



Research Article

Reverse Logistics and Customer-Perceived Value: The Mediating Effect of After-Sales Service Quality in Electronic Retail Sector, Sri Lanka

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Abstract: This study examines the impact of effective reverse logistics (RL) practices on Customer Perceived Value (CPV) in Sri Lanka's electronics retail sector, with particular attention to the mediating role of after-sales service quality (ASSQ). Although RL has been widely examined from operational and sustainability perspectives, empirical evidence on its customer value implications, especially in emerging markets, remains limited and fragmented. Adopting a positivist and deductive approach, the study employs a quantitative survey of 450 customers who have experienced product returns, repairs, or replacements. Data are analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings indicate that effective RL practices have a significant positive effect on CPV and that this relationship is partially mediated by ASSQ. The results further demonstrate that customer value creation depends not only on the efficiency of RL processes but also on the quality-of-service interactions during the post-purchase phase. The study contributes by empirically validating an integrated Reverse Logistics – After-Sales Service Quality – Customer Perceived Value model in an emerging-market context and offers practical insights for electronics retailers seeking to enhance customer value through coordinated logistics and service strategies.

Keywords: Reverse logistics; After-sales service quality; Customer perceived value; Electronics retail; Sri Lanka

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1 Introduction

The contemporary business environment is characterized by rapid technological advancements, increasing environmental awareness, and more demanding customers (Ayvaz & Görener, 2016; Song et al., 2022). In this context, the effective integration of supply chain and logistics management has become a critical determinant of operational efficiency, cost reduction, and competitive advantage in global markets (Juhara, 2024). Consequently, firms are increasingly compelled to move beyond traditional forward logistics systems and adopt more advanced logistics mechanisms to sustain competitiveness and create superior value (Kazancoglu et al., 2021; Mathiyazhagan et al., 2021; Sharif et al., 2023).

Within this evolving landscape, Reverse Logistics (RL) has emerged as a vital component of modern supply chain management. RL refers to the systematic management of product returns, repairs, remanufacturing, recycling, or disposal through reverse flows between customers and manufacturers (Ahmadi et al., 2024; Batrisyia & Fernando, 2024). Rather than being viewed as a reactive, cost-oriented function, contemporary research increasingly recognises RL as a proactive and value-generating capability that enhances customer satisfaction and organizational performance (Batrisyia et al., 2024; Kazancoglu et al., 2021). This role is particularly significant in industries characterised by high return rates, short product life cycles, and rapid technological obsolescence, where efficient RL systems can serve as a source of competitive advantage (Plaza-Úbeda et al., 2020; Stanisławski & Szymonik, 2023).

Customer Perceived Value (CPV), defined as the customer's overall assessment of the utility of a product or service based on the perceived benefits relative to the costs incurred is a key outcome associated with RL activities (Gronphet et al., 2025; Yang et al., 2024). CPV extends beyond tangible elements such as product performance and price to include intangible dimensions such as service quality, customer experience, trust, and convenience (Gronphet & Onputtha, 2025; Tiwong & Ponboon, 2024). Well-designed RL systems can significantly enhance CPV by reducing return-related inconvenience, increasing transparency and responsiveness, and reinforcing a customer-oriented and environmentally responsible brand image (Tiwong & Ponboon, 2024; Van Nga, 2025).

The Sri Lankan consumer market provides a relevant empirical setting for examining these relationships. The country has experienced rapid market development, driven by a growing middle-income population, rising disposable incomes, and increasing demand for modern technology (Buddhika, 2025; Nandasena & Wickramasinghe, 2024). In high-involvement product categories such as electronics, consumers are particularly sensitive to value, not only in terms of product quality but also in relation to reliable and efficient after-sales services (Buddhika, 2025; Nandasena & Wickramasinghe, 2024). The electronics sector, especially smartphones, laptops, and home appliances has shown sustained growth, with mobile phone imports increasing by approximately 8–10% annually, indicating strong market expansion (Kankanamge, 2023). Given the technical complexity and high value of electronic products, effective return, repair, and replacement processes are essential for enhancing customer-perceived value and meeting evolving consumer expectations in Sri Lanka (Damruwan et al., 2023; Egodawela et al., 2021).

Despite the strategic importance of RL, many Sri Lankan electronics firms struggle to translate RL practices into enhanced customer value (Egodawela et al., 2021). Organizations often face resource constraints, fragmented logistics networks, and limited technological infrastructure, leading to delayed returns, inconsistent repair or replacement processes, and ineffective customer communication (Silva et al., 2023). These limitations reveal a practice gap, whereby RL operations fail to align with customer expectations of value. At the same time, the existing literature reports empirical inconsistencies regarding the direct relationship between RL and CPV. While some studies find that effective RL enhances trust, satisfaction, and perceived value (Panigrahi et al., 2018; Pushpamali et al., 2020), others report weak or insignificant effects due to service delays, hidden costs, and poor responsiveness (Marić & Opazo-Basaez, 2019; Plaza-Úbeda et al., 2020). These mixed findings point to a clear empirical gap in understanding how RL influences customer-centric outcomes.

This gap is further accentuated in emerging markets such as Sri Lanka, where RL systems remain relatively underdeveloped compared to those in advanced economies (Central Environmental Authority, 2022; Hapuarachchi, 2024). Inefficient RL practices not only undermine environmental sustainability but also erode customer trust and satisfaction (Egodawela et al., 2021). Accordingly, a critical research question arises: Why does the relationship between RL and CPV remain weak in contexts such as Sri Lanka?

An emerging stream of literature suggests that After-Sales Service Quality (ASSQ) may be the missing mechanism that strengthens this relationship (Dabees et al., 2023; Gronphet & Onputtha, 2025; Stevic et al., 2021; Tu & Zhang, 2022). Without high-quality after-sales services including timely repairs, transparent communication, and reliable product replacement customers may fail to realise the full benefits of RL (Gronphet & Onputtha, 2025; Lin et al., 2023). This issue is particularly salient in technology-intensive sectors such as electronics, where customers evaluate brands based not only on product performance but also on how effectively post-purchase issues are resolved (Yang et al., 2024). These arguments are supported by established theoretical perspectives. The Resource-Based View (RBV) conceptualises service quality as a valuable and inimitable capability that enhances the effectiveness of RL (Dabees et al., 2023). Service-Dominant Logic (SDL) emphasises value creation through service interactions, positioning service quality as central to transforming RL activities into customer value (Yang et al., 2024). Similarly, Perceived Value Theory explains customer evaluations of RL through trade-offs between perceived benefits and sacrifices, which are strongly influenced by service quality (Gronphet & Onputtha, 2025; Stevic et al., 2021).

