International Journal of
Supply Chain and Logistics
(IJSCL)

Reverse Logistics Practices and Organizational Performance. The Moderating Role of Organizational Learning Capabilities

CARI Journals

International Journal of Supply Chain and Logistics
ISSN 2520-3983 (Online)
Vol. 8, Issue No.4, pp 60 - 84, 2024
www.carijournals.org

Reverse Logistics Practices and Organizational Performance. The Moderating Role of Organizational Learning Capabilities

Ofori Issah, Makafui R. Agboyi, Obiri Yeboah Hanson, Alvin Kweku Adarkwa

https://orcid.org/0000-0005-4263-4245

Accepted: 23rd Nov, 2024, Received in Revised Form: 4th Dec, 2024, Published: 16th Dec, 2024

Abstract

Purpose: The study assessed the influence of reverse logistics on organizational performance. The study also assessed the moderating effect of organizational learning capabilities on the relationship between reverse logistics and organizational performance

Methodology: The research design for this study was a single cross-sectional survey where a quantitative approach was adopted. Convenience sampling was utilized to select participants 215 for the study due to its practicality and accessibility.

Findings: Findings of the study concluded that reverse logistics has a positive and significant influence on organizational performance. Findings of the study also concluded that organizational learning capabilities positively and significantly moderate the relationship between reverse logistics and organizational performance.

Unique Contribution to Theory, Policy and Practice: The study recommends that organizations foster an organizational culture where employees are encouraged to ask questions, seek out new knowledge, and experiment with new ideas; implement recognition and reward systems that celebrate learning and innovation; and develop centralized repositories where employees can store and access organizational knowledge, including best practices, project learnings, and research findings.

Keywords: *Reverse Logistics Practices, Organizational Performance, Organizational Learning Capabilities*

1.1 Background to the Study

Reverse logistics, encompassing activities related to the management of product returns, recycling, refurbishing, and disposal, has garnered increased attention in recent years due to its significance in sustainability initiatives, cost reduction, and enhancing customer satisfaction *(Rogers & Tibben-Lembke, 2021; Srivastava, 2018)*. While the importance of reverse logistics practices (RLPs) in enhancing organizational performance is acknowledged, the role of organizational learning capabilities (OLCs) in moderating this relationship remains a subject of interest and debate within the scholarly community. Efficient reverse logistics practices have been linked to improved organizational performance metrics such as cost reduction, enhanced customer satisfaction, and environmental sustainability *(Dowlatshahi, 2020; Guide & Van Wassenhove, 2021)*. For instance, effective management of product returns can lead to reduced costs associated with inventory holding, transportation, and disposition of returned products *(Fleischmann et al., 2017)*. Moreover, the ability to refurbish and resell returned products can contribute to revenue generation and customer loyalty *(Lebreton & Pellerin, 2011)*. Thus, organizations are increasingly recognizing the strategic importance of investing in robust reverse logistics processes to gain competitive advantage and sustain long-term profitability *(Tseng et al., 2011).*

Organizational learning capabilities refer to an organization's ability to acquire, assimilate, and apply knowledge to improve its performance *(Zollo & Winter, 2012)*. While the direct relationship between reverse logistics practices and organizational performance has been established, the extent to which organizational learning capabilities influence this relationship remains underexplored. Organizational learning capabilities can potentially moderate the impact of reverse logistics practices on organizational performance through various mechanisms. Organizations with strong learning capabilities are better equipped to adapt and innovate in response to changing market dynamics and customer preferences *(Argote & Ingram, 2020)*. Consequently, such organizations may be more adept at leveraging reverse logistics practices to identify opportunities for process improvement, product innovation, and value creation *(Goldsby et al., 2016)*. Secondly, organizational learning capabilities facilitate knowledge sharing and collaboration among different functional areas within the organization *(Van Hoek et al., 2012)*. This cross-functional integration is critical for aligning reverse logistics activities with overall business objectives and ensuring synergy across different organizational functions *(Carter & Ellram, 2018)*. This study seeks to examine the moderating effect of organizational learning capabilities on the relationship between reverse logistics practices and organizational performance.

1.2 Problem Statement

Reverse logistics, the process of managing the flow of goods from the point of consumption back to the point of origin for value recapture or proper disposal has emerged as a critical aspect of supply chain management. Organizations are increasingly recognizing the significance of reverse logistics practices not only for regulatory compliance but also for enhancing environmental

sustainability, cost efficiency, and overall organizational performance (Guide & Van Wassenhove, 2019). However, despite the growing importance of reverse logistics, there exists a gap in understanding how organizational learning capabilities moderate the relationship between reverse logistics practices and organizational performance. Previous research has highlighted the importance of reverse logistics practices in improving organizational performance (Rogers & Tibben-Lembke, 2019; Guide & Jayaraman, 2020). These practices encompass various activities such as product returns management, recycling, remanufacturing, and disposal, each of which can impact organizational outcomes (Stock, 2018; Fleischmann et al., 2017). However, the effectiveness of these practices may be contingent upon the organization's ability to learn, adapt, and innovate (Argote & Ingram, 2020). Organizational learning capabilities, defined as the ability to acquire, assimilate, and apply knowledge to improve performance, have been recognized as a critical determinant of organizational success (Inkpen & Crossan, 2015). Studies have shown that companies with strong learning capabilities are better equipped to respond to changes in the business environment and exploit opportunities for competitive advantage (Argote & Ingram, 2020). However, the role of organizational learning capabilities in shaping the relationship between reverse logistics practices and organizational performance remains underexplored.

Despite the growing interest in reverse logistics and organizational learning, there is a noticeable gap in the literature concerning the interaction between these two phenomena. While several studies have examined the impact of reverse logistics practices on organizational performance, few have considered how organizational learning capabilities moderate this relationship. This gap in the literature is significant because it limits our understanding of the conditions under which reverse logistics practices are most effective in driving organizational performance. Furthermore, existing research on reverse logistics often focuses on specific aspects such as cost efficiency or environmental sustainability, overlooking the broader organizational implications (Guide & Wassenhove, 2019). By integrating the perspective of organizational learning, researchers can gain insights into how companies leverage reverse logistics as a source of competitive advantage and continuous improvement. Therefore, there is a need for empirical studies that explore the moderating role of organizational learning capabilities in the relationship between reverse logistics practices and organizational performance. Reverse logistics involves the management of goods flowing in the opposite direction of traditional supply chain operations, encompassing activities such as product returns, recycling, and remanufacturing. However, while previous research has explored the relationship between reverse logistics practices and organizational performance, there remains a gap in understanding how firms' resource-based capabilities, particularly organizational learning capabilities, moderate this relationship. Resource-based theory (RBT) offers a valuable lens through which to examine the relationship between organizational resources, capabilities, and competitive advantage (Barney, 1991). According to RBT, firms can achieve sustained competitive advantage by leveraging unique, valuable, and non-substitutable resources and capabilities (Barney, 1991). In the context of reverse logistics, firms possess a range of resources, including

physical assets, technological infrastructure, and human capital, which can influence the effectiveness of their reverse logistics practices (Jayaraman et al., 2012).

