deepen the understanding and to explore additional variables, such as operational innovation or organizational culture, in a better e-commerce logistics context.

Drawing from the study's findings, this research proposes strategic directions for both practitioners and future researchers in the e-commerce logistics sector. For practitioners particularly Shopee Express and similar logistics providers there is a clear imperative to integrate advanced technologies such as IoT, AI, and blockchain with a responsive and personalized customer service framework. Such integration ensures that technological investments translate into tangible operational improvements and increased customer satisfaction. Leveraging big data and predictive analytics is essential for optimizing delivery routes, anticipating demand fluctuations, and reducing operational costs, thereby enhancing logistics performance.

In parallel, establishing robust real-time monitoring systems and transparent communication protocols can enhance customer trust and engagement. Prioritizing continuous employee training is also essential to ensure the effective adoption of new technologies and the maintenance of high service standards. Additionally, implementing flexible and proactive service policies such as instant or same-day delivery and efficient claims handling can provide valuable differentiation in an increasingly competitive market. Finally, developing strategic partnerships with technology providers, academic institutions, and regulatory bodies will be essential to fostering innovation and embedding best practices within the digital logistics ecosystems.

Citation information
Cite this article as: Nasrudin, M. F., Purnomo, A., & Lestiani, M. E. (2025). Unraveling the dynamics between advanced technology, logistics customer service, and logistics performance to boost customer retention: evidence from Shopee Express West Java. *Journal of Consumer Sciences, 10*(2), 343-375. https://doi.org/10.29244/jcs.10.2.343-375.

References

AÇAR, Z., & Clarke, O. E. (2021). Applicability of Blockchain Technology in the Global Logistics Systems. *European Proceedings of Social and Behavioural Sciences*, *121*, 1–286. https://doi.org/10.15405/epsbs.2021.12.04.24

Adawiyah, A. W., & Mulyati, E. (2024). Analysis of Factors That Influence the Effectiveness of Export Performance (Case Study at PT. Sinergi Mitra Lestari Indonesia). *Diversity: Fostering UNITY Sustainable Research and Innovation Society*, 453–459. https://pns.mypolycc.edu.my/index.php/program/category/139-iric

Adenigbo, A. J., Mageto, J., & Luke, R. (2023). Adopting Technological Innovations in the Air Cargo Logistics Industry in South Africa. *Logistics MDPI*, *7*(4), 84. https://doi.org/10.3390/logistics7040084

JOURNAL OF CONSUMER SCIENCES

Adzhigalieva, Z., Hurriyati, R., & Hendrayati, H. (2022, July 12). The Influence of Complaint Handling and Service Recovery on Customer Satisfaction, Customer Loyalty and Customer Retention. *Advances in Economics, Business and Management Research, Volume 220 6th Global Conference on Business, Management, and Entrepreneurship (GCBME 2021)*. https://doi.org/10.2991/aebmr.k.220701.055

Ahmad, N., Sham, R., Yahaya, S., & Alhajri, N. O. A. (2024). Influence of Customer Relationship on Supply Chain Performance in Telecommunication Industry. *12th AMER International Conference on Quality of Life*, *9*(27), 19–25. https://doi.org/10.21834/e-bpj.v9i27.5647

Ahmed, A. Y. M. (2021). The Importance of Supply Chain Management Practices in Increasing Customer Satisfaction and Customer Retention: Evidence from Saudi Arabia. *International Journal of Scientific Research and Management*, *9*(03), 2136–2151. https://doi.org/10.18535/ijsrm/v9i03.em04

Akbari, M., & Bigdeli, M. (2022). Gamified Customer Experience and Engagement in Amazon Online Retailing Company in Covid-19 Era. *International Journal of Electronic Commerce Studies*, *13*(4), 135. https://doi.org/10.7903/ijecs.2055

Akoğlu, N., Civelek, M. E., & Başaran, Y. (2022). The Role of Information Technology in the Effect of Innovation Capability on Logistics Service Quality. *ResearchGate - Journal of Business Research - Turk*, *1*(14), 249–265. https://doi.org/10.20491/isarder.2022.1378

Alifnur Harmawan, R., & Mulyati, E. (2024). Challenges and Strategies for Rice Price Stability: A Systematic Review of Supply Chain Dynamics in Indonesia During Critical Periods. *DIVERsITY: FOsTERING UNITY SUsTAINABLE REsEARCH AND INNOVATION SOCIETY*, 468–476. https://pns.mypolycc.edu.my/index.php/program/category/139-iric

Altalhi, H. H., & Basiouni, A. F. (2023). An Empirical Study on the Applicability of the Customer Satisfaction Index Model in Guiding the Adoption of Supply Chain Management Systems Among Businesses in Saudi Arabia. *Indian Journal of Science And Technology*, *16*(43), 3948–3958. https://doi.org/10.17485/IJST/v16i43.2147

Ambrose, N., Aimufua, G. I. O., & Nyap, C. D. (2024). A Novel Approach for Developing a Linear Regression Model Within Logistic Cluster Using Scikit-Learn. *Journal of Data Analysis and Information Processing*, *12*(03), 348–369. https://doi.org/10.4236/jdaip.2024.123019

Araújo, F. A. d., Reis, J. G. M. dos, Silva, M. T. d., & Aktaş, E. (2022). A Fuzzy Analytic Hierarchy Process Model to Evaluate Logistics Service Expectations and Delivery Methods in Last-Mile Delivery in Brazil. *Sustainability MDPI*, *14*(10), 5753. https://doi.org/10.3390/su14105753

Artha, B., Zahara, I., Bahri, B., & Sari, N. P. (2022). Customer Retention: A Literature Review. *Social Science Studies*, *2*(1), 030–045. https://doi.org/10.47153/sss21.2952022