Despite these insights, empirical validation of the mediating role of ASSQ remains limited, particularly in emerging market contexts. RL alone may therefore be insufficient to generate customer value unless supported by complementary service capabilities. In this study, RL is conceptualised as the effectiveness and quality of customer-facing practices including product returns, repairs, recycling, and logistics pick-up services rather than merely the existence of reverse flows. To the best of the authors' knowledge, no prior empirical study has tested an integrated RL–ASSQ–CPV model using partial least squares structural equation modeling (PLS-SEM) in the Sri Lankan electronics retail sector. Accordingly, the primary objective of this study is to examine the impact of RL on CPV, with ASSQ acting as a mediating mechanism.

Specifically, this research pursues four objectives: (1) to examine the effect of RL on CPV, addressing the scarcity of customer-centric empirical evidence from developing economies; (2) to assess the impact of RL on ASSQ; (3) to evaluate the effect of ASSQ on CPV; and (4) to investigate the mediating role of ASSQ in the RL–CPV relationship.

To achieve its objectives, the study is structured as follows. Section 2 presents theoretical background, relevant literature, hypotheses, and their theoretical justifications. Section 3 outlines the methodology and operationalization of the constructs. Section 4 reports the empirical findings, while Section 5 discusses and validates the findings of the study. Section 6 concludes the study, and Section 7 highlights the implications and directions for future research.

2 Literature Review

2.1 Reverse Logistics

The concept of RL is interpreted as the way of returning products, components, and materials to the manufacturer or another supply-chain location triggered by returns, recovery programmes, or proper disposal practices (Ahmadi et al., 2024; Batrisyia and Fernando, 2024). The greater significance of the RL as a component of the modern supply-chain management is connected to the necessity to comply with the demands related to sustainability, more rigorous regulatory requirements, the need to cut the costs, and the endeavor at obtaining excellent customer satisfaction (Adesoga et al., 2024; Berssaneti et al., 2019; Singh et al., 2022).

Other than operational efficiency, RL can help recover the value of returned products, reduce the creation of waste, improve the utilisation of resources, and reduce the environmental externalities (Adesoga et al., 2024; Singh et al., 2022). RL take on a specific importance in the electronics industry, where the returns of the products, warranty claims, and obsolescence are frequent as the innovation cycles develop at a very rapid pace (Ni et al., 2021; Singh et al., 2022).

According to existing literature, there are various dimensions of reverse-logistics, which are product return, remanufacturing, repair, refurbishment, recycling, logistics and pick-up services, disposal management, warranty management, parts harvesting, and returns triage (El Saadany, 2009; Mo et al., 2022). The study will focus on four dimensions, namely product return, repair, recycling, and logistics & pick-up services, that are chosen due to direct customer communication and a significant impact on consumer attitudes and experiences (Gronphet and Onputtha, 2025; Adesoga et al., 2024; Singh et al., 2022).

In addition, the activities are pragmatically applicable to the electronic companies in Sri Lanka in consideration of the availability of local resources and infrastructural limitations (Dissanayike and Weerasinghe, 2020). Previous studies have linked these dimensions to important customer outcomes like satisfaction and loyalty (Janakiraman et al., 2016; Chowdhury et al., 2020). Several studies suggested that others are less visible to customers and more difficult to assess through consumer surveys. (Adesoga et al., 2024). The key dimensions of RL include product return, which entail the process of goods returned by consumers as a result of damage or dissatisfaction or end-of-life stage and must be effectively managed to maximize the value recovery and customer satisfaction (Olariu,

2013; Sivasankaran, 2024). Remanufacturing and repair are processes where used or defective products are repaired to their original state and hence saving resources and reducing the manufacturing costs (Roudbari et al., 2021; Singh et al., 2022). In Sri Lanka's electronics sector, repair is more common than remanufacturing because of limited facilities and customer expectations for warranty servicing; repairs are cost-effective, accessible, and build functional value and trust (Kankanamge, 2023). Recycling is focused on retrieving valuable materials in abandoned products, thus reducing environmental risks, and aiding in resource retrieval (Adesoga et al., 2024; Singh et al., 2022; Sivasankaran, 2024). Lastly, the logistics pick-up services include the coordination of the collection, transportation, and sorting of the returned products in order to send them to the right channels to be repaired, remanufactured, or recycled (Adesoga et al., 2024; Burnard et al., 2015). Finally, Efficient RL can lead to improved operational efficiency, reduced waste, and enhanced customer relationships while aiming to achieve susceptibility. (Singh et al., 2022).

2.2 Customer-perceived Value

CPV is the overall evaluation of benefits to the costs of a product or a service as perceived by a customer, and it is a critical determinant of satisfaction and loyalty in the electronics industry (Slack et al., 2020; Blut et al., 2023). It has a significant impact on re-purchases, builds long-term relationships between brands and consumers, and influences decision-making (Croitoru et al., 2024; Lee, 2025). CPV, as indicated by previous studies, has several dimensions, such as functional value (the practical utility and performance features of the product), monetary value (the perceived value against the price paid), emotional value (the affective responses that the product elicits), social value (the improvement of social self-concept or status through the ownership of the product), and conditional value (the value attached to certain situations or contexts, such as promotional offers or any special offers) (Ehsan, 2025; Slack et al., 2020; Blut et al., 2023; Lee, 2025). In the electronics industry, customers are more focused on emotional and social values attributed to brand image, trust, and environmental responsibility in addition to the functional and monetary values based on product performance and price sensitivity (Croitoru et al., 2024; Slack et al., 2020). Based on this, the study narrows down to these five dimensions to present a complete image of CPV in the Sri Lankan electronics market, including tangible value and intangible factors contributing to customer satisfaction and loyalty (Slack et al., 2020; Blut et al., 2023; Lee, 2025).

2.3 After-Sales Service Quality

ASSQ represents the services and facilities provided to the customers after they have purchased a product and is a highly significant factor in building customer trust, satisfaction, and repurchase in the electronic industry (Terre & Almaro, 2024; Fathulloh & Purnama, 2024). A well-developed after-sales service will differentiate the brands, decrease the number of products returned, and increase customer retention (Balinado et al., 2021; Michalski et al., 2021). The quality of after-sales has been determined on the basis of the dimensions that include tangibles (physical infrastructure, equipment, and appearance of service providers), reliability (delivery of services), responsiveness (willingness to help and provide services quickly), assurance (knowledge and courtesy of employees and ability to generate trust), and empathy (caring and individualized services) (Fathulloh & Purnama, 2024; Hsieh & Chiang, 2023). In the electronic domain, where the customers may require consulting, repairing,

or updating the products they consume, these dimensions are of vital importance to customer satisfaction and the reduction of the likelihood of bad experiences (Setiono & Hidayat, 2022).

This study adopts all five SERVQUAL dimensions, as they collectively capture the key service quality attributes relevant to after-sales interactions in the Sri Lankan electronics market (Terre & Almario, 2024; Fathulloh & Purnama, 2024). Organizations that perform well on ASSQ are more likely to develop positive word-of-mouth discourse, enhance client loyalty, and achieve long-term organizational success (Terre & Almario, 2024; Fathulloh & Purnama, 2024).