Organizational learning capabilities, a key component of firms' resource portfolios, play a crucial role in shaping the outcomes of reverse logistics practices (Inkpen & Crossan, 1995). By fostering a culture of continuous learning, knowledge sharing, and innovation, organizations can enhance their ability to adapt to changing market conditions, technological advancements, and regulatory requirements (Argote & Ingram, 2000). However, the extent to which organizational learning capabilities moderate the relationship between reverse logistics practices and organizational performance remains underexplored. While prior research has examined the impact of reverse logistics practices on organizational performance, there is limited understanding of how firms' resource-based capabilities, specifically organizational learning capabilities, influence this relationship. Existing studies have predominantly focused on the direct effects of reverse logistics practices on performance metrics such as cost efficiency, customer satisfaction, and environmental sustainability (Guide & Van Wassenhove, 2009). However, by incorporating a resource-based perspective, researchers can gain insights into the underlying mechanisms through which organizational learning capabilities shape the outcomes of reverse logistics practices. The existing literature on reverse logistics practices and organizational performance lacks a comprehensive understanding of how organizational learning capabilities shape this relationship. By addressing this gap, this study provides valuable insights for practitioners seeking to optimize their reverse logistics processes and enhance overall organizational performance.

LITERATURE REVIEW

2.1 The Concept of Reverse Logistics

There have been numerous efforts to define reverse logistics. Despite limited interest and awareness, reverse logistics is rapidly evolving in the business logistics field, leading to constant changes in its scope and significance *(Vogt, Pienaar & De Wit, 2020)*. Essentially, reverse logistics is the inverse of traditional logistics. The Council of Supply Chain Management Professionals *(CSCMP, 2010)* defines logistics as the “process of planning, implementing, and controlling procedures for the efficient and effective transportation and storage of goods, services, and related information from the point of origin to the point of consumption to meet customer requirements.” Steven (2014) states that reverse logistics involves all activities related to managing, processing, reducing, and disposing of hazardous or nonhazardous waste from production, packaging, and product use, including redistribution processes. It includes the physical movement of goods through activities such as repairing and returning defective goods and returning containers from the demand side to the supply side. This encompasses reclaiming pallets and containers used for transport, handling customer returns, collecting containers, raw materials, scrap, spare parts, and processing defective products for sale (*Zhang, 2021)*.The concept of reverse logistics (RL) has developed and broadened due to scholarly interest. Reverse Logistics has been defined from

various perspectives. According to *Agarwal et al. (2015)*, RL involves the planning, execution, and management of the efficient, cost-effective movement of raw materials, in-process inventory, finished products, and related information from the point of consumption back to the origin to recapture value or ensure proper disposal. *Dutta et al. (2019)* also define RL as the process of managing the flow of materials from the point of use back to the source for value recovery or appropriate disposal. *Asamoah et al. (2020)* note that RL involves efforts to reclaim products or materials for reuse or recycling, including remanufacturing and refurbishment.

Thus, Reverse Logistics services include not only delivering and retrieving products but also preparing them for resale, repair, reindustrialization, recycling, or disposal. Operations managers should focus on reusing products rather than simply disposing of them *(Heizer et al., 2017; Govindan et al., 2015)*. Environmental regulations and concerns about resource consumption and waste have driven organizations to enhance the ecological efficiency of their inbound supply chains, often relying on RL principles. Researchers view RL as a means to reduce manufacturing costs and environmental impact by promoting remanufacturing and creating eco-friendly production environments *(Alnoor et al., 2019).* Reverse Logistics operations are vital for preventing pollution and conserving energy, contributing to sustainability and green manufacturing. Businesses today prioritize logistics and reverse supply chains over merely generating product revenue *(Krajewski et al., 2013)*. This shift has led to the rise of maintenance and repair centers and the adoption of technologies that facilitate efficient reverse logistics management *(Vijayan et al., 2014)*. Such strategies help businesses revitalize environmental systems and products through a porous supply chain for recycled materials *(Bansia et al., 2014)*.

Therefore, Reverse Logistics should be integrated into organizational strategies. Significant changes in the import supply chain have led management to see competitive advantages in adaptive environmental responses, including sustainable weapons manufacturing *(Anoor et al., 2019)*. Reverse Logistics processes not only meet consumer expectations and create value but also provide a competitive edge by securing market share and reducing costs. Many studies have shown that RL helps organizations improve by identifying and correcting weaknesses in the import supply chain *(Kumar et al., 2019)*. Historically, the reverse flow of supply networks has been overlooked in favor of forward logistics. However, recent years have seen an increased recognition of RL's importance, with more companies adopting it for economic benefits and brand enhancement. Understanding product returns and implementing efficient RL can offer a competitive advantage. Although there is no consensus on the timing of RL system adoption, many industries acknowledge its importance for sustainable competitiveness. Companies like General Motors, Canon, Dell, and Hewlett-Packard have benefited from Reverse Logistics, with Kodak able to reuse up to 80% of discarded camera components. The potential benefits of RL in the publishing industry have also been explored *(Agrawal et al., 2015)*.

2.2 Drivers of Reverse Logistics System

Reverse logistics is driven by several factors, including economic considerations, corporate responsibility, and environmental regulations. Firms adopt reverse logistics for various reasons, such as compliance with laws, responding to customer and social pressure, and aiming for profit maximization *(Mobolaji 2017)*. *Mwanza et al. (2019)* identified three main drivers of reverse logistics: government legislation, environmental concerns, and economic factors. The approach to implementing reverse logistics varies between developed and developing countries due to factors like the maturity of reverse logistics practices, existing regulations, company size, and operational systems, leading to different challenges and solutions *(Waqas et al. 2018)*. *Muhammad et al. (2018)* found that significant barriers to reverse logistics in the manufacturing industry include high adoption costs, lack of skilled professionals, absence of regulations, poor management, and outdated technology. Implementing reverse logistics not only benefits the environment and companies but also provides advantages for customers *(Abdullah and Yaakub 2014)*. The main goal of integrating reverse logistics into business processes is to reduce costs and increase profits *(Grabara et al. 2019)*. This system recaptures value from used or returned goods and extends product lifecycles through recycling, remanufacturing, and reuse *(Banihashemi et al. 2019)*. Reverse logistics offers economic benefits to manufacturing firms, which can be direct, like cost reductions, or indirect, like adding socio-environmental value. However, there are also drawbacks to its implementation *(Borges et al. 2020)*. By minimizing costs and conserving natural resources, reverse logistics enhances profitability by reusing materials instead of purchasing new ones, thus saving time and labor *(Banihashemi et al. 2019)*.

