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Saudi Journal of Business and Management Studies
Abbreviated Key Title: Saudi J Bus Manag Stud
ISSN 2415-6663 (Print) |ISSN 2415-6671 (Online)
Scholars Middle East Publishers, Dubai, United Arab Emirates
Journal homepage: https://saudijournals.com

Original Research Article

The Influence of Supply Chain Management Practices on the Overall Performance of DPD Logistics

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DOI: https://doi.org/10.36348/sjbms.2025.v10i06.002 | **Received:** 24.05.2025 | **Accepted:** 02.07.2025 | **Published:** 07.07.2025

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Abstract

The primary objective of this study is to determine how different supply chain management (SCM) approaches affect how well DPD Logistics runs its business. The research examines the impact of digital transformation, operational integration, and long-term initiatives on three critical aspects of a company's performance: profitability, operational efficiency, and customer satisfaction. This study uses a variety of methods to fill in the gaps in our knowledge of how to manage transportation. New supply chain strategies help firms remain ahead of the competition by allowing them to change with the times. The results show that DPD's strategic supply chain management (SCM) efforts have improved the company's measurable results. This is particularly relevant for projects like becoming digital, keeping track of stock, and using green logistics. The organization will be able to ship and manage more than 2.1 billion items throughout the world by 2024. Thanks to integrated supply chain management systems, this is possible. This study shows that different needs can be met in different ways. Supply chain management has become more open and flexible because of the introduction of new technologies such as data-driven forecasting and automated storage. The service is not as pleasant or as inexpensive as they were in the past. This research enhances the existing knowledge of supply chain management (SCM). To do this, people look at things from the Resource-Based View (RBV) and Systems Theory points of view. Transportation workers can also use the information to help supply lines run better and be more competitive. The study reveals that transportation businesses may do better with SCM if they apply modern technologies and green ideas.

Keywords: Supply Chain Management (SCM); Organizational Performance; Logistics Operations; Digital Supply Chain Transformation; Sustainability in Logistics; DPD Logistics; Operational Efficiency; Customer Satisfaction; Resource-Based View (RBV); Systems Theory.

INTRODUCTION

The market today is constantly evolving and highly competitive. Supply chain management (SCM) is becoming more and more important to businesses, especially those in the transportation field. As more people use the internet to shop and deal with other countries, package delivery services have also improved. They need to be quick, cheap, and on time. Logistics companies are now very important to global trade, and they are always coming up with new ways to deal with problems like supply chain management, customer relations, and protecting the environment (Christopher, 2016; Chopra & Meindl, 2021).

People have been using DPD Logistics to transfer stuff around the world for a long time. They still know what's going on in their sector. In the US, DPD has a huge and easy-to-use transportation infrastructure. They distribute more than 5.3 million packages to more than 230 sites in different countries every day. When the business has to come up with new ideas, it typically leverages the latest technology, such as Internet of Things tracking tools, automatic sorting systems, and algorithms that determine the optimal routes. DPD is

looking at delivery solutions that are better for the environment, such as using huge electric freight vehicles, to lessen its impact on the environment. Gevaers *et al*. (2011) and The DPD Group (2024) contend that these measures are in accordance with the group's principal aims of environmental preservation and sustainability.

New technology is changing the transportation industry in big ways. Supply chain processes are being changed by artificial intelligence, ambient intelligence, and networked labor systems. These modifications make it simpler to see data and provide individuals with the power to make rapid judgments (Waller & Fawcett, 2013; Ivanov *et al*., 2021). Adding sustainability to supply chain management (SCM) projects is a good method to show stakeholders how well things are going and how much they are worth. There are ways to achieve this, such as employing circular logistics models, cutting down on carbon emissions, and buying things in a way that is good for the environment.

This study shows how DPD Logistics manages its supply chain and has a big effect on how well the company does overall. The essay talks about how digital transformation, operational integration, and environmental efforts might affect three parts of a business: customer happiness, operational efficiency, and profits. This study employs several research methodologies to enhance logistics management by providing empirical data and strategic insights on how supply chain optimization may increase corporate competitiveness.

BACKGROUND OF DPD LOGISTICS

DPD Logistics is a leading parcel delivery company known for efficient, reliable, and innovative logistics solutions.