2.4 Theoretical lenses

2.4.1. Resource Based View

The RBV suggests that firms can achieve a sustainable competitive advantage by creating valuable, rare and inimitable internal resources and capabilities (Barney et al., 2021; Firman et al., 2020). RL capabilities are becoming strategic resources for firms that are able to handle product returns, repair and recycling activities efficiently, ultimately reducing costs and increasing customer satisfaction (Rodríguez-López & Mondragon, 2023). In accordance with the RBV, firms that have invested in strong RL capabilities are in a competitive advantage position to enhance operational efficiency and customer experience, and ultimately firm performance (Barney et al., 2021).

2.4.2. Service-Dominant Logic

Service-Dominant Logic (SDL) assumes that customer and firm co-creation is the basis for value creation (Firman et al., 2020). In the scope of RL, customers play the dynamic role as they are the ones who return the product, whereas firms play the active role by involving their resources: technical knowledge, repair services and logistics capabilities (Rodríguez-López, 2023; Ng & Vargo, 2018). The act of recycling these used goods into new or recycled goods is a symbiotic process; it generates value for both parties. The co-creation perspective explains how positive service experiences in these interactions add value to the customer experience in excess of that of the physical product (Ng & Vargo, 2018).

2.4.3. Perceived Value Theory

The perceived value theory is a generalized estimation of the trade-off between the benefits received and the costs incurred by the consumer (Rehman, 2021; Zeithaml, 1988). This theoretical model provides the analytical foundation to evaluate the value of a product, which includes tangible and intangible features, including the performance, price, emotional satisfaction, and after-sales service (Rehman, 2021). In the current research, CPV can also explain how consumers perceive the use-value of services and products in comparison to RL and after-sales service.

2.5 Hypothesis Development

2.5.1. RL and CPV

RL has proved to be a decisive factor of CPV, especially in e-commerce and retail environments where returns and exchanges are a common occurrence (Gronphet and Onputtha, 2025; Tiwong and Ponboon, 2024). It is hypothesized that a properly designed RL system, which is transparent, easy, and least disruptive, has a positive impact on the overall customer experience (Elektra et al., 2024). The current literature indicates that the RL is not always directly associated with customer loyalty

increments, but it significantly increases customer experience and perceived value (Elektra et al., 2024).

As an example, Gronphet and Onputtha (2025) have noted that high-quality RL has strengthened customer satisfaction by making the returns process more convenient and fastening the refund process. Global industry giants like Amazon and major electronics stores that have also adopted effective return policies and quick refund services have also gained competitive advantage, facilitating CPV and returning to the store (Tiwong & Ponboon, 2024). Customers would tend to have stronger perceptions and loyalty towards the Sri Lankan electronics industry that has many processes of RL that are usually disjointed (Pushpamali et al., 2020), and the implementation of more effective RL practices would help in improving the perceptions of customers. In this connection, the hypothesis is the following one:

H1: RL practices have a positive and significant relationship with CPV.

2.5.2. RL and ASSQ

RL is one of the main pillars of the quality of a post-sale service, particularly in those industries where products are refurbished or returned often (Kim & Lin, 2024). The ability to effectively handle reverse flows is a crucial factor that defines the chances of a firm to offer after-sales services in a timely and efficient way (Stevic et al., 2021). Empirical research in terms of the SERVQUAL frame of reference suggests that streamlined RL, including the possibility to retrieve products promptly, to carry out diagnostics, and to coordinate, directly affects the sphere of providing high-quality after-sales services (Balinando et al., 2021; Stevic et al., 2021). RL is a quick recovery of services and the improvement of the overall customer service experience (Haq et al., 2023; Panigrahi et al., 2018).

Kim & Lin (2024) argue that the better-prepared firms with strong RL networks, especially those that make it easier to fix and replace the product, better meet the expectations of customers and strengthen brand image both in the electronics and fashion sectors and B2B. Sri Lankan electronics environment is a setting where logistical and infrastructural difficulties remain a problem (Kankanamge, 2023), and therefore, improving the quality of after-sales services and customer satisfaction may be the role of RL. In turn, the following hypothesis is developed:

H2: RL practices have a positive and significant relationship with ASSQ.

2.5.3. ASSQ and CPV

ASSQ is a critical driver of customer- perceived value across various industries, especially where ongoing support, maintenance, or issue resolution is expected after purchase (Elektra et al., 2024). Furthermore, several studies related to the SERVQUAL and Kano models have proved that elements of after- sales service quality have a salient effect on satisfaction and their perceived value (Balinado et al., 2021; Shokouhyar et al., 2020; Tam, 2004). Indicatively, De Bruin et al. (2020), confirmed that ASSQ and perceived value are the greatest drivers of customer satisfaction. Several scholars have also suggested that, timely, reliable, and empathetic after- sales support leads to increased perceptions of value, thus raising satisfaction and loyalty within diversified contexts. (Balinado et al., 2021; Shokouhyar et al. 2020; Tam, 2004)

In industries as electronic products, automotive and household equipment, the ASSQ becomes a crucial competitive tool (Balindo et al., 2021). Empirical studies prove that companies including

Toyota and major kitchen appliance manufacturers develop a unique competitive strength through the investment in an integrated after-sales system, e.g., geographically-accessible service centers, technologically-competent workforce, and quick complaint redress, which drives the customer-perceived value and buying intention (Balinado et al., 2021; Nasir et al., 2024). In Sri Lanka, delivering timely, transparent, and empathetic after-sales support is essential to meet rising consumer expectations and increase perceived value. Thus, the following hypothesis is proposed:

H3: ASSQ has a positive and significant relationship with CPV.

2.5.4. Mediating Role of ASSQ

ASSQ acts as a mediator between RL and the perceived value of the customer. Optimized RL will complement after-sales services and thus increase perceived value. (Dabees et al., 2023). Empirical studies confirm that the quality of after-sales services forms a bridge between RL and customer-perceived value. High-level implementation of RL leads to an improvement in after-sales services, which in turn enhances perceived value (Nasir et al., 2024; Pushpamali et al., 2020). The mechanism is especially powerful in business segments where the level of returned goods is high, and the quality of after-sales relations may either reinforce or destroy customer relations (Gronphet & Onputtha, 2025; Yang et al., 2024).

As far as the fashion and electronics industries are concerned, seamless integration of RL and after-sales service with ease of returns and fast repair service, maximizes value and loyalty to the customer (Panigrahi et al., 2018; Sann et al., 2024). Businesses that coordinate these processes have a competitive advantage because they offer a superior -quality post-purchase experience (Gronphet & Onputtha, 2025). In the Sri Lankan electronics sector, improving this integration offers a significant opportunity for firms to differentiate themselves in a competitive market (Buddhika, 2025). Therefore, the final hypothesis is:

H4: ASSQ mediates the relationship between RL practices and CPV.