Awang Kechil, N., Zulfakar, M. H., Muhammad, A., Ab Talib, M. S., & Nasir, S. (2022). Effects of Information Technology on Logistics Firms' Performance in Shah Alam, Selangor, Malaysia. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *12*(3), 430–437. https://doi.org/10.6007/ijarafms/v12-i3/14783

Bahamdain, A., Alharbi, Z. H., Alhammad, M. M., & Alqurashi, T. (2022). Analysis of Logistics Service Quality and Customer Satisfaction During COVID-19 Pandemic in Saudi Arabia. *International Journal of Advanced Computer Science and Applications*, *13*(1), 174–180. https://doi.org/10.14569/ijacsa.2022.0130121

Bakhriddinovich, M. S., & Rashidovna, M. R. (2024). *Uzbekistan Railways Joint Stock Company the Role of Financial Analysis in Optimizing the Efficiency of Logistics Corporate Structures*. *1*(9), 86–94. https://doi.org/10.61796/jaide.v1i9.958

Baral, M. M., Singh, R. K., & Kazançoğlu, Y. (2021). Analysis of Factors Impacting Survivability of Sustainable Supply Chain During COVID-19 Pandemic: An Empirical

JOURNAL OF CONSUMER SCIENCES

Study in the Context of SMEs. *The International Journal of Logistics Management*, *34*(4), 935–961. https://doi.org/10.1108/ijlm-04-2021-0198

Barker, J. M., & Brau, R. I. (2020). Shipping Surcharges and LSQ: Pricing the Last Mile. *International Journal of Physical Distribution & Logistics Management*, *50*(6), 667–691. https://doi.org/10.1108/ijpdlm-09-2019-0292

Barusman, A. R. P., Rulian, E. P., & Susanto, S. (2020). The Antecedent of Customer Satisfaction and Its Impact on Customer Retention in Tourism as Hospitality Industry. *International Journal of Advanced Science and Technology*, *28*(8), 332–330. https://doi.org/10.31235/osf.io/469v5

Belhadi, A., Mani, V., Kamble, S., Khan, S. A. R., & Verma, S. (2021). Artificial Intelligence-Driven Innovation for Enhancing Supply Chain Resilience and Performance Under the Effect of Supply Chain Dynamism: An Empirical Investigation. *Annals of Operations Research*, *333*(2–3), 627–652. https://doi.org/10.1007/s10479-021-03956-x

Boysen, N., Fedtke, S., & Schwerdfeger, S. (2020). Last-Mile Delivery Concepts: A Survey From an Operational Research Perspective. *Or Spectrum*, *43*(1), 1–58. https://doi.org/10.1007/s00291-020-00607-8

Bugarčić, F. Ž., Mijušković, V., & Aćimović, S. (2024). Innovation and New Technologies as Determinants of Logistics 4.0. *Politická Ekonomie*, *72*(1), 102–121. https://doi.org/10.18267/j.polek.1422

Burinskienė, A., & Daškevič, D. (2024). Digitalization in Logistics for Competitive Excellence. *Tehnički Glasnik*, *18*(3), 486–496. https://doi.org/10.31803/tg-20240502090609

Cahyani, N. L. P. A. (2024). Machine Learning Approaches for Customer Churn Prediction in the Aquaculture Technology Sector. *IInternational Journal of Current Science Research and Review*, *07*(08), 1. https://doi.org/10.47191/ijcsrr/v7-i8-74

Chikazhe, L., Chinofunga, S., & Chifamba, O. (2023). Promoting Perceived Service Quality and Organisational Performance Through Customer Retention Strategies: The moderating Role of ICT. *European Journal of Management Studies*, *28*(3), 193–211. https://doi.org/10.1108/ejms-01-2023-0003

Cichosz, M., Wallenburg, C. M., & Knemeyer, A. M. (2020). Digital Transformation at Logistics Service Providers: Barriers, Success Factors and Leading Practices. *The International Journal of Logistics Management*, *31*(2), 209–238. https://doi.org/10.1108/ijlm-08-2019-0229

Ciechomski, W., & Strojny, S. (2022). Standardisation of Logistics Customer Service. *European Research Studies Journal*, *XXV*(2), 347–358. https://doi.org/10.35808/ersj/2967

Diaa, M., & Wahab, A. (2023). Omnichannel Retailing and Customer Retention: The Mediating Effect of Omnichannel Shopping Experience. *Caf.Journal*, *0*(0), 0–0. https://doi.org/10.21608/caf.2023.329148

Dubey, R., Bryde, D., Dwivedi, Y. K., Graham, G., Foropon, C., & Παπαδόπουλος, Θ. (2023). Dynamic Digital Capabilities and Supply Chain Resilience: The Role of Government Effectiveness. *International Journal of Production Economics*, *258*(1), 108790. https://doi.org/10.1016/j.ijpe.2023.108790

Duffour, K. A., Gbolonyo, P. K., & Tandoh, I. (2022). Service Quality in Shipping Industry of Ghana – Determinants and Impact on Customer Satisfaction and Customer Retention. *International Journal of Applied Research in Business and Management*, *3*(2), 112–134. https://doi.org/10.51137/ijarbm.2022.3.2.8

Ejdys, J., & Gulc, A. (2020). Trust in Courier Services and Its Antecedents as a Determinant of Perceived Service Quality and Future Intention to Use Courier Service. *Sustainability*, *12*(21), 9088. https://doi.org/10.3390/su12219088

Ekarani, N. W. W., Suciptawati, N. L. P., & Susilawati, M. (2022). Analisis tingkat kepuasan konsumen terhadap kualitas layanan shopee. *E-Jurnal Matematika*, *11*(1), 38. https://doi.org/10.24843/mtk.2022.v11.i01.p358