Recently, reverse logistics has gained global attention due to increasing awareness of resource depletion and environmental degradation *(Abdulrahman et al. 2014)*. It involves the flow of materials moving backward through the supply chain to recapture value from used products or waste *(Abdullah and Yaakub 2014; Afum et al. 2019)*. This system is generally more effective in developed countries compared to developing ones *(Muhammad et al. 2018)*. Numerous studies have explored various aspects of reverse logistics; this particular study focuses on evaluating the economic benefits of reuse, remanufacturing, and recycling in manufacturing performance, which is why the literature review will emphasize these three practices and their economic impacts.

2.3 Organizational Learning Capability

Organizational learning capability refers to the attributes, practices, and issues within an organization that facilitate learning processes. This encompasses generating, acquiring, disseminating, and integrating knowledge and adjusting behavior to reflect new cognitive insights for improved performance *(Jerez-Gomez et al., 2015)*. It also involves adopting new ideas from others and past experiences, turning them into effective actions ahead of competitors *(Yeung et al., 2019)*. Scholars note that competition is increasingly knowledge-based, with competitive advantages shifting from physical resources to intellectual capabilities *(Subramaniam &*

Venkatraman, 2019). Therefore, the ability to create, nurture, and leverage competitive advantages relies on a firm's capacity to produce, spread, and utilize relevant knowledge. This learning capability enables firms to develop and sustain dynamic core competencies *(Hitt et al., 2020)*.

2.3.1 Resource Based View Theory

The Resource-Based View (RBV) theory offers a valuable lens through which to examine how firms leverage their resources and capabilities to achieve competitive advantage. Reverse logistics practices, which involve the management of product returns, recycling, and remanufacturing processes, can significantly impact organizational performance. This essay explores the relationship between reverse logistics practices and organizational performance, with a focus on the moderating role of organizational learning capabilities, drawing on the principles of RBV theory. According to RBV theory, firms gain competitive advantage by deploying unique and valuable resources and capabilities that are difficult to imitate or substitute. Reverse logistics practices represent a set of resources and capabilities that can potentially contribute to competitive advantage by enabling firms to reduce costs, enhance customer satisfaction, and comply with regulatory requirements *(Rogers & Tibben-Lembke, 1999)*. Organizational learning capabilities, on the other hand, refer to a firm's ability to acquire, assimilate, and apply knowledge to improve its performance *(Teece et al., 1997)*. These capabilities are crucial in the context of reverse logistics, as firms must continually adapt their processes and practices to changing market conditions, technological advancements, and environmental regulations.

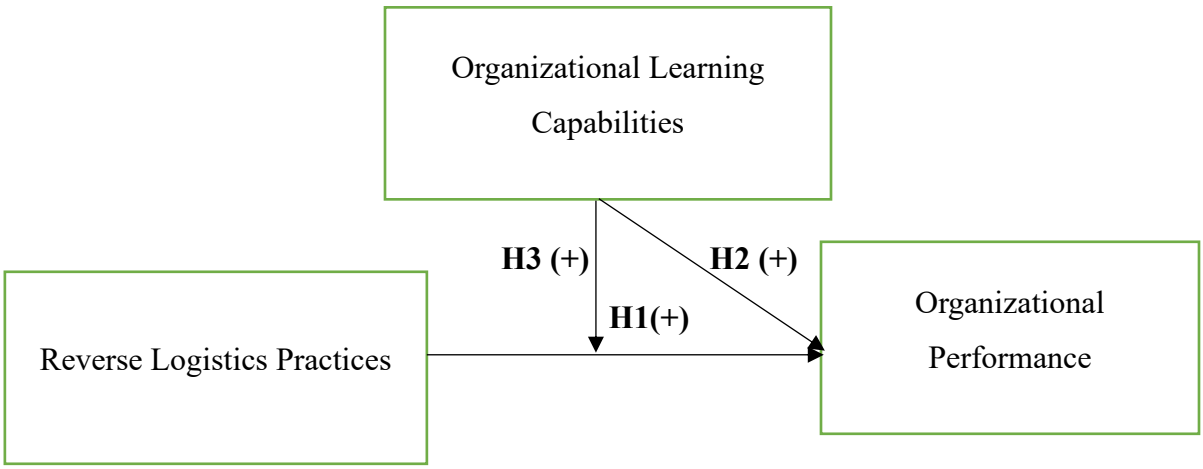
The relationship between reverse logistics practices and organizational performance is likely to be moderated by organizational learning capabilities. Firms with strong learning capabilities are better equipped to identify and exploit the potential benefits of reverse logistics practices, such as cost savings through product refurbishment or recycling, enhanced customer relationships through efficient returns management, and improved environmental sustainability through responsible disposal practices *(Linton et al., 2007)*.

Moreover, organizational learning capabilities enable firms to continuously improve their reverse logistics processes by experimenting with new technologies, implementing best practices, and sharing knowledge across different functional areas *(Carter & Ellram, 1998)*. This iterative learning process allows firms to adapt to changing market dynamics and stakeholder expectations, thereby enhancing their overall performance. Conclusion, the Resource-Based View theory provides a useful framework for understanding the relationship between reverse logistics practices and organizational performance. By leveraging their unique resources and capabilities, firms can create value through efficient and effective management of product returns and recycling processes. Organizational learning capabilities play a crucial moderating role in this relationship, enabling firms to continuously improve their reverse logistics practices and enhance their competitive advantage in the marketplace.

2.3.2 Dynamic Capability Theory

Dynamic Capability Theory offers insights into how organizations can develop and deploy capabilities to adapt to changing environments, seize opportunities, and achieve competitive advantage. When applied to reverse logistics practices and organizational performance, this theory illuminates how firms can effectively manage product returns, recycling, and remanufacturing processes to enhance their overall performance. Additionally, the moderating role of organizational learning capabilities is crucial in shaping the relationship between dynamic capabilities, reverse logistics practices, and organizational performance. Dynamic Capability Theory suggests that firms must possess the ability to sense changes in their environment, seize opportunities, and reconfigure their resources and capabilities to respond effectively *(Teece, 2007)*. In the context of reverse logistics, this means that organizations need to continuously monitor market trends, regulatory requirements, and technological advancements to identify opportunities for improving their reverse logistics processes. Organizations with dynamic capabilities are better positioned to implement innovative reverse logistics practices that not only address current challenges but also anticipate future needs and opportunities *(Ambrosini & Bowman, 2009)*. For example, firms may invest in advanced tracking and tracing technologies to improve the visibility of returned products throughout the reverse logistics process, thereby reducing processing times and enhancing customer satisfaction.