3 Method

The positivist research study was adopted in the study as it focuses on identifying the effects of study variables using empirical data (Dźwigoł, 2022). The study followed the deductive research approach (Slater, 2024). Existing theories and literature were used to develop the conceptual model and hypotheses of the study (Dźwigoł, 2022; Slater, 2024). A quantitative research strategy was employed, using a survey method. The cross-sectional time horizon was followed by the study capturing study data from a single point at a time to assess the causal relationships between RL, after-sales service quality, and CPV.

Table 1 presents the demographic profile of the respondents. The population of the study consisted of customers who have purchased electronic appliances from leading electronic retail outlets in Sri Lanka. There, special attention was given to the customers who have engaged in product returns, replacements, and after-sales repair services to address the RL practices. Customers living in Colombo and its surrounding areas were chosen for this study due to the higher usage of electronic

appliances, the dense concentration of electronic retail outlets, and the availability of well-established logistics infrastructure.

Table 1: Profile of Respondents

Demographic Factor	N	Percentage
Gender - Male	192	42.66%
Female	258	57.34%
Age – Between 20-30	79	17.5%
Between 31-40	176	39.11%
Between 41-50	146	32.44%
Between 51-60	34	7.55%
Above 61	15	3.33%
Monthly Income –		
Between Rs. 20000-40000	74	16.44%
Between Rs. 41000-60000	87	19.33%
Between Rs. 61000-80000	109	24.22%
Between Rs. 81000-100000	98	21.77%
Above Rs. 100000	82	18.22%

Following the judgmental sampling technique which comes under the non-probability purposive sampling techniques in research, the sample of the study was identified. The judgmental sampling technique was employed as the study needed to identify customers who have experienced RL practices (Uzir et al., 2021). A structured and self-administered questionnaire was used to gather the primary data for the study. Being located at the most popular electronic appliance retail stores like Singer, Abans, Softlogic, and Damro, the researchers were able to administer 515 questionnaires among customers. Data collection was conducted on Saturdays throughout May 2025, from 5:00 p.m. to 7:00 p.m., considering the high customer turnout during that time. Altogether, 463 responses were received from respondents and 13 responses had to be rejected due to inconsistency and incompleteness.

A total of 450 responses were considered for the study. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) through SmartPLS 4.0. PLS-SEM was considered appropriate because the study examines a complex model involving direct and mediating relationships among reverse logistics, after-sales service quality, and customer perceived value. The sample size of 450 was adequate for testing the proposed model, considering the complexity and robustness requirements suggested by Hair et al. (2017). Following Hair et al. (2019), the analysis was conducted in two stages. First, the measurement model was assessed to establish reliability and validity. Second, the structural model was evaluated to examine the direct and indirect relationships among the study variables.

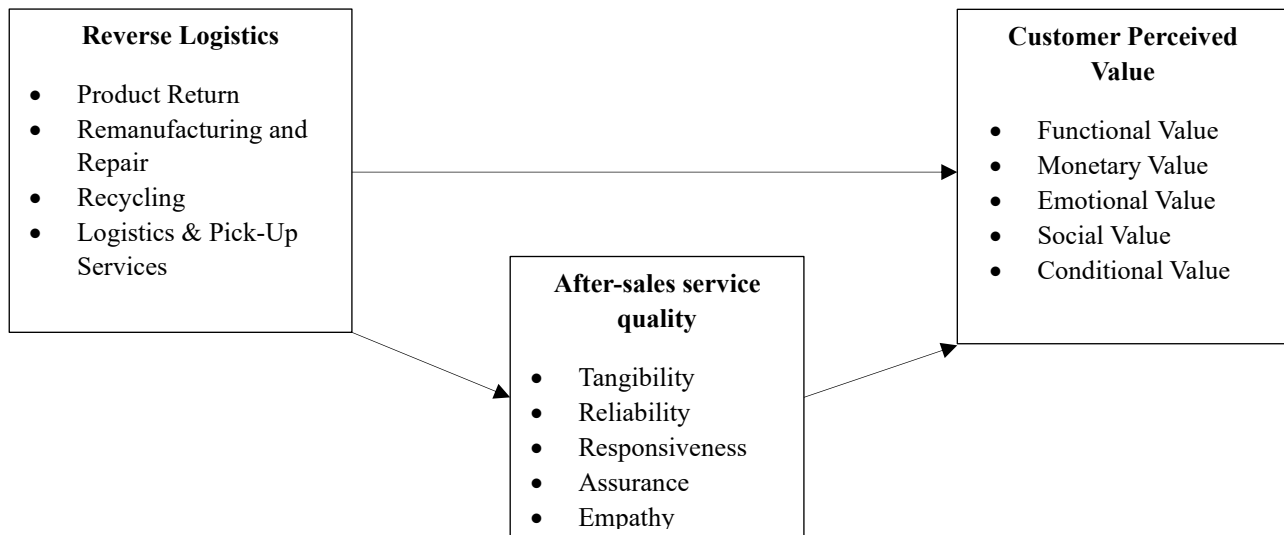


Figure 1: Conceptual Framework

Based on the theoretical foundations and the relationships identified in the literature, the conceptual framework of the study was developed as presented in Figure 1.

Moreover, the structural model was tested for coefficient determination (R^2), predictive relevance (Q^2), and effect size (f^2). These tests employed partial least square SEM (PLS-SEM) via SmartPLS 4.0 version. Meanwhile, SPSS software was used to analyze the demographic variables of the study including gender, age, and monthly income of customers.

Secondary data were used only to support the background, literature review, theoretical development, measurement development, and contextual justification of the study. Peer-reviewed journal articles on reverse logistics, after-sales service quality, customer perceived value, SERVQUAL, the Resource-Based View, Service-Dominant Logic, and Perceived Value Theory were used to define the key constructs, develop the hypotheses, and identify validated measurement items. Published industry and institutional reports relating to Sri Lankan electronics retailing, logistics practices, consumer electronics usage, and e-waste/recycling practices were used to justify the empirical context. The empirical analysis and hypothesis testing were based solely on the primary survey data collected from 450 respondents.

The questionnaire used in the study was comprised of two sections: part A considered the profile of respondents while part B assessed the study constructs. The questionnaire was adopted from several validated measurements scales from prior literature. A structural path model was applied to measure the study reflected in hypotheses which aimed to determine the effect of RL, aftersales service quality, and CPV.

Based on the conceptual framework developed for the study, following hypotheses were formulated.

H₁: There is a significant and positive effect of RL on CPV

H₂: There is a significant and positive effect of RL on after-sales service quality

H₃: There is a significant and positive effect of ASSQ on CPV

H₄: ASSQ mediates the effect of RL on CPV

The operationalization of the study variables, including the measurement indicators and their respective sources, is presented in Table 2. The construct of RL consisted of four indicators. This was adapted and modified from the research carried out by Gronphet and Onputtha (2025), and Dabees et al., (2023). The ASSQ construct was measured using five indicators pointed out by Stević et al., (2021), Yang et al., (2024), and Balinado et al., (2021). CPV was measured using five items designed by Gronphet and Onputtha, (2025), Han and Xie (2018), and Elektra et al., (2024). All these indicators were assessed using a five-point Likert scale scoring ranged from 5-Strongly agree to 1-strongly disagree.