In Europe, DPD Logistics is one of the finest ways to ship items. The DPD group and Neopost are two parts of it. France was the first country to have DPD in 1977. It has risen swiftly because of clever buying, investing in technology, and a strong focus on customer service. DPD is a well-known name in the transportation industry, both in the area and throughout the world. The DPD Group Annual Report for 2024 indicates that the company works in more than 230 countries and territories and ships more than 5.3 million goods every day.

The business is successful because it does great work and comes up with new ideas. DPD was the first company to use automatic sorting facilities and route optimization technologies together. This made it possible to handle more packages and speed up delivery times (Gevaers, Van de Voorde, & Vanelslander, 2011). DPD has also been better for the environment in the last several years. Browne *et al*. (2011) and the DPD Group Sustainability Report (2023) claim that the firm is concerned about reducing its environmental impact. For instance, it now employs electric delivery cars and lets you choose carbon-neutral options for package delivery.

DPD has also put money into digital infrastructure, such as mobile apps, real-time package tracking, and tools for analyzing data. These have changed the way customers connect with the company and made services easier for more people. Internet of Things (IoT) and advanced data analytics could help the company make better supply chain decisions, which would make it more flexible and stronger (Ivanov *et al*., 2021; Waller & Fawcett, 2013).

One of DPD's goals is to make the last mile of delivery as quick and easy as possible. To do this, they are building a central hub and a dense network of local stores. When e-commerce is busy, this strategy helps organizations develop and change so they can manage more or fewer deliveries (Morganti *et al*., 2014). The firm is poised to deal with difficulties like stricter government rules, higher consumer expectations, and the need for more environmentally friendly supply chain processes since it concentrates on new ideas. We can now better understand how DPD's supply chain management influences its overall performance and its ability to be competitive in a shipping sector that is always evolving and getting harder.

DPD PROBLEM STATEMENT

DPD Logistics faces performance challenges due to potential inefficiencies in its current supply chain management practices.

DPD Logistics is a well-known firm in the business world and has a huge commercial presence, but it is still encountering challenges that might damage its performance and competitiveness in the long run. There are several reasons why the logistics sector has become more sophisticated. Customers expect faster delivery, there are more online orders, and there are stronger restrictions to safeguard the environment and cut down on pollution (Christopher, 2016; Ivanov *et al*., 2021). Because of these aspects, supply chain management (SCM) systems need to be able to evolve rapidly and successfully.

DPD's huge operational network is always encountering problems, such as how to improve last-mile delivery, keep track of products in different places, and add new technology without lowering the quality of service (Gevaers *et al*., 2011; Morganti *et al*., 2014). DPD has also started projects in sustainable logistics and digital transformation. But there hasn’t been enough research on how well these tactics work to improve key performance indicators. We need to know how SCM methods can improve the business's operations, finances, and customers in ways that can be quantified.

There have been few studies examining the correlation between supply chain management practices and organizational effectiveness across logistics

providers as significant as DPD (Chopra & Meindl, 2021; Waller & Fawcett, 2013). If logistics firms don't think based on facts, they might squander money and miss out on opportunities to expand in the long run. The primary objective of this study is to ascertain the impact of DPD Logistics' supply chain management on company productivity. The major purpose of the study is to find out how trying to be more eco-friendly and using technology in supply chain management affect the company's performance, profits, and customer satisfaction.

RESEARCH OBJECTIVES

1. The goal is to determine how supply chain management practices influence DPD Logistics' operational efficiency. This includes examining how adopting new technology and refining processes affect the speed and accuracy of deliveries.
2. This assessment aims to evaluate how the integration of supply chain management (SCM) has affected DPD's financial performance, focusing on cost savings, revenue, and overall profitability.
3. Investigate the influence of DPD's eco-friendly initiatives on customer perceptions and brand image.

RESEARCH QUESTIONS

1. How do various methods of supply chain management impact the efficiency and effectiveness of DPD Logistics' business operations?
2. What does the connection between integrating SCM and DPD Logistics' income stand for?
3. How do sustainability-oriented supply chain management methods affect customer satisfaction and loyalty in DPD Logistics?

SIGNIFICANCE OF STUDY

Understanding supply chain impacts can help DPD Logistics improve service quality, efficiency, and overall competitive advantage.

This research on transportation and supply chain management emphasizes both theoretical and practical implementations of its results. This adds to what we already know by illustrating how alternative approaches to managing the supply chain may change how a big package delivery firm works. Shipping is still incredibly hard for big companies like DPD that deal with worldwide networks. Numerous studies have investigated the operational dynamics of supply networks