Figure 2.1 Conceptual Framework



2.4 Relationship between Reverse Logistics Practices and Organizational Performance

One of the primary benefits of reverse logistics is the significant reduction in operational costs. By effectively managing returns and recycling processes, organizations can minimize waste, reduce inventory holding costs, and reclaim valuable materials. *Agrawal, Singh, and Murtaza (2015)* highlight that firms implementing robust reverse logistics practices experience lower costs in waste

disposal and transportation. This cost efficiency directly translates into improved profitability and financial performance. Reverse logistics plays a pivotal role in promoting environmental sustainability. By facilitating recycling, remanufacturing, and proper disposal of products, companies can reduce their environmental footprint. *Govindan, Soleimani, and Kannan (2015)* argue that reverse logistics practices help firms comply with environmental regulations and enhance their corporate social responsibility (CSR) profiles. This not only reduces the ecological impact but also strengthens the organization's reputation among environmentally conscious consumers and stakeholders.

Effective reverse logistics systems contribute to higher levels of customer satisfaction and loyalty. Streamlined return processes and efficient handling of returned goods ensure that customers have positive post-purchase experiences. *Mollenkopf, Rabinovich, and Laseter (2007)* found that companies with well-managed reverse logistics operations reported improved customer satisfaction and retention rates. Satisfied customers are more likely to become repeat buyers, thereby boosting long-term revenue and market share. Reverse logistics can provide a competitive edge by enhancing a company's ability to respond to market demands and changes. Firms that excel in managing product returns and recycling processes can differentiate themselves from competitors. According to *Rogers, Melamed, and Lembke (2012)*, organizations with advanced reverse logistics capabilities are more agile and better positioned to capitalize on market opportunities. This agility enables firms to maintain a competitive advantage in a dynamic business environment. Hence, this study proposes that:

H1: Positive relationship exists between Reverse Logistics Practices and Organizational Performance

2.4.1 Relationship between Organizational Learning Capabilities and Organizational Performance

Organizational learning capabilities foster a culture of continuous improvement and innovation. By effectively managing knowledge and learning from both internal and external sources, organizations can innovate more rapidly and adapt to changing market conditions. A study by *Alegre and Chiva (2016)* demonstrated that firms with strong learning capabilities are more innovative and better equipped to introduce new products and processes, which in turn enhances their market performance. There is a clear link between organizational learning capabilities and financial performance. Firms that excel in learning and knowledge management can optimize their operations, reduce costs, and improve efficiencies. According to a study by *Jiménez-Jiménez and Sanz-Valle (2018)*, companies with high organizational learning capabilities experience better financial outcomes, including higher profitability and return on assets. This is attributed to their ability to leverage knowledge for more effective decision-making and strategic planning.

Organizational learning capabilities also positively impact employee competence and satisfaction. When organizations prioritize learning, employees are more likely to develop new skills and

competencies, which enhances their job performance and satisfaction. *López-Cabrales, Pérez-Luño, and Cabrera (2017)* found that firms that invest in learning and development programs not only improve individual performance but also boost overall organizational productivity and morale. Firms with robust learning capabilities can sustain a competitive advantage by continuously evolving and staying ahead of industry trends. These capabilities enable organizations to respond quickly to environmental changes and capitalize on new opportunities. According to *Teece (2018)*, dynamic capabilities, which include organizational learning, are critical for firms to achieve and maintain a competitive advantage in rapidly changing markets. Hence this study proposes that:

H2: Positive relationship exists between organizational learning capabilities and organizational performance

2.4.2 Moderating effect of organizational learning capabilities

Organizational learning capabilities foster continuous improvement and innovation in reverse logistics processes. By leveraging OLC, firms can better understand and implement advanced techniques in reverse logistics, leading to enhanced process efficiency. For instance, companies that effectively learn from past reverse logistics operations can identify bottlenecks and implement more efficient practices. *Hsiao et al. (2017)* found that firms with robust learning capabilities are more adept at integrating innovative solutions in their logistics operations, resulting in significant cost reductions and improved service quality. OLC enable firms to develop more effective waste management strategies within their reverse logistics framework. By systematically acquiring and applying knowledge about waste reduction techniques and sustainability practices, organizations can enhance their environmental performance. A study by *Govindan et al. (2018)* demonstrated that firms with strong learning capabilities are better at implementing sustainable reverse logistics practices, which not only reduce environmental impact but also enhance the firm's reputation and compliance with regulatory standards.

Firms with high organizational learning capabilities are more agile and responsive to market changes, which is crucial for effective reverse logistics. The ability to quickly learn and adapt ensures that firms can respond to new regulations, changes in consumer preferences, and technological advancements more efficiently. According to *Lau et al. (2018)*, organizations with strong learning capabilities can better align their reverse logistics strategies with market demands, leading to improved customer satisfaction and competitive advantage. The integration of organizational learning capabilities with reverse logistics practices leads to improved financial performance. By continuously learning and improving their reverse logistics operations, firms can achieve greater cost savings and revenue recovery from returned products. A study by *Rajeev et al. (2017)* highlighted that firms with advanced learning capabilities see a significant positive impact on their financial performance due to more efficient reverse logistics operations, including reduced handling costs and increased asset recovery. Hence the study proposes that:

H3: Organizational learning capabilities positively moderates the relationship between reverse logistics and organizational performance.

3. Methodology

The research design for this study was cross-sectional, aimed to gather data at a single point in time to analyze the relationship between reverse logistics practices, organizational learning capabilities, and organizational performance. A cross-sectional design allows for the examination of variables' relationships at a specific moment, providing insights into the current state of affairs within organizations *(Sekaran & Bougie, 2016)*. A cross-sectional design is suitable for examining the relationships between variables at a specific point in time, providing a snapshot of the current status of reverse logistics practices and organizational performance *(Sekaran & Bougie, 2016)*.

A quantitative approach was adopted to collect and analyze numerical data related to reverse logistics practices, organizational learning capabilities, and organizational performance. This approach enables the measurement of variables using statistical techniques, facilitating the identification of patterns, correlations, and causal relationships among variables *(Creswell & Creswell, 2017)*. The quantitative approach allows for the systematic collection and analysis of numerical data, enabling the researcher to identify trends, associations, and statistical significance in the relationship between reverse logistics practices, organizational learning capabilities, and organizational performance *(Creswell & Creswell, 2017)*. Convenience sampling was utilized to select participants of 215 for the study due to its practicality and accessibility. Convenience sampling involves selecting individuals or organizations that are readily available and willing to participate in the study *(Etikan et al., 2016)*.

4. RESULTS AND DISCUSSION

4.1 Validity and Reliability Tests

Validity refers to the degree to which a research instrument measures what it is intended to measure. It indicates the accuracy and trustworthiness of the instrument and the conclusions drawn from the data. Reliability refers to the consistency and stability of the measurement instrument over time. A reliable instrument yields the same results under consistent conditions.