Table 2. Operationalization of Study Variables

Variable	Dimension	Indicators	Source
RL	Product Return	PR1. The company's return policy is clear and easy to understand.	(Gronphet & Onputtha, 2025; Yen et al., 2022)
		PR2. The process for returning products is convenient and efficient.	
		PR3. The company handles product returns in a timely manner.	
	Repair	RP1. The company efficiently repairs returned products.	(Gronphet & Onputtha, 2025; Dabees et al., 2023)
		RP2. Repaired products meet high-quality standards.	
		RP3. The company provides clear information about the repairing process	
	Recycling	RC1. The company has a clear policy on recycling electronic products.	(Gronphet & Onputtha, 2025; Dabees et al., 2023)
		RC2. The company provides information on how to properly recycle their products.	
		RC3. The company's recycling efforts contribute to waste reduction.	
	Logistics & Pick-Up Services	LP1. The company offers convenient pick-up options for returned products.	(Gronphet & Onputtha, 2025; Yen et al., 2022; Dabees et al., 2023)
		LP2. The pick-up service is timely and efficient.	
		LP3. The company's logistics network effectively handles returned goods	
CPV	Functional Value	FV1. Products perform its intended function effectively.	(Gronphet & Onputtha, 2025; Han & Xie, 2018; Elektra et al., 2024)
		FV2. The quality of the products meet my expectations.	

	Monetary Value	FV3. This product solves problems I encounter in my daily life.	(Gronphet & Onputtha, 2025; Han & Xie, 2018; Elektra et al., 2024)
		MV1. The product offers good value for money.	
		MV2. The price of the product is fair considering its quality.	
	Emotional Value	MV3. The benefits I receive from the product justify its cost.	(Gronphet & Onputtha, 2025; Han & Xie, 2018; Elektra et al., 2024)
		EV1. Using the product makes me feel good.	
		EV2. The product gives me a sense of enjoyment.	
	Social Value	EV3. I feel excited when using the product.	(Gronphet & Onputtha, 2025; Han & Xie, 2018; Elektra et al., 2024)
		SV1. Using the product improves the way I am perceived by others.	
		SV2. This product helps me feel accepted in my social group.	
	Conditional Value	SV3. The product enhances my social status.	(Gronphet & Onputtha, 2025; Han & Xie, 2018; Elektra et al., 2024)
		CV1. This product is particularly useful in specific situations.	
		CV2. The value of this product increases under certain circumstances.	
ASSQ	Tangibility	CV3. I appreciate this product more in special contexts	(Stević et al., 2021; Yang et al., 2024; Balinado et al., 2021)
		TAN1. The service center's facilities are clean and well-maintained.	
		TAN2. The equipment used for repairs is modern and up-to-date.	
	Reliability	TAN3. The service personnel have a professional appearance.	(Stević et al., 2021; Yang et al., 2024; Balinado et al., 2021)
		REL1. The after-sales service consistently meets my expectations.	
		REL2. The service provided is error-free and accurate.	
	Responsiveness	REL3. The service center fulfils all commitments made to customers.	(Stević et al., 2021; Yang et al., 2024; Balinado et al., 2021)
		RES1. The service staff responds promptly to customer inquiries.	

Assurance	RES2. Repairs and maintenance are completed in a timely manner.	
	RES3. The service center handles complaints efficiently	
	ASS1. The service staff demonstrates competence in handling technical issues.	(Stević et al., 2021; Yang et al., 2024; Balinado et al., 2021)
Empathy	ASS2. The employees are courteous and respectful towards customers.	
	ASS3. The service center instills confidence in its ability to resolve problems.	
	EMP1. The service staff shows genuine understanding of customer needs.	(Stević et al., 2021; Yang et al., 2024; Balinado et al., 2021)
	EMP2. The after-sales service provides personalized attention to each customer.	
	EMP3. The service center addresses individual concerns with care and consideration.	

4 Results

The Kurtosis and skewness values were evaluated to test the specific characteristics and the normality of data of the study. Understanding the normality of the data is a prerequisite for multivariate analysis techniques in SEM (Hair et al., 2019). Table 3 depicts the results of the normality test together with the Mean and Standard Deviation. All Kurtosis values are ranged between ± 3 and thus considered as data of the study is normally distributed (Hair et al., 2016).

Table 3: Mean, SD, and normality test results

Dimension	Items	N	Mean	Standard Deviation (SD)	Kurtosis	Skewness
Product Return	PR1	450	3.839	0.866	2.095	-1.146
	PR2	450	3.791	0.878	1.439	-0.982
	PR3	450	3.902	0.965	0.675	-0.938
Remanufacturing and Repair	RP1	450	4.028	0.839	1.45	-0.937
	RP2	450	4.075	0.822	2.367	-1.21
	RP3	450	4.142	0.76	2.953	-1.217
Recycling	RC1	450	4.079	0.805	1.772	-1.011
	RC2	450	3.933	0.855	0.937	-0.858
	RC3	450	3.976	0.869	1.164	-0.931

Logistics & Pick-Up Services	LP1	450	4.091	0.82	1.652	-1.03
	LP2	450	3.976	0.855	1.566	-1.056
	LP3	450	4.024	0.832	1.253	-0.911
Functional Value	FV1	450	3.917	0.782	1.099	-0.749
	FV2	450	4.067	0.726	2.154	-0.91
	FV3	450	4.028	0.739	1.367	-0.809
Monetary Value	MV1	450	3.902	0.815	1.378	-0.916
	MV2	450	3.941	0.837	0.894	-0.859
	MV3	450	3.787	0.94	1.074	-0.936
Emotional Value	EV1	450	3.906	0.827	1.557	-0.956
	EV2	450	3.894	0.856	1.686	-1.082
	EV3	450	3.858	0.82	1.228	-0.894
Social Value	SV1	450	3.961	0.798	1.368	-0.819
	SV2	450	3.768	0.942	0.122	-0.687
	SV3	450	3.941	0.833	1.167	-0.876
Conditional Value	CV1	450	3.843	0.822	1.191	-0.897
	CV2	450	3.921	0.809	1.797	-0.975
	CV3	450	3.878	0.854	1.433	-0.946
Tangibility	TAN1	450	3.693	0.984	0.752	-0.972
	TAN2	450	3.866	0.845	1.27	-0.922
	TAN3	450	4.055	0.724	1.594	-0.835
Reliability	REL1	450	3.969	0.808	2.192	-1.114
	REL2	450	3.831	0.841	1.547	-0.988
	REL3	450	3.921	0.77	1.561	-0.907
Responsiveness	RES1	450	3.961	0.817	1.434	-0.929
	RES2	450	4.063	0.734	2.914	-1.299
	RES3	450	3.98	0.815	2.415	-1.147
Assurance	ASS1	450	4.122	0.668	2.52	-1.024
	ASS2	450	4.106	0.721	2.807	-0.986
	ASS3	450	4.031	0.731	2.934	-1.083
Empathy	EMP1	450	4.075	0.669	2.802	-1.12
	EMP2	450	3.713	0.931	0.735	-0.93
	EMP3	450	3.839	0.866	2.095	-1.146

4.1 Measurement Model Assessment

The path model was tested and validated to identify the model fitness of the measurement model. Composite reliability, Cronbach's Alpha, discriminant validity, and convergent validity were tested to validate the measurement model. Outer loadings were measured to evaluate how well the observed variables reflect their respective latent constructs.