JOURNAL OF CONSUMER SCIENCES

Ekopriyono, A., Pujiastuti, N. S., Widayati, T., & Puspitowati, I. (2021). A Study of SMEs' Retention Marketing During the Covid-19 Pandemic. *Proceedings of the Ninth International Conference on Entrepreneurship and Business Management (ICEBM 2020)*, *174*, 494–500. https://doi.org/10.2991/aebmr.k.210507.073

Elsaed, A. A., Soliman, S., & Emam, A. (2023). The Impact of Logistics Service Quality on Customer Loyalty in Egyptian Resorts: Customer Satisfaction as a Mediator. *International Journal of Tourism and Hospitality Management*, *6*(1), 153–167. https://doi.org/10.21608/ijthm.2023.300848

Engesser, V., Rombaut, E., Vanhaverbeke, L., & Lebeau, P. (2023). Autonomous Delivery Solutions for Last-Mile Logistics Operations: A Literature Review and Research Agenda. *Sustainability MDPI*, *15*(3), 2774. https://doi.org/10.3390/su15032774

Evelina, T. Y. (2022). The Effect of Perceived Benefits on Customer Satisfaction and Customer Retention on Indonesian E-Commerce Sites. *International Journal of Electronic Commerce Studies*, *13*(2), 99–118. https://doi.org/10.7903/ijecs.1908

Fatorachian, H., & Kazemi, H. (2020). Impact of Industry 4.0 on Supply Chain Performance. *Production Planning & Control*, *32*(1), 63–81. https://doi.org/10.1080/09537287.2020.1712487

Gao, L., Haan, E. de, Melero-Polo, I., & Sesé, F. J. (2022). Winning Your Customers' Minds and Hearts: Disentangling the Effects of Lock-in and Affective Customer Experience on Retention. *Journal of the Academy of Marketing Science*, *51*(2), 334–371. https://doi.org/10.1007/s11747-022-00898-z

Garcia, J. M., Freire, O. B. D. L., Santos, E. B. A., & Andrade, J. (2020). Factors Affecting Satisfaction and Loyalty to Online Group Buying. *Revista De Gestão - Emerald Insight*, *27*(3), 211–228. https://doi.org/10.1108/rege-02-2018-0037

Garver, M. S., & Williams, Z. (2024). Logistics Customer Service and Customer Satisfaction: Importance-based Segments for Motor Carriers. *Transportation Journal*, *64*(1). https://doi.org/10.1002/tjo3.12028

Ghadge, A., Er, M., Moradlou, H., & Goswami, M. (2020). The Impact of Industry 4.0 Implementation on Supply Chains. *Journal of Manufacturing Technology Management*, *31*(4), 669–686. https://doi.org/10.1108/jmtm-10-2019-0368

Ginting, D. (2022). Analysis Of The Effect Of E-Service Quality On E-Customer Satisfaction And E-Customer Loyalty On Shopee. *Asian Journal of Research in Business and Management*. https://doi.org/10.55057/ajrbm.2022.4.3.35

Ginting, Y. M., Chandra, T., Miran, I., & Yusriadi, Y. (2023). Repurchase Intention of E-Commerce Customers in Indonesia: An Overview of the Effect of E-Service Quality, E-Word of Mouth, Customer Trust, and Customer Satisfaction Mediation. *International Journal of Data and Network Science*, *7*(1), 329–340. https://doi.org/10.5267/j.ijdns.2022.10.001

Gizaw, T., Bogale, M., & Gudeta, T. (2021). Investigating the Effect of Pharmaceutical Logistics Service Performance on Customer Satisfaction: A Two-Step Approach With Structural Equation Modeling. *Journal of Pharmaceutical Policy and Practice*, *14*(1), 64. https://doi.org/10.1186/s40545-021-00351-6

Götz, L. N., Staudt, F. H., Borba, J. L. G. de, & Bouzon, M. (2023). A Framework for Logistics Performance Indicators Selection and Targets Definition: A Civil Construction Enterprise Case. *Production*, *33*(e20220075), 1–18. https://doi.org/10.1590/0103-6513.20220075

Gowri, Ms. K. G. (2022). Impact of the Internet of Things (IOT) on Logistics. *Journal of Image Processing and Intelligent Remote Sensing*, *3*(1), 1–10. https://doi.org/10.55529/jipirs.31.1.10

Gupta, A., Singh, R. K., Mathiyazhagan, K., Suri, P. K., & Dwivedi, Y. K. (2022). Exploring Relationships Between Service Quality Dimensions and Customers Satisfaction: Empirical Study in Context to Indian Logistics Service Providers. *The International Journal of Logistics Management*, *34*(6), 1858–1889. https://doi.org/10.1108/ijlm-02-2022-0084

JOURNAL OF CONSUMER SCIENCES

Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R A Workbook*. Springer, Cham. https://doi.org/https://doi.org/10.1007/978-3-030-80519-7_1

Halim, I. (2024). The Effect of Service Quality Dimensions, Perceived Value, Customer Satisfaction, and Brand Love Toward Customer Retention on First Media's Subscribers. *Widya Cipta - Jurnal Sekretari Dan Manajemen*, *8*(2), 139–152. https://doi.org/10.31294/widyacipta.v8i2.20052

Holloway, S. (2024). Exploring the Relationship Between Supply Chain Responsiveness and Customer Loyalty in the E-Commerce Sector. *ResearchGate*. https://doi.org/10.20944/preprints202406.1616.v1

Hu, M., Chaudhry, P. E., & Chaudhry, S. S. (2022). Linking Customized Logistics Service in Online Retailing With E-Satisfaction and E-Loyalty. *International Journal of Engineering Business Management*, *14*, 1–12. https://doi.org/10.1177/18479790221097528