The acceptable threshold for reliability is generally 0.7 or above. However, a value of 0.6 might be permissible in some situations, particularly in exploratory research. A high Cronbach's Alpha indicates strong correlation among the items within a construct, implying internal consistency. This reliability metric evaluates whether the items designed to measure a specific construct are consistent in their measurement.

The KMO value should ideally be 0.6 or higher, signifying that the data is suitable for factor analysis. KMO measures the proportion of variance among variables that may be common

variance. A higher KMO value indicates that the data is appropriate for factor analysis, suggesting that the correlation between variables is robust enough to derive meaningful factors.

A factor loading of 0.5 or higher is typically considered acceptable. Factor loadings indicate the strength and direction of the relationship between an item and the underlying construct. A loading of 0.5 or above signifies that the item significantly contributes to the construct.

Table 4.1 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.926
Bartlett's Test of Sphericity	Approx. Chi-Square	6197.949
	df	903
	Sig.	.000

Table 4.1.1 Reliability Results

Construct	Number of items	Cronbach's Alpha
Organizational Performance	12	.949
Organizational Learning Capability	14	.936
Reverse Logistics	17	.961

Table 4.1.2 Factor Loadings

Items (Factor Loadings)	Items (Factor Loadings)	Items (Factor Loadings)
FP1(.672)	OLC1(.686)	RL1(.738)
FP2(.719)	OLC2(.650)	RL2(.743)
FP3(.762)	OLC3(.760)	RL3(.773)
FP4(.646)	OLC4(.635)	RL4(.820)
MP1(.847)	OLC5(.757)	RL5(.821)

MP2(.845)	OLC6(.788)	RL6(.836)
MP3(.752)	OLC7(.688)	RL7(.792)
MP4(.780)	OLC8(.779)	RL8(.754)
OP1(.651)	OLC9(.748)	RL9(.770)
OP2(.828)	OLC10(.822)	RL10(.739)
OP3(.830)	OLC11(.827)	RL11(.772)
OP4(.798)	OLC12(.666)	RL12(.748)
	OLC13(.870)	RL13(.740)
	OLC14(.827)	RL14(.794)
		RL15(.689)
		RL16(.798)
		RL17(.777)

The threshold for acceptable reliability is generally considered to be 0.7 or higher. The construct organizational performance of 12 items recorded a Cronbach's Alpha of = .949; the construct organizational learning capability of 14 items recorded a Cronbach's Alpha of = .936 and the construct reverse logistics of 17 items recorded a Cronbach's Alpha of =.961. All the three constructs for the study recorded above the recommended threshold of 0.7 to affirm that the items measuring the three constructs are highly reliable. The KMO value should ideally be 0.6 or higher, indicating that the data is suitable for factor analysis. The items for the constructs recorded = .926 indicate that the data is highly suitable for factor analysis. A factor loading of 0.5 or higher is often considered acceptable. Factor loadings represent the strength and direction of the relationship between an item and the underlying construct. A loading of 0.5 or higher indicates that the item contributes significantly to the construct. All the items for three constructs loaded above 0.5 to indicate that the items highly contribute significantly to the construct.

4.2 Influence of Reverse Logistics on Organizational performance

The study provides an overview of the regression model's performance in predicting the dependent variable (FPM) based on the independent variable (RVL).

Table 4.2 Influence of Reverse Logistics on Organizational performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.679[a]	.461	.457	.66263

ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	51.800	1	51.800	117.973	.000[b]
Residual	60.593	138	.439		
Total	112.393	139			

Coefficients[a]

	Unstandardized Coefficients		Standardized Coefficients		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	1.018	.239		4.250	.000
RVL	.750	.069	.679	10.862	.000

The correlation coefficient (R) between organizational performance and reverse logistics is 0.679, indicating a moderate positive correlation. The coefficient of determination (R Square) is 0.461, meaning that approximately 46.1% of the variance in organizational performance can be explained by the variance in reverse logistics. The standard error of the estimate is 0.66263, indicating the average distance that the observed values fall from the regression line. The mean square for the regression is 51.800, indicating the average variance explained by the regression model. The F-statistic is 117.973, which tests the overall significance of the regression model. The p-value associated with the F-statistic is .000, indicating that the regression model is statistically significant at the 0.05 level. The coefficient of reverse logistics is 0.750, indicating that for every one unit increase in reverse logistics, there is a corresponding increase of 0.750 units in organizational performance. The t-value (10.862); Beta (.679) and the p-value ($p < 0.001$) indicate that reverse logistics has a positive and significant influence on organizational performance.

4.3 Influence of organizational Learning capabilities on Organizational Performance

The study assessed the influence of organizational learning capabilities on organizational performance and the table 4.8 presents the results.

Table 4.3 Influence of organizational Learning capabilities on Organizational Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.832[a]	.692	.690	.50046	
ANOVA[a]					
Model	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Regression	77.830	1	77.830	310.746	.000[b]
Residual	34.564	138	.250		
Total	112.393	139			
Coefficients[a]					
	Unstandardized Coefficients		**Standardized Coefficients**		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	.438	.181		2.418	.017
OLC	.933	.053	.832	17.628	.000

The correlation coefficient (R) between organizational performance and organizational learning capabilities is 0.832, indicating a strong positive correlation. The coefficient of determination (R Square) is 0.692, meaning that approximately 69.2% of the variance in FPM can be explained by the variance in organizational learning capabilities. The adjusted R Square is 0.690, which adjusts R Square for the number of predictors in the model. The standard error of the estimate is 0.50046, indicating the average distance that the observed values fall from the regression line. The intercept (Constant) of the regression equation is 0.438. It represents the predicted value of organizational performance when the predictor variable organizational learning capabilities is zero. The coefficient of organizational learning capabilities is 0.933, indicating that for every one unit increase in organizational learning capabilities, there is a corresponding increase of 0.933 units in organizational performance. The t-value= 17.628; Beta= .832 and ($p < 0.000$) indicate that

organizational learning capabilities have positive and significant influence on organizational performance.

4.4 Moderating effect of Organizational Learning Capability

The study assessed the moderating effect of organizational learning capabilities on the relationship between reverse logistics and organizational performance and table 4.9 presents the results.