Based on Cronbach's Alpha and Composite reliability values, the reliability of the measurement model was tested. As per Table 4 given below, the reliability of the measurement model is established as Cronbach's Alpha and Composite reliability values of all latent constructs are greater than 0.7 (Hair et al., 2019). Outer loadings of each latent construct of the measurement model also depict that the

indicators used in the measurement model are reliable and meaningfully contribute to the latent constructs enhancing both quality and validity of the PLS model (Hair et al., 2019).

Convergent validity was tested (Table 4) to ensure that the items used to measure the latent variables were closely related, so that the items collectively measured the same concept. The threshold for convergent validity was met if the average variance extracted (AVE) for each latent variable exceeded 0.5 (Hair et al., 2019). The corresponding AVE results of the study (Table 4) confirm that convergent validity is established.

Moreover, multicollinearity was assessed to determine whether there was a high correlation between two or more independent variables (Sekaran & Bougie, 2010). The absence of multicollinearity is confirmed if the variance inflation factor (VIF) values are below 5 (Hair et al., 2019). As the VIF values in this study were below the recommended threshold, the absence of multicollinearity was confirmed. Table 4 explains that the AVE extracted for each construct/variable is higher than the required level of 0.5 (50%).

Table 4: Measurement model validation results

Variable	Dimension	Indicators	Outer Loadings (> 0.7)	Cronbach's Alpha (> 0.7)	Composite Reliability (> 0.7)	AVE (> 0.5)	VIF (< 5)
RL	Product Return	PR1	0.852	0.734	0.886	0.716	3.458
		PR2	0.862				3.724
		PR3	0.801				2.847
	Repair	RP1	0.788	0.821	0.841	0.796	2.446
		RP2	0.798				2.580
		RP3	0.747				2.897
	Recycling	RC1	0.847	0.796	0.861	0.721	2.350
		RC2	0.869				3.683
		RC3	0.820				2.988
	Logistics & Pick-Up Services	LP1	0.755	0.755	0.846	0.738	1.469
		LP2	0.781				1.570
		LP3	0.787				1.612
CPV	Functional Value	FV1	0.837	0.790	0.896	0.764	2.538
		FV2	0.855				1.865
		FV3	0.847				1.865
	Monetary Value	MV1	0.831	0.832	0.914	0.798	2.128
		MV2	0.823				2.359
		MV3	0.813				2.247
	Emotional Value	EV1	0.835	0.824	0.942	0.795	2.570
		EV2	0.835				2.539
		EV3	0.847				2.868
	Social Value	SV1	0.831	0.811	0.895	0.784	3.279
		SV2	0.777				1.750
		SV3	0.805				2.613
	Conditional Value	CV1	0.842	0.796	0.847	0.756	2.459
		CV2	0.810				2.326
		CV3	0.820				2.683
ASSQ	Tangibility	TAN1	0.817	0.805	0.882	0.797	2.682
		TAN2	0.788				1.782
		TAN3	0.846				2.526

Reliability	REL1	0.837				2.341
	REL2	0.848	0.786	0.834	0.754	2.665
	REL3	0.800				2.411
Responsiveness	RES1	0.875				2.382
	RES2	0.879	0.774	0.852	0.721	2.680
	RES3	0.854				2.475
Assurance	ASS1	0.833				3.689
	ASS2	0.854	0.841	0.917	0.795	1.850
	ASS3	0.806				2.473
Empathy	EMP1	0.826				2.689
	EMP2	0.843	0.865	0.925	0.826	2.576
	EMP3	0.781				2.923

To measure the discriminant validity of the measurement model, Fornell-Larcker Criterion was measured. Fornell & Larcker (1981) highlighted that each construct has a capability to explain more than half of variance in measuring items on average which is the square root of the AVE for each construct should be greater than its highest correlation with other constructs (Fornell & Larcker, 1981). Each corresponding cell value should be less than their respective diagonal values (Square root of AVE) (Hair et al., 2019). Consequently, as shown in table 5, none of the inter-construct coefficient value is higher than the square root of AVE. Thus, it concludes that discriminant validity is established.

Table 5. Discriminant Validity – Fornell and Larcker Criterion

Variable	PR	RP	RC	LP	FV	MV	EV	SV	CV
PR	0.861								
RP	0.634	0.811							
RC	0.636	0.805	0.831						
LP	0.717	0.719	0.777	0.813					
FV	0.638	0.797	0.784	0.743	0.815				
MV	0.608	0.697	0.733	0.700	0.782	0.809			
EV	0.798	0.652	0.650	0.689	0.601	0.590	0.824		
SV	0.767	0.563	0.599	0.700	0.608	0.572	0.729	0.832	
CV	0.756	0.642	0.684	0.642	0.716	0.651	0.723	0.715	0.854

Heterotrait-Monotrait (HTMT) ratio also commonly used to measure the discriminant validity. As Hair et al. (2019) pointed out, the HTMT values for each construct should be less than 0.9 to be established the discriminant validity in the measurement model. The results in Table 6 confirm that discriminant validity criteria are satisfied from the Lense of HTMT ratio.

Table 6. Heterotrait-Monotrait Ratio (HTMT)

Variable	PR	RP	RC	LP	FV	MV	EV	SV
RP	0.719							
RC	0.709	0.894						
LP	0.806	0.810	0.856					
FV	0.727	0.895	0.878	0.839				
MV	0.684	0.785	0.810	0.781	0.885			
EV	0.893	0.740	0.725	0.773	0.684	0.662		
SV	0.883	0.648	0.677	0.801	0.702	0.654	0.839	
CV	0.719	0.824	0.756	0.730	0.695	0.863	0.874	0.744

Further, to secure discriminant validity, an item-level discriminant validity can be examined through cross-loading analysis (Chin, 1998). Each indicator should be reported to be more than 0.70 of loading values and should be greater than all its cross-loadings (Hair et al., 2016). Table 7 given below shows that loadings for each item are greater than 0.7. Thus, the discriminant validity is further established in the measurement model.