Huge-Brodin, M., Sweeney, E., & Evangelista, P. (2020). Environmental Alignment Between Logistics Service Providers and Shippers – A Supply Chain Perspective. *The International Journal of Logistics Management*, *31*(3), 575–605. https://doi.org/10.1108/ijlm-04-2019-0101

Ismail, T., & Mahran, A. F. A. (2021). The Relationship Between Logistics Performance and Customer Loyalty in Manufacturing Companies Using (3PLs) Services in Egypt. *The Academic Journal of Contemporary Commercial Research*, *1*(1), 38–74. https://doi.org/10.21608/ajccr.2021.211512

Jezierski, A. (2020). Information and Communication Technologies (ICT) in Construction and Development of Logistics Systems. *Ekonomika I Organizacja Logistyki*, *5*(1), 5–13. https://doi.org/10.22630/eiol.2020.5.1.1

Jou, Y., Lo, C.-Y., Mariñas, K. A., Saflor, C. S., Gutierrez, C. J., Sanchez, C., Songco, D., Redston, J., Devara, M. B., & Bucal, M. J. (2024). Assessing the E-Commerce Sustainability Readiness: A Green Logistics Study on Online Sellers. *Sustainability MDPI*, *16*(7), 2954. https://doi.org/10.3390/su16072954

Kadłubek, M., Thalassinos, E., Domagała, J., Grabowska, S., & Saniuk, S. (2022). Intelligent Transportation System Applications and Logistics Resources for Logistics Customer Service in Road Freight Transport Enterprises. *Energies MDPI*, *15*(13), 4668. https://doi.org/10.3390/en15134668

Kawa, A., & Światowiec-Szczepańska, J. (2021). Logistics as a Value in E-Commerce and Its Influence on Satisfaction in Industries: A Multilevel Analysis. *Journal of Business and Industrial Marketing*, *36*(13), 220–235. https://doi.org/10.1108/jbim-09-2020-0429

Khairi, L. I., & Cahyadi, E. R. (2023). Pengaruh Logistics Service Quality Terhadap Customer Satisfaction dan Customer Loyalty Pada Pengguna JNE dan J&T Express di Jabodetabek. *Jurnal Aplikasi Bisnis Dan Manajemen*, *9*(2), 671–683. https://doi.org/10.17358/jabm.9.2.671

Khan, M. A., Akter, M. S., & Islam, R. (2024). Big Data Analytics and Predictive Analysis in Enhancing Customer Relationship Management (CRM): A Systematic Review of Techniques and Tools. *Journal of Machine Learning, Data Engineering And Data Science*, *1*(01), 83–99. https://doi.org/10.70008/jmldeds.v1i01.44

Khan, M. A., & Alhumoudi, H. (2022). Performance of E-Banking and the Mediating Effect of Customer Satisfaction: A Structural Equation Model Approach. *Sustainability MDPI*, *14*(12), 7224. https://doi.org/10.3390/su14127224

Kristanti, D. A., & Mranani, N. A. (2024). The Effect of Cost Reduction as Part of Supply Chain Drivers' Element and Customer Satisfaction on Purchasing and Logistics Performance. *Petra International Journal of Business Studies*, *7*(1), 89–98. https://doi.org/10.9744/petraijbs.7.1.89-98

Kurdi, B. Al, Alshurideh, M. T., Shammout, E., AlHamad, A., & Akour, I. (2023). Achieving Customer Retention: Emphasizing Strategic Operations on Quality Service and

JOURNAL OF CONSUMER SCIENCES

Maximizing Value. *International Journal of Theory of Organization and Practice (Ijtop)*, *3*(1), 27–38. https://doi.org/10.54489/ijtop.v3i1.239

Kuru, K., & Ansell, D. (2020). TCitySmartF: A Comprehensive Systematic Framework for Transforming Cities Into Smart Cities. *Ieee Access*, *8*(1), 18615–18644. https://doi.org/10.1109/access.2020.2967777

Kwon, K., & So, J. (2023). Future Smart Logistics Technology Based on Patent Analysis Using Temporal Network. *Sustainability MDPI*, *15*(10), 8159. https://doi.org/10.3390/su15108159

Leiria, M., Rebelo, E., & Matos, N. (2021). Measuring the Effectiveness of Intermediary Loyalty Programmes in the Motor Insurance Industry: Loyal Versus Non-Loyal Customers. *European Journal of Management and Business Economics*, *31*(3), 305–324. https://doi.org/10.1108/ejmbe-05-2020-0103

Li, S. (2024). Research on the Innovation of Logistics System of E-Commerce --Taking JD Logistics as an Example. *Advances in Economics Management and Political Sciences*, *79*(1), 175–181. https://doi.org/10.54254/2754-1169/79/20241809

Liang, H., Scholar, P., & Ho, R. C. (2020). The Mediating Role of Logistics Service Capability on Chinese Logistics Performance. *International Review of Social Sciences*, *8*(1), 1–13. https://www.researchgate.net/publication/340579809_The_Mediating_Role_of_Logistics_Service_Capability_on_Chinese_Logistics_Performance

Liang, Z. (2023). Predict Customer Churn Based on Machine Learning Algorithms. *Highlights in Business Economics and Management*, *10*, 270–275. https://doi.org/10.54097/hbem.v10i.8051

Lin, X., Mamun, A. Al, Yang, Q., & Masukujjaman, M. (2023). Examining the effect of logistics service quality on customer satisfaction and re-use intention. *PLoS ONE*, *18*(5 May), 1–24. https://doi.org/10.1371/journal.pone.0286382