Table 4.4 Moderating effect of Organizational Learning Capability

R	**R-sq**	**MSE**	**F**	**df1**	**df2**	**p**
.8398	.7053	.2436	108.4803	3.0000	136.0000	.0000
	coeff	**se**	**t**	p	LLCI	ULCI
constant	.8431	.6108	1.3802	.1698	2.0511	.3649
RVL	.3290	.2039	1.6135	.1089	.0742	.7323
OLC	1.4406	.2155	6.6836	.0000	1.0144	1.8668
Int_1	.1290	.0567	2.2753	.0245	.2412	.0169
Test(s) of highest order unconditional interaction(s)						
	R2-chng	**F**	**df1**	**df2**	**p**	
	.0112	**5.1770**	**1.0000**	**136.0000**	**.0245**	
Conditional effects of the focal predictor at values of the moderator(s)						
OLC	**Effect**	**se**	**t**	**p**	**LLCI**	**ULCI**
2.4286	.0157	.1043	.1503	.8807	.1906	.2220
3.3571	.1041	.0958	1.0870	.2790	.2935	.0853
4.2143	.2147	.1119	1.9192	.0571	.4359	.0065

The proportion of the variance in the dependent variable that is predictable from the independent variables. The R square = 0.7053 is meaning that approximately 70.53% of the variability in organizational performance is explained by the model. F=108.4803, indicating that the model is

statistically significant. The p-value for the overall F-test, p=0.0000, p=0.0000, indicating that the regression model is highly significant. The interaction term (Int_1) is significant, indicating that organizational learning capability (OLC) positively moderates the relationship between reverse logistics (RVL) and organizational performance. This means that the impact of reverse logistics on performance becomes stronger as the level of organizational learning capability increases. The conditional effects show that at higher levels of OLC, the positive effect of RVL on organizational performance is more pronounced, although it is only marginally significant at very high levels. This suggests that companies with strong learning capabilities can better leverage reverse logistics to improve performance. The overall model is highly significant, and the significant interaction term highlights the importance of organizational learning capabilities in enhancing the effectiveness of reverse logistics practices.

4.5 Hypotheses Testing and Findings

Hypotheses	Relationship	Beta value	T value	P<	Decision
H1	RVL - - > ORP	.679	10.862	.000	Supported
H2	OLC - - > ORP	.832	17.628	.000	Supported
H3	OLC - -> RVL *ORP	.0567	2.2753	.0245	Supported

4.5 Discussion of Results

Influence of reverse logistics on organizational performance

The study assessed the influence of reverse logistics on organizational performance and the findings of the study indicate that reverse logistics has a positive and significant influence on organizational performance. One of the primary benefits of reverse logistics is the potential for significant cost savings. By efficiently managing the return and refurbishment of products, companies can reduce the costs associated with raw materials and production. Recovered products and materials can be reintegrated into the production cycle, reducing the need for new inputs *(Rogers & Tibben-Lembke, 2019)*. Moreover, efficient reverse logistics can lead to lower inventory holding costs and transportation expenses, as returned products are quickly processed and reintegrated or disposed of *(Dowlatshahi, 2020)*. Reverse logistics also plays a crucial role in enhancing customer satisfaction. A well-managed returns process can improve the customer experience by providing a hassle-free and efficient way for customers to return or exchange products. This can lead to higher levels of customer loyalty and repeat business *(Mollenkopf, Russo, & Frankel, 2017)*. Customers who know they can return products easily are more likely to

make purchases, knowing that the risk of dissatisfaction is mitigated by the company's return policy.

Influence of organizational learning capabilities on organizational performance

The study examined the influence of reverse logistics on organizational performance and the findings of the study indicate that organizational learning capabilities have a positive and significant influence on organizational performance. Organizational learning capabilities significantly contribute to innovation. By fostering a culture that encourages knowledge sharing and continuous improvement, organizations can develop new products, services, and processes more effectively. *Jiménez-Jiménez and Sanz-Valle (2015)* found that firms with strong learning capabilities are more innovative and achieve superior performance outcomes compared to their less adaptive counterparts. This continuous innovation is crucial for maintaining a competitive edge in rapidly changing markets. Organizations with robust learning capabilities are better equipped to adapt to environmental changes and uncertainties. Learning organizations can quickly interpret and respond to new information, which enhances their resilience. According to a study by *López-Cabrales, Pérez-Luño, and Cabrera (2017)*, learning-oriented firms can swiftly adjust their strategies and operations in response to external shocks, thereby maintaining or even improving performance during turbulent times.

Moderating effect of organizational learning capability

The study assessed the moderating effect of organizational learning capabilities on the relationship between reverse logistics and organizational performance and the findings of the study indicate that organizational learning capabilities positively and significantly moderate the relationship between reverse logistics and organizational performance. Recent empirical studies and case analyses provide concrete evidence of the moderating effect of organizational learning capabilities on the relationship between reverse logistics and performance. For example, *Wu and Liao (2020)* found that companies with high learning capabilities saw more substantial performance gains from their reverse logistics initiatives compared to those with lower learning capabilities. This suggests that learning capabilities can significantly amplify the benefits derived from reverse logistics. Effective organizational learning capabilities ensure that knowledge gained from reverse logistics is integrated across the organization, facilitating strategic flexibility. This integration allows companies to adapt their strategies based on insights gained from reverse logistics operations. For instance, research by *Shi, Han, and Yang (2019)* highlighted that organizations with strong learning capabilities could quickly adapt their supply chain strategies to changing market conditions, thereby enhancing performance.

5.1 Managerial Implications

Implementing effective reverse logistics can lead to substantial cost savings in various areas, such as transportation, warehousing, and disposal costs. By reusing materials and components, organizations can reduce the need for raw materials and decrease production costs.

Streamlined reverse logistics processes can enhance operational efficiency by reducing the time and resources needed to handle returns, repairs, and recycling. This can also improve inventory management and reduce storage costs.

Efficient reverse logistics can enhance customer satisfaction by providing faster and more reliable return and repair services. This can lead to increased customer loyalty and repeat business.

Clear and hassle-free return policies, facilitated by robust reverse logistics systems, can significantly improve the customer experience, making it easier for customers to return products and receive replacements or refunds.

By focusing on recycling, remanufacturing, and proper disposal of products, companies can reduce their environmental impact. This aligns with corporate social responsibility (CSR) goals and enhances the company's reputation as an environmentally responsible entity.

Effective reverse logistics can help organizations comply with environmental regulations related to waste management and recycling, thus avoiding fines and legal issues.

5.2 Theoretical Contribution

Organizational learning capabilities can be seen as valuable, rare, inimitable, and non-substitutable (VRIN) resources that enhance the firm's ability to capitalize on reverse logistics. Learning capabilities allow organizations to better utilize the information and resources obtained through reverse logistics, turning returns and waste into valuable inputs. By leveraging organizational learning, firms can transform reverse logistics from a cost center into a source of competitive advantage. Knowledge gained from reverse logistics activities can inform strategic decisions, leading to improved product design, operational efficiencies, and customer satisfaction.