Table 7. Cross Loadings

	PR	RP	RC	LP	FV	MV	EV	SV	CV	TAN	REL	RES	ASS	EMP
PR1	0.805													
PR2	0.823													
PR3	0.811													
RP1		0.836												
RP2		0.766												
RP3		0.841												
RC1			0.742											
RC2			0.759											
RC3			0.788											
LP1				0.834										
LP2				0.821										
LP3				0.725										
FV1					0.811									
FV2					0.742									
FV3					0.759									
MV1						0.820								
MV2						0.834								
MV3						0.779								
EV1							0.725							
EV2							0.867							
EV3							0.801							
SV1								0.763						
SV2								0.778						
SV3								0.768						
CV1									0.808					
CV2									0.806					
CV3									0.819					
TAN1										0.867				
TAN2										0.801				
TAN3										0.821				
REL1											0.838			
REL2											0.854			
REL3											0.758			
RES1												0.981		
RES2												0.894		
RES3												0.871		
ASS1													0.766	
ASS2													0.841	
ASS3													0.795	
EMP1														0.894
EMP2														0.871
EMP3														0.823

4.2 Structural Model Assessment

It was found that the measurement model of the study was adequate and acceptable, following multiple statistical validation steps based on reliability and validity. Several standard statistical techniques were applied to assess the structural model of the study. The current structural model was evaluated by multiple assessments, including the coefficient of determination (R^2), the blindfolding-based cross-validated redundancy measure (Q^2), effect size (f^2) and the statistical significance and relevance of the path coefficients as proposed by Hair et al. (2019).

It is recommended that Q^2 values should be greater than zero for specific exogenous variables to demonstrate predictive accuracy for that construct in the structural model. Typically, Q^2 values greater than 0 indicate a small effect, values greater than 0.25 indicate a medium effect, and values greater than 0.5 indicate a large predictive effect in the PLS path model (Hair et al., 2019). Table 8 shows that all Q^2 values are greater than 0.6, indicating strong (greater than 0.5) predictive relevance in the PLS model.

The R^2 value ranges between 0 and 1, where higher values indicate greater explanatory power (Hair et al., 2019). Values of 0.75 are considered substantial, 0.50 are moderate, and 0.25 are weak in terms of predictive power (Hair et al., 2019). As shown in Table 8, the model explains 88.7% of the variance in ASSQ, indicating substantial explanatory power. The model also explains 61.3% of the variance in CPV, indicating moderate to substantial explanatory power. The Q^2 values for ASSQ and CPV are greater than zero, confirming the predictive relevance of the model. All results exceed the recommended threshold of 50%, with values ranging from 61.3% to 88.7%, indicating moderate to substantial explanatory significance.

Table 8: Predictive Relevance and Coefficient of Determination

Endogenous Variables	Q^2 predict	R^2
RL	0.694	0.746
CPV	0.648	0.613
ASSQ	0.632	0.887

The effect size values are reported in Table 9. The effect size determines the level of change in the size of path coefficients (Cohen, 1992). Recommended values for f^2 are identified as 0.02-small, 0.15-moderate, and 0.35-strong effect size (Hair et al., 2019). Table 9 given below indicates f^2 results that range from 0.01 to 0.57, where the f^2 sizes are from small to strong effect sizes. Higher effect size over one means exogenous variable has a strong effect on the endogenous variable of the study.

Table 9. Effect Size (f^2)

Construct	PR	RP	RC	LP	FV	MV	EV	SV	CV	TAN	REL	RES	ASS	CPV	SC
RL	0.01	0.03	0.21	0.54										0.29	0.37
CPV					0.34	0.47	0.57	0.42	0.37						0.15

4.3 Hypothesis Analysis

The study examines three direct effects and one indirect effect. H1 proposes a positive relationship between RL and CPV. The results show that the path coefficient between RL and CPV is positive and significant ($\beta = 0.721$, $p < 0.05$); therefore, H1 is supported. H2 proposes a positive relationship between RL and ASSQ. The results show that the path coefficient between RL and ASSQ is positive and significant ($\beta = 0.774$, $p < 0.05$); therefore, H2 is supported. H3 proposes a positive relationship between ASSQ and CPV. The results show that the path coefficient between ASSQ and CPV is positive and significant ($\beta = 0.725$, $p < 0.05$); therefore, H3 is supported. H4 proposes that ASSQ mediates the relationship between RL and CPV. The indirect effect is positive and significant ($\beta = 0.742$, $p < 0.05$), indicating that ASSQ partially mediates the relationship between RL and CPV. Therefore, H4 is supported.

Table 10. Path Coefficients (β) and T-statistics

No	Effect	Coefficient	T statistics	P value	Result
H ₁	RL->CPV	0.721	13.741	0.000	Supported
H ₂	RL->ASSQ	0.774	12.385	0.000	Supported
H ₃	ASSQ->CPV	0.725	11.873	0.000	Supported
H ₄	RL->ASSQ->CPV	0.742	12.564	0.000	Supported

5 Discussions

The demographic profile of the respondents provides an important contextual foundation for interpreting the study findings. The sample was predominantly female (57.3%), with a substantial proportion of respondents (71.5%) belonging to the 31–50 age group. Moreover, most respondents reported monthly incomes above LKR 60,000, indicating a largely middle- to upper-income segment (Tiwari & Tripathi, 2024). Prior studies have consistently shown that demographic characteristics such as age, income, and education significantly influence consumer expectations, service evaluations, and post-purchase behaviour in both traditional retail and electronic markets (Antony et al., 2018; Dhawan & Garga, 2025; Tiwari & Tripathi, 2024). In particular, middle-aged consumers with relatively high purchasing power tend to exhibit heightened sensitivity toward ASSQ and are more demanding with respect to return, warranty, and repair processes (Antony et al., 2018; Bhat et al., 2021). Accordingly, the demographic composition of this study offers a meaningful backdrop for understanding customer perceptions of RL and ASSQ in Sri Lanka's electronic retail sector.

The primary objective of this study was to examine the impact of RL on customer-perceived value, with ASSQ as a mediating mechanism. To achieve this objective, a series of hypotheses was developed and empirically tested using SEM. The first hypothesis examined the direct effect of RL on customer-perceived value. The findings provide strong empirical support for a positive relationship, indicating that effective RL practices such as transparent return policies, timely replacement of defective products, and efficient repair processes significantly enhance customers' value perceptions. This result is consistent with prior research emphasizing the role of RL in improving customer experience and perceived value (Han & Xie, 2018; Khan et al., 2024; Wilson & Goffnett, 2021). Similarly, Gronphet and Onputtha (2025) demonstrate that high-quality RL functions as a key driver of customer value across diverse demographic contexts.