Lyu, J., Zhou, F., & He, Y. (2023). Digital Technique-Enabled Container Logistics Supply Chain Sustainability Achievement. *Sustainability MDPI*, *15*(22), 16014. https://doi.org/10.3390/su152216014

Makinde, G. O., Akinlabi, H. B., & O., O. I. (2021). Process Innovation and Customer Retention of SMEs in Selected LGAs in OYO State, Nigeria. *The Strategic Business & Change - Journal of Management*, *8*(2), 588–598. https://doi.org/10.61426/sjbcm.v8i2.2018

Mardika, N. H. (2022). Factors Affecting Customer Retention in Batam Harbour Bay CGV Cinemas. *Jim Upb (Jurnal Ilmiah Manajemen Universitas Putera Batam)*, *10*(1), 29–37. https://doi.org/10.33884/jimupb.v10i1.4659

Marsita, E., & Maniah. (2024). A Literature Review: Analysis of Courier Business Strategies in Facing Global Challenges. *DIVERsITY: FOsTERING UNITY SUsTAINABLE REsEARCH AND INNOVATION SOCIETY*, 491–500. https://pns.mypolycc.edu.my/index.php/program/category/139-iric

Masudin, I., Fernanda, F. W., Zulfikarijah, F., & Restuputri, D. P. (2021). Customer Loyalty on Halal Meat Product: A Case Study of Indonesian Logistics Performance Perspective. *International Journal of Business and Society*, *21*(1), 433–453. https://doi.org/10.33736/ijbs.3262.2020

Masudin, I., Hanifah, Y. K. P., Dewi, S. K., Restuputri, D. P., & Handayani, D. (2022). Customer Perception of Logistics Service Quality Using SIPA and Modified Kano: Case Study of Indonesian E-Commerce. *Logistics MDPI*, *6*(3), 51. https://doi.org/10.3390/logistics6030051

Masudin, I., Safitri, N. T., Restuputri, D. P., Wardana, R. W., & Amallynda, I. (2020). The Effect of Humanitarian Logistics Service Quality to Customer Loyalty Using Kansei Engineering: Evidence From Indonesian Logistics Service Providers. *Cogent Business & Management*, *7*(1), 1826718. https://doi.org/10.1080/23311975.2020.1826718

JOURNAL OF CONSUMER SCIENCES

Mathew, J. (2021). Drivers of Customer Retention: An Introspection Into Indian Retail Customers. *Vision the Journal of Business Perspective*, *28*(5), 567–579. https://doi.org/10.1177/09722629211043592

Maziyah, N., & Vitasari, P. (2022). The Dominant Effect of Electronic Service Quality Attributes on Affective, Conative, and Action Electronic Customer Loyalty on Shopee E-Commerce Users in East Java. *TIJAB (The International Journal of Applied Business)*, *6*(1), 107–119. https://doi.org/10.20473/tijab.v6.i1.2022.31934

Mo, Y., Sun, Z., & Yu, C. (2023). EventTube: An Artificial Intelligent Edge Computing Based Event Aware System to Collaborate With Individual Devices in Logistics Systems. *IEEE Transactions on Industrial Informatics*, *19*(2), 1823–1832. https://doi.org/10.1109/TII.2022.3189177

Modgil, S., Singh, R. K., & Hannibal, C. (2021). Artificial Intelligence for Supply Chain Resilience: Learning From Covid-19. *The International Journal of Logistics Management*, *33*(4), 1246–1268. https://doi.org/10.1108/ijlm-02-2021-0094

Moldabekova, A., Philipp, R., Reimers, H. E., & Alikozhayev, B. (2021). Digital Technologies for Improving Logistics Performance of Countries. *Transport and Telecommunication*, *22*(2), 207–216. https://doi.org/10.2478/ttj-2021-0016

Morgeson, F. V, Hult, G. T. M., Mithas, S., Keiningham, T. L., & Fornell, C. (2020). Turning Complaining Customers Into Loyal Customers: Moderators of the Complaint Handling–Customer Loyalty Relationship. *Journal of Marketing*, *84*(5), 79–99. https://doi.org/10.1177/0022242920929029

Mutuma, R., & Meteur, G. (2024). An Analysis of How Logistics Integration Affects Organizational Performance in Kenya's Clearing and Forwarding Sector. A Structural Equation Modelling Approach. *Kabarak Journal of Research & Innovation*, *14*(01), 134–145. https://doi.org/10.58216/kjri.v14i01.297

Ngah, A. H., Anuar, M. M., Rozar, N. N., Ariza-Montes, A., Araya-Castillo, L., Kim, J. J., & Han, H. (2021). Online Sellers' Reuse Behaviour for Third-Party Logistics Services: An Innovative Model Development and E-Commerce. *Sustainability MDPI*, *13*(14), 7679. https://doi.org/10.3390/su13147679

Ngah, A. H., Thurasamy, R., & Han, H. (2023). If you don't care, I will switch: online retailers' behaviour on third-party logistics services. *International Journal of Physical Distribution and Logistics Management*, *53*(7–8), 813–837. https://doi.org/10.1108/IJPDLM-04-2022-0124

Ntule, N. D. (2024). Effect of Digitalization on Logistics Performance Among Logistics Related Companies in Cameroon. *American Journal of Supply Chain Management*, *9*(3), 1–16. https://doi.org/10.47672/ajscm.2099

Nugroho, S. B., Kempa, S., & Panjaitan, T. W. S. (2020). Logistic Service Quality and Customer Satisfaction to Customer Retention on Rice Producer Industry. *SHS Web of Conferences*, *76*, 01048. https://doi.org/10.1051/shsconf/20207601048