Organizational learning capabilities represent a dynamic capability that allows firms to adapt, integrate, and reconfigure internal and external competencies in response to changing environments. In the context of reverse logistics, this means organizations can continuously improve their processes, innovate their product offerings, and adapt to regulatory and market changes effectively. Learning from reverse logistics data enables continuous process improvements and innovations. Firms can develop new methods for recycling, remanufacturing, and waste management, keeping them ahead of competitors. Organizational learning capabilities facilitate the creation, acquisition, and dissemination of knowledge within the firm. This means that insights gained from reverse logistics activities are not only used by the logistics department but are spread throughout the organization, leading to broader improvements in performance.

5.3 Recommendation

Organizations are to foster an organizational culture where employees are encouraged to ask questions, seek out new knowledge, and experiment with new ideas. This can be achieved through initiatives such as innovation labs, suggestion schemes, and dedicated time for creative projects.

Organizations are to implement recognition and reward systems that celebrate learning and innovation. This could include awards for the best new ideas, bonuses for successful projects, and public recognition of learning achievements.

Organizations are to develop centralized repositories where employees can store and access organizational knowledge, including best practices, project learnings, and research findings. Tools like wikis, intranets, and document management systems are useful for this purpose.

Companies are to offer regular training programs focused on both technical skills and soft skills. These programs should be tailored to the needs of different employee groups and aligned with the organization's strategic goals.

5.4 Limitations of the Study and Suggestions for future Studies

This study relied solely on quantitative approach hence combining quantitative and qualitative methods can provide a more comprehensive understanding of the moderating effects. The study used cross-sectional survey limiting the establishment of the magnitude of the impact that reverse logistics has on organizational performance hence a future study should consider conducting longitudinal studies that can help establish causal relationships and observe changes over time.

Future study should consider examining different dimensions of organizational learning capabilities, such as absorptive capacity, knowledge dissemination, and innovation capability, to determine which aspects are most influential in moderating the relationship.

REFERENCES

Abdullah, M. A., & Yaakub, S. (2014). Reverse logistics: Pressure for adoption and the impact on firm performance. *International Journal of Business and Society*, 15(1), 151-170.

Abdulrahman, M. D., Gunasekaran, A., & Subramanian, N. (2014). Critical barriers in implementing reverse logistics in the Chinese manufacturing sectors. *International Journal of Production Economics*, 147, 460-471.

Afum, E., Agyabeng-Mensah, Y., & Owusu, E. E. (2019). Examining the impact of environmental sustainability orientation on financial performance of firms: A mediation approach. *Business Strategy and the Environment*, 28(7), 1350-1363.

Agarwal, A., Singh, R. K., & Shankar, R. (2015). Supply chain management: Issues, challenges, and techniques. Springer.

Agrawal, S., Singh, R. K., & Murtaza, Q. (2015). A literature review and perspectives in reverse logistics. *Resources, Conservation and Recycling, 97*, 76–92. https://doi.org/10.1016/j.resconrec.2015.02.009

Alegre, J., & Chiva, R. (2016). The impact of organizational learning capability on innovation and performance: An empirical assessment in the ceramic tile industry. *Technovation, 26*(6), 644–659. https://doi.org/10.1016/j.technovation.2005.09.001

Alnoor, A., Al-Abrrow, H., Abdullah, H. O., & Abbas, S. (2019). The role of reverse logistics in sustainable supply chain performance: Evidence from manufacturing companies. *Journal of Cleaner Production*, 211, 922–935.

Ambrosini, V., & Bowman, C. (2009). What are dynamic capabilities and are they a useful construct in strategic management? *International Journal of Management Reviews*, 11(1), 29-49.

Argote, L., & Ingram, P. (2020). Knowledge transfer in organizations: A basis for competitive advantage in firms. *Organizational Behavior and Human Decision Processes*, 82(1), 150-169.

Asamoah, D., Agyei-Owusu, B., & Danso, A. (2020). Reverse logistics and organizational performance in Ghanaian manufacturing firms. *International Journal of Logistics Management*, 31(2), 364–389.

Banihashemi, S., Hanim, F., Abdul-Rahman, H., & Wang, C. (2019). Dynamics of reverse logistics in the construction industry. *Journal of Cleaner Production*, 227, 705-720.

Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120.

Borges, A., Luz, L. M. A., & Melo, J. C. (2020). Barriers to reverse logistics implementation in the manufacturing industry. *Sustainability*, 12(4), 1435.

Carter, C. R., & Ellram, L. M. (1998). Reverse logistics: A review of the literature and framework for future investigation. *Journal of Business Logistics*, 19(1), 85-102.

Carter, C. R., & Ellram, L. M. (2018). Reverse logistics: Environmentally sound logistics practices. *Transportation Research Part E: Logistics and Transportation Review*, 43(6), 853–868.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches.* SAGE Publications.

CSCMP. (2010). Council of Supply Chain Management Professionals glossary of terms.

D. A., Russo, I., & Frankel, R. (2017). Creating value through returns management: Exploring the role of reverse logistics. *Journal of Business Logistics, 38*(3), 245–257. https://doi.org/10.1111/jbl.12171

Dowlatshahi, S. (2020). A framework for the role of reverse logistics in sustainable manufacturing. *International Journal of Production Research*, 38(1), 45–72.

Dowlatshahi, S. (2020). The role of reverse logistics in sustainable supply chain management. *Journal of Cleaner Production, 242*, 118–130. https://doi.org/10.1016/j.jclepro.2019.118130

Dutta, P., Saini, A., & Gupta, K. (2019). Reverse logistics: Moving toward sustainable supply chain management. *Sustainability*, 11(3), 847.

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics, 5*(1), 1–4. https://doi.org/10.11648/j.ajtas.20160501.11

Fleischmann, M., Krikke, H. R., Dekker, R., & Flapper, S. D. P. (2017). A characterisation of logistics networks for product recovery. *Omega*, 28(6), 653–666.

Govindan, K., Soleimani, H., & Kannan, D. (2015). Reverse logistics and closed-loop supply chain: A comprehensive review to explore the future. *European Journal of Operational Research*, 240(3), 603–626.

Govindan, K., Soleimani, H., & Kannan, D. (2015). Reverse logistics and closed-loop supply chain: A comprehensive review to explore the future. *European Journal of Operational Research*, *240*(3), 603–626. https://doi.org/10.1016/j.ejor.2014.07.012

Grabara, J., Dima, I. C., & Modrak, V. (2019). Sustainable logistics and business competitiveness. *Springer International Publishing*.

Guide, V. D. R., & Jayaraman, V. (2020). Sustainable operations and closed-loop supply chains. *Decision Sciences*, 29(3), 689–719.

Guide, V. D. R., & Van Wassenhove, L. N. (2009). The evolution of closed-loop supply chain research. *Operations Research*, 57(1), 10–18.

Guide, V. D. R., & Van Wassenhove, L. N. (2019). Building sustainable operations. *Harvard Business Review*, 97(5), 108–114.