From a theoretical perspective, these findings extend the RBV by positioning RL as a strategic, intangible capability that enables firms to differentiate themselves through superior post-purchase experiences (Dabees et al., 2023). In the Sri Lankan context, where customers often face uncertainty and inconvenience during returns and repairs, well-structured RL systems can significantly reduce perceived risk and dissatisfaction (Abeysekara et al., 2019). Moreover, the growing middle-income population and increasing digitalisation in urban centres such as Colombo have elevated expectations regarding after-sales services, making RL a critical determinant of customer satisfaction and value creation (Perera & Spencer, 2023). This finding also aligns with service-dominant logic, which argues that value is co-created through ongoing service interactions beyond the point of sale (Yang et al., 2024).

The second objective focused on the effect of RL on ASSQ. The results confirm a strong and positive relationship, supporting Hypothesis 2. This outcome is consistent with Kim & Lin (2024), who argue that robust RL systems foster trust and enhance service excellence. In Sri Lanka, major electronic retailers such as Singer, Abans, and Softlogic have increasingly integrated RL into their after-sales service operations, thereby strengthening their service reputations (Abeysekara et al., 2019). International studies similarly report that operational efficiency in RL improves perceived service quality through faster response times, improved communication, and more reliable repair outcomes (Nasir et al., 2024; Skålén et al., 2015; Yen et al., 2022).

From a service quality perspective, timely product pick-up, transparent return status information, and effective repairs correspond closely with key dimensions of the SERVQUAL framework, including reliability, responsiveness, and assurance (Panigrahi et al., 2018; Sivapalan & Jebarakirthy, 2017). However, the findings also reveal that some Sri Lankan firms continue to treat returns as ad hoc activities, leading to service inconsistencies. As highlighted by Marić & Opazo-Basaez (2019), such fragmentation undermines supply chain coordination and reinforces the need to institutionalise RL as an integral component of service delivery systems.

The third objective examined the effect of ASSQ on customer-perceived value. The results demonstrate a positive and statistically significant relationship, reinforcing prior evidence that customer-oriented, transparent, and timely after-sales services enhance satisfaction, loyalty, and perceived value (Balinando et al., 2021; Shokouhyar et al., 2020). In line with Nasir et al. (2024), the findings suggest that service quality plays a pivotal role in shaping purchase intentions and brand evaluations in the electronics industry. This is particularly relevant in Sri Lanka, where electronic products typically require technical expertise and warranty servicing, making ASSQ a critical determinant of repeat purchase behaviour.

Comparatively, Sri Lanka exhibits greater variability in service quality than developed economies, largely due to uneven staff training, limited resources, and weaker technological infrastructure, especially outside major urban areas (Ferraz et al., 2023; Wickramasinghe & Mathusinghe, 2016). These results are consistent with perceived value theory, which conceptualises value as a multidimensional construct encompassing functional, emotional, and relational elements (Stevic et al., 2021).

The fourth objective assessed the mediating role of ASSQ in the relationship between RL and customer-perceived value. The findings indicate a partial mediation effect, suggesting that while RL directly enhances customer-perceived value, its impact is substantially amplified when supported by high-quality after-sales service. This result strongly supports service-dominant logic, which posits that operational capabilities alone are insufficient for value creation unless complemented by superior service interactions (Yang et al., 2024). In Sri Lanka, infrastructural and institutional constraints often limit the standalone effectiveness of RL; therefore, customised return and repair services, proactive communication, and timely responsiveness become essential for maximising customer value.

In contrast, studies conducted in more developed contexts report weaker dependence on service quality due to advanced logistics infrastructure and standardised systems (Silva et al., 2025; Waqas et al., 2018). Nevertheless, evidence from Anh Duc Do et al. (2023) suggests that even in advanced settings, the integration of logistics capabilities with high-quality service support remains crucial for

enhancing customer value. For Sri Lankan firms, the key managerial challenge lies in aligning logistics operations with post-purchase service strategies, a challenge further compounded by limited engagement in sustainability initiatives (Abeysekara et al., 2019) and weak external supply-chain collaboration (Blome et al., 2014).

Theoretically, this study contributes to the RL and service management literature by empirically demonstrating that the value-creating potential of RL is contingent upon ASSQ, particularly in an emerging market context. By integrating RBV and service-dominant logic, the study helps reconcile mixed findings in prior research and advances a more nuanced understanding of how logistics capabilities translate into customer-perceived value.

From a managerial perspective, the findings highlight that electronic retailers should not treat RL merely as a cost-centre or compliance function. Instead, investments in integrated return systems, skilled service personnel, transparent communication, and responsive after-sales processes can significantly enhance customer value and competitive advantage. In emerging economies such as Sri Lanka, coordinated logistics and service strategies are not optional but essential for sustainable customer value creation.

6 Conclusions

This study demonstrated effective RL practices significantly enhance CPV in Sri Lanka's electronics retail sector and that ASSQ partially mediates this relationship. RL alone is insufficient; its value-generating potential is realized when embedded within high-quality service delivery. From a managerial perspective, electronics retailers should integrate RL with after-sales service systems rather than treating returns and repairs as ad hoc operational tasks. The findings should be interpreted in light of the absence of additional robustness analyses. Future research may address this limitation by employing longitudinal designs or multi-group analyses to assess customer heterogeneity.

7 Implications and direction of future research

To practitioners and policymakers, the study highlights the strategic value of combining RL and high-quality after-sale service. Retailers are urged to rethink RL as a tool that does not only help reduce costs, but also as a strategic resource that helps to retain customers and give the competitive edge. To address the growing demands of the emerging middle-income consumer and a growing number of consumers with a greater technological orientation, organisations must invest in staff training, create strong and open channels of communication, and offer services to product returns and repair. At the same time, responsible authorities should lead standardisation and institutionalisation of RL activities via regulation and incentive systems, and also, upgrade the infrastructure, digitise logistics, and increase after-sales services to improve customer experience and competitiveness on the market. Future researchers ought to consider longitudinal designs to investigate the long term associations that exist between RL and ASSQ in relation to customer loyalty and organisational performance. Comparative studies in contrasting sectors and geographic locations in Sri Lanka might shed light on sector-specific issues and practices of best. Furthermore, the moderating variables, such as regulatory

changes, crisis effects, technology adoption, and other environmental specificities, need to be considered to enhance the understanding of the role played by external market conditions in determining the interplay between RL and service quality. Comparative analysis of the emerging and developed markets can help understand the extent in which variations in infrastructure, regulatory conditions, and socio-cultural demands can shape the interaction between logistics and service quality, and thus customer value.

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Introduction, literature review and discussion were done by P.S.D Punchihewa and methods, results and latter part were completed by Dr. E.K. Jayampathi. Overall study conceptualization was done by both scholars.

Use of AI

The authors used AI-assisted tools only for language refinement, grammar checking, and improving the clarity of the manuscript. The authors carefully reviewed, edited, and verified all AI-assisted content and take full responsibility for the accuracy and integrity of the final manuscript.

Conflict Of Interest (COI)

Authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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