Nuraina, N., Hamidah, A. N., Despal, D., & Taufik, E. (2022). The Perception of the Farmer on Dairy Cooperative Feed Mill Logistics Service Using Customer Satisfaction Index (CSI) and Importance-Performance Analysis (IPA). *Iop Conference Series Earth and Environmental Science*, *1001*(1), 012025. https://doi.org/10.1088/1755-1315/1001/1/012025

Nyaga, M. A. M., & Nkaabu, C. (2024). Customer Relationship Management on Customer Retention in the SACCO Sector in Kenya. *Asian Journal of Economics Business and Accounting*, *24*(11), 588–599. https://doi.org/10.9734/ajeba/2024/v24i111578

Obafemi, O. O., & Oyawa, O. B. (2024). The Impact of Customer Retention on Organization Profitability in the FMCG Sector in Nigeria. *British Journal of Management and Marketing Studies*, *7*(3), 116–129. https://doi.org/10.52589/bjmms-wcbciyfb

Ofori, M. (2024). Effect of Fashion E-Commerce User Experience on Customer Retention in Ghana. *International Journal of Fashion and Design*, *3*(1), 1–13. https://doi.org/http://dx.doi.org/10.47604/ijfd.2860

JOURNAL OF CONSUMER SCIENCES

Ogunnowo, E. B., & Sule, S. (2021). Measurement of Customer Perceptions of Logistics Service Quality. *Jurnal Teknik Industri*, *22*(1), 43–56. https://doi.org/10.22219/jtiumm.vol22.no1.43-56

Oh, K.-Y., Kang, S.-Y., & Oh, Y.-G. (2022). The Moderating Effects of Eco-Friendliness Between Logistics Service Quality and Customer Satisfaction in Cross-Border E-Commerce: Evidence From Overseas Direct Purchasers in Korea. *Sustainability MDPI*, *14*(22), 15084. https://doi.org/10.3390/su142215084

Ouyang, M. (2024). Research on the Impact of Customer Service Level on Logistics Cost Management. *Industrial Engineering and Innovation Management*, *7*(1), 1–7. https://doi.org/10.23977/ieim.2024.070101

Pacheco-Velázquez, E., Rodés, V., & Marquez-Uribe, A. (2024). Exploring Educational Simulation Platform Features for Addressing Complexity in Industry 4.0: A Qualitative Analysis of Insights From Logistics Experts. *Frontiers in Education*, *9*(1331911), 01–14. https://doi.org/10.3389/feduc.2024.1331911

Pasape, L. (2022). Key Elements of Customer Trust Towards Retaining Customers of Telecommunication Companies in Tanzania. *Journal of Service Science and Management*, *15*(04), 476–499. https://doi.org/10.4236/jssm.2022.154028

Patro, R. K., Chandra, S., & Patro, J. P. (2024). Drone Integration in Last-Mile Delivery Operations. *International Journal of Supply Chain and Logistics (IJSCL)*, *8*(2), 109–122. https://doi.org/https://doi.org/10.47941/ijscl.2286

Purnomo, A., Syafrianita, Rahayu, M., Rohyana, C., Lestiani, M. E., Supardi, E., & Yanto, R. T. Y. (2024). Leveraging green innovation and green ambidexterity for green competitive advantage: The mediating role of green resilient supply chain. *Uncertain Supply Chain Management*, *12*(4), 2683–2698. https://doi.org/10.5267/j.uscm.2024.5.003

Purwoko, H., Thamrin, H. M., Yuliyanto, A., Akira, H., & D4, S. (2022). Analysis of The Elements of Logistics Customer Service In Freight Forwarding. *Jurnal Manajemen Bisnis Transportasi Dan Logistik*, *8*(2), 25–33. https://doi.org/http://dx.doi.org/10.54324/j.mbtl.v8i2.1203

Rahayu, D., Setiawan E, B., Marina, S., Agusinta, L., & Rahmawati, A. (2024). Meningkatkan Customer Retention Melalui Customer Engagement dengan Kontribusi Customer Experience dan Perceived Value. *Jurnal Media Bina Ilmiah*, *19*(1), 3533–3556. https://binapatria.id/index.php/MBI/article/view/909

Rahman, N. S. F. A., Karim, N. H., Hanafiah, R. M., Hamid, S. A., & Mohammed, A. (2021). Decision Analysis of Warehouse Productivity Performance Indicators to Enhance Logistics Operational Efficiency. *International Journal of Productivity and Performance Management*, *72*(4), 962–985. https://doi.org/10.1108/ijppm-06-2021-0373

Restuputri, D. P., Fridawati, A., & Masudin, I. (2022). Customer Perception on Last-Mile Delivery Services Using Kansei Engineering and Conjoint Analysis: A Case Study of Indonesian Logistics Providers. *Logistics MDPI*, *6*(2), 29. https://doi.org/10.3390/logistics6020029

Restuputri, D. P., Indriani, T. R., & Masudin, I. (2021). The Effect of Logistic Service Quality on Customer Satisfaction and Loyalty Using Kansei Engineering During the COVID-19 Pandemic. *Cogent Business & Management*, *8*(1), 1–35. https://doi.org/10.1080/23311975.2021.1906492

Ricadonna, N. A., Saifullah, M., & Prasetyoningrum, A. K. (2021). The Effect of Trust and Brand Image on Customer Retention With Customer Loyalty as Intervening Variables to Customers of Sharia Commercial Banks. *Jurnal Keuangan Dan Perbankan*, *25*(2), 311. https://doi.org/10.26905/jkdp.v25i2.5145

Rizkallah, wasseem. (2023). Logistics Investment and Economic Growth in Arab Countries and OECD Countries: A Mediation Analysis Approach. *L' Egypte Contemporaine*, *114*(549), 535–579. https://doi.org/10.21608/espesl.2022.175266.1036