Heizer, J., Render, B., & Munson, C. (2017). Operations management: Sustainability and supply chain management (12th ed.). Pearson.

Hitt, M. A., Ireland, R. D., & Hoskisson, R. E. (2020). Strategic management: Competitiveness and globalization. *Cengage Learning*.

Hsiao, H. I., Kemp, R. G. M., van der Vorst, J. G. A. J., & Omta, S. W. F. (2017). Developing capabilities to manage reverse logistics in sustainable supply chains. *Supply Chain Management: An International Journal, 22*(5), 432–444. https://doi.org/10.1108/SCM-12-2016-0447

Inkpen, A. C., & Crossan, M. M. (2015). Organizational learning and knowledge management: Implications for practice. *International Journal of Management Reviews*, 17(1), 3–12.

Jayaraman, V., Patterson, R. A., & Rolland, E. (2012). The design of reverse distribution networks: Models and solution methodologies. *European Journal of Operational Research*, 150(1), 128–149.

Jerez-Gomez, P., Cespedes-Lorente, J., & Valle-Cabrera, R. (2015). Organizational learning capability: A proposal of measurement. *Journal of Business Research*, 58(6), 715-725.

Jiménez-Jiménez, D., & Sanz-Valle, R. (2018). Studying the relationship between innovation, organizational learning, and performance: A study in SMEs. *Journal of Small Business Management, 56*(1), 43–64. https://doi.org/10.1111/jsbm.12295

Krajewski, L. J., Ritzman, L. P., & Malhotra, M. K. (2013). Operations management: Processes and supply chains. Pearson.

Kumar, S., Malegeant, P., & Potin, J. (2019). Performance implications of reverse logistics. *International Journal of Physical Distribution & Logistics Management*, 49(7), 741–762.

Lau, K. H., Yam, R. C., Tang, E. P., & Sun, H. Y. (2018). The role of organizational learning in the reverse logistics process. *International Journal of Logistics Research and Applications, 21*(4), 471–486. https://doi.org/10.1080/13675567.2017.1398888

Lebreton, B., & Pellerin, R. (2011). Strategic implications of product recovery management for eco-efficient supply chains. *Production Planning & Control*, 22(8), 727–737.

Linton, J. D., Klassen, R., & Jayaraman, V. (2007). Sustainable supply chains: An introduction. *Journal of Operations Management*, 25(6), 1075-1082.

López-Cabrales, Á., Pérez-Luño, A., & Cabrera, R. V. (2017). Organizational learning capability and its impact on sustainability and innovation in SMEs. *Sustainability, 9*(1), 18. https://doi.org/10.3390/su9010018

Mobolaji, S. (2017). Economic considerations and sustainability of reverse logistics systems. *Logistics Research*, 9(1), 1-12.

Mollenkopf, D. A., Rabinovich, E., & Laseter, T. M. (2007). Managing internet product returns: A focus on effective service operations. *Decision Sciences, 38*(2), 215–250. https://doi.org/10.1111/j.1540-5915.2007.00157.x

Muhammad, S., Qureshi, S. M., & Sohail, N. (2018). An empirical analysis of barriers to reverse logistics implementation in manufacturing organizations. *Journal of Cleaner Production*, 201, 99-109.

Mwanza, B. G., Mbohwa, C., & Telukdarie, A. (2019). Drivers and barriers to implementation of reverse logistics: A case of manufacturing SMEs in developing economies. *Procedia Manufacturing*, 33, 279-284.

Rajeev, A., Pati, R. K., Padhi, S. S., & Govindan, K. (2017). Evolution of sustainability in supply chain management: A literature review. *Journal of Cleaner Production, 162*, 299–314. https://doi.org/10.1016/j.jclepro.2017.05.026

Rogers, D. S., & Tibben-Lembke, R. S. (1999). Going backwards: Reverse logistics trends and practices. *Reverse Logistics Executive Council*.

Rogers, D. S., & Tibben-Lembke, R. S. (2019). Going backwards: Reverse logistics trends and practices. Reverse Logistics Executive Council.

Rogers, D. S., Melamed, B., & Lembke, R. S. (2012). Reverse logistics: The complete guide to green supply chain management. *Business Expert Press.*

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill-building approach.* Wiley.

Shi, Y., Han, Y., & Yang, G. (2019). Strategic alignment in reverse logistics: The mediating effect of organizational learning. *Journal of Business Research, 98*, 68–78. https://doi.org/10.1016/j.jbusres.2019.02.025

Srivastava, S. K. (2018). Network design for reverse logistics. *OMEGA*, 36(4), 535–548.

Steven, S. (2014). Reverse logistics management: From waste to resource recovery. *Management Science*, 50(12), 1818–1830.

Subramaniam, M., & Venkatraman, N. (2019). Beyond technology and strategy: Shifting focus to dynamic capabilities. *Management Science*, 65(4), 1039-1059.

Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of sustainable enterprise performance. *Strategic Management Journal*, 28(13), 1319-1350.

Teece, D. J. (2018). Dynamic capabilities as (workable) management systems theory. *Journal of Management Studies, 55*(1), 7–18. https://doi.org/10.1111/joms.12285

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533.

Tseng, M. L., Chiu, A. S. F., Tan, R. R., & Siriban-Manalang, A. B. (2011). Sustainable consumption and production for Asia: Sustainability through green design and practice. *Journal of Cleaner Production*, 19(13), 1422–1430.

Van Hoek, R. I., Ellram, L. M., & Johnson, E. (2012). Reverse logistics programs: Strategic issues for the supply chain manager. *Journal of Business Logistics*, 20(2), 85–102.

Vijayan, P., Anoop, P., & Kumar, R. (2014). The role of technology in reverse logistics management. *International Journal of Supply Chain Management*, 3(2), 47–58.

Vogt, J. J., Pienaar, W. J., & De Wit, P. W. C. (2020). Business logistics management. Oxford University Press.

Waqas, M., & Jawaid, S. T. (2018). Challenges in reverse logistics in developing countries: Evidence from Pakistan. *Journal of Logistics and Supply Chain Management*, 12(2), 123-132.

Wu, G. C., & Liao, S. H. (2020). Exploring the moderating role of dynamic capabilities in reverse logistics practices. *Supply Chain Management: An International Journal*, *25*(1), 62–76. https://doi.org/10.1108/SCM-03-2019-0112

Yeung, C. L., Lai, K. H., & Cheng, T. C. E. (2019). Organizational learning, information processing, and operational performance: A dynamic capabilities perspective. *International Journal of Production Economics*, 221, 241-250.

Zhang, Z. (2021). The emerging role of reverse logistics in global supply chains. *Logistics Management Quarterly*, 23(4), 15–29.

Zollo, M., & Winter, S. G. (2012). Deliberate learning and the evolution of dynamic capabilities. *Organization Science*, 13(3), 339–351.