JOURNAL OF CONSUMER SCIENCES

Rosário, A. T., & Casaca, J. A. (2023). Relationship Marketing and Customer Retention - A Systematic Literature Review. *Studies in Business and Economics*, *18*(3), 44–66. https://doi.org/10.2478/sbe-2023-0044

Sansaluna, N., Cruz, S. Dela, Narciso, S., & Pascual, A. R. (2024). Impact of B2C E-Commerce to the General Performance of Selected Logistics Service Providers in Metro Manila. *Logistica: An International Journal of Customs Administration and Trade Facilitation*, *1*(1), 27–34. https://doi.org/10.62718/vmca.log-ijcatf.1.1.sc-0124-015

Saoula, O., Shamim, A., Suki, N. M., Ahmad, M. J., Abid, M. F., Patwary, A. K., & Abbasi, A. Z. (2023). Building E-Trust and E-Retention in Online Shopping: The Role of Website Design, Reliability and Perceived Ease of Use. *Spanish Journal of Marketing - Esic*, *27*(2), 178–201. https://doi.org/10.1108/sjme-07-2022-0159

Sapiński, A., & Pochopień, J. (2023). Logistics Innovations and Their Impact on the Development of Transportation Infrastructure in Europe: Future Prospects. *Futurity of Social Science*, *1*(2), 4–17. https://doi.org/10.57125/fs.2023.06.20.01

Saqib, Z. A., & Qin, L. (2024). Investigating Effects of Digital Innovations on Sustainable Operations of Logistics: An Empirical Study. *Sustainability MDPI*, *16*(13), 5518. https://doi.org/10.3390/su16135518

Sari, M., Rachman, H., Juli Astuti, N., Win Afgani, M., & Abdullah Siroj, R. (2022). Explanatory Survey dalam Metode Penelitian Deskriptif Kuantitatif. *Jurnal Pendidikan Sains Dan Komputer*, *3*(01), 10–16. https://doi.org/10.47709/jpsk.v3i01.1953

Sari, T. I., Hartoyo, H., & Muflikhati, I. (2025). Exploring the Impact of Perceived Justice and Complaint Handling Satisfaction on Trust and Commitment in Indonesia's E-commerce Fashion Sector. *Journal of Consumer Sciences*, *10*(1), 145–172. https://doi.org/10.29244/jcs.10.1.145-172

Semenda, O. (2023). CONCEPT OF CUSTOMER SERVICE IN THE LOGISTICS INDUSTRY: ADVANTAGES, PROBLEMS AND SOLUTIONS. *Economies' Horizons*, *1(23)*, 26–34. https://doi.org/10.31499/2616-5236.1(23).2023.270796

Septyarani, T. A., & Nurhadi, N. (2023). Pengaruh Kualitas Pelayanan dan Kepuasan Pelanggan terhadap Loyalitas Pelanggan. *Widya Cipta: Jurnal Sekretari Dan Manajemen*, *7*(2), 218–227. https://doi.org/10.31294/widyacipta.v7i2.15877

Shahparan, M. (2024). Development of Logistics Technology: An Analysis Based on the 4.0 Era. *International Journal of Multidisciplinary Approach Research and Science*, *2*(03), 994–1001. https://doi.org/10.59653/ijmars.v2i03.787

Shailaja, B. (2024). Analysis of Factors Affecting Customer Retention on E-Commerce With Reference to Bangalore. *Educational Administration: Theory and Practice*, *30*(4), 9364–9368. https://doi.org/10.53555/kuey.v30i4.4067

Shi, J. (2022). Research on Optimization of Cross-Border E-Commerce Logistics Distribution Network in the Context of Artificial Intelligence. *Hindawi - Mobile Information Systems*, *3022280*(1), 1–11. https://doi.org/10.1155/2022/3022280

Shrestha, S. K. (2020). Impact of Relationship Marketing on Customer Retention in Higher Education. *Management Dynamics*, *23*(2), 33–44. https://doi.org/10.3126/md.v23i2.35804

Sin, C., Sophat, P., & Touch, V. (2024). Determinants of Service Logistic Innovation and Its Capability in Cambodia Using the Structural Equation Model. *Srawung - Journal of Social Sciences and Humanites*, *3*(1), 58–73. https://doi.org/10.56943/jssh.v3i1.482

Sirait, R. B. U., & Waskito, S. K. (2024). The Impact of Digital Transformation, Logistics Competence, Transformational Leadership on Business Model Innovation and Its Implications for Company Performance. *DIVERsITY: FOsTERING UNITY SUsTAINABLE REsEARCH AND INNOVATION SOCIETY*, 484–490. https://pns.mypolycc.edu.my/index.php/program/category/139-iric

JOURNAL OF CONSUMER SCIENCES

Situmorang, P. D. A., & Lestiani, M. (2022). Analisis Penilaian Risiko Proses Supply Chain Pada Perusahaan E-Retail Menggunakan Metode House Of Risk. *Prosiding Seminar Nasional Teknologi Informasi Dan Kedirgantaraan :*, *VII*(SENATIK 2021), 267–278. https://doi.org/10.28989/senatik.v7i1.476

Sohail, H., Tariq, S., & Tariq, A. (2023). Evaluating Antecedents of Online Customer Retention. *Pakistan Journal of Humanities and Social Sciences*, *11*(2), 1303–1316. https://doi.org/10.52131/pjhss.2023.1102.0438

Sutrisno, A., Andajani, E., & Widjaja, F. N. (2019). The Effects of Service Quality on Customer Satisfaction and Loyalty in a Logistics Company. *ICEMA International Conference on Economics, Management, and Accounting*, 85–92. https://doi.org/10.18502/kss.v3i26.5360

Syafrianita, Purnomo, A., & Nasrudin, M. F. (2025). Investigasi Hubungan Antara Advance Technology, Logistics Service Cost, Dan Logistics Performance Di Shopee Express Bandung Raya. *Land - Logistics And Accounting Development Journal*, *6*(1), 253–265. https://doi.org/https://doi.org/10.47491/landjournal.v6i1.4038

Tang, X., & Wang, G. (2020). Design and Analysis of E-Commerce and Modern Logistics for Regional Economic Integration in Wireless Networks. *Eurasip Journal on Wireless Communications and Networking*, *208*(1), 1–15. https://doi.org/10.1186/s13638-020-01816-z

Tejo, M. P. (2021). The Effect of Perceived Value on Customer Retention With Trust as Mediation Variable in Company X. *Jurnal Nusantara Aplikasi Manajemen Bisnis*, *6*(2), 216–232. https://doi.org/10.29407/nusamba.v6i2.16205

Tokar, T., Williams, B. D., & Fugate, B. S. (2020). I Heart Logistics—Just Don't Ask Me to Pay for It: Online Shopper Behavior in Response to a Delivery Carrier Upgrade and Subsequent Shipping Charge Increase. *Journal of Business Logistics*, *41*(3), 182–205. https://doi.org/10.1111/jbl.12239

Trisolvena, M. N., Wattimena, F. Y., & Untajana, P. P. (2024). Logistics Efficiency in Product Distribution With Genetic Algorithms for Optimal Routes. *International Journal Software Engineering and Computer Science (Ijsecs)*, *4*(1), 247–262. https://doi.org/10.35870/ijsecs.v4i1.2045

Tuan, N. M., & Vo, T. N. L. (2024). The Relationship Between Information Technology, Logistics Service Quality and Perceived Performances in Vietnam Logistics Service Industry. *Uncertain Supply Chain Management*, *12*(1), 425–434. https://doi.org/10.5267/j.uscm.2023.9.009

Verbivska, L., Zhygalkevych, Z., Фісун, Ю., Chobitok, I. O., & Shvedkyi, V. (2023). Digital Technologies as a Tool of Efficient Logistics. *Revista De La Universidad Del Zulia*, *14*(39), 492–508. https://doi.org/10.46925//rdluz.39.28

Viu-Roig, M., & Alvarez-Palau, E. J. (2020). The Impact of E-Commerce-Related Last-Mile Logistics on Cities: A Systematic Literature Review. *Sustainability MDPI*, *12*(16), 6492. https://doi.org/10.3390/su12166492

Wang, Q., Huo, B., & Zhao, X. (2020). What Makes Logistics Integration More Effective? Governance From Contractual and Relational Perspectives. *Journal of Business Logistics*, *41*(3), 259–281. https://doi.org/10.1111/jbl.12236

Wijaya, M. H., & Rizani, N. C. (2022). Analisis Kepuasan Pelanggan Terhadap Pelanggan Shopee Express Dengan Metode Servqual. *PRESISI - Jurnal Teknik Mesin*, *24*(1), 41–50. https://ejournal.istn.ac.id/index.php/presisi/article/view/1145

Wilson, G., Brown, W. L., & Johnson, O. (2024). Technological Innovations and Their Effect on Retail Marketing Effectiveness. *ResearchGate*. https://doi.org/10.20944/preprints202407.1154.v1

Wu, J., Shen, C., & Wang, S. (2024). Research on the Development of Logistics Performance of E-Commerce Enterprises and Its Influencing Mechanism on Customer Satisfaction. *Academic Journal of Management and Social Sciences*, *9*(1), 66–68. https://doi.org/10.54097/6yhqdy07

JOURNAL OF CONSUMER SCIENCES

Yang, C. (2023). Research on the Decision-Making Mechanism of Digital Transformation of Small and Medium-Sized Logistics Enterprises in China Based on Evolutionary Game. *Academic Journal of Management and Social Sciences*, *5*(2), 126–132. https://doi.org/10.54097/ajmss.v5i2.28

Yang, M., Fu, M., & Zhang, Z. (2021). The Adoption of Digital Technologies in Supply Chains: Drivers, Process and Impact. *Technological Forecasting and Social Change*, *169*(8), 120795. https://doi.org/10.1016/j.techfore.2021.120795

Yang, Z. M., & Sihotang, I. J. (2022). Analisis Kepuasan Pengguna Terhadap User Interface Aplikasi E-Commerce Shopee Menggunakan Metode EUCS di Jakarta Barat. *Journal Informatics and Digital Expert (INDEX)*, *4*(2), 53–60. https://doi.org/http://dx.doi.org/10.36423/index.v4i2.1110

Yerpude, S., Sood, K., & Grima, S. (2022). Blockchain-Augmented Digital Supply Chain Management: A Way to Sustainable Business. *Journal of Risk and Financial Management MDPI*, *16*(1), 7. https://doi.org/10.3390/jrfm16010007

Yu, L. (2023). Service Quality, Customer Satisfaction and Retention: Basis for Logistic Companies Continuous Improvement Framework. *International Journal of Research Studies in Management*, *11*(5), 123–134. https://doi.org/10.5861/ijrsm.2023.1058

Zadajali, A. A. (2024). The Effectiveness of Logistics Services on Firms' Performances – A Literature Review. *American Journal of Economics and Business Innovation*, *3*(1), 125–132. https://doi.org/10.54536/ajebi.v3i1.1744

Zia, S. M., Faheem, M., Raza, H., & Baig, S. (2024). Impact of Contemporary Logistics Factors on Customer Satisfaction in E-Commerce. *International Journal of Trends and Innovations in Business & Social Sciences*, *2*(1), 38–49. https://doi.org/10.48112/tibss.v2i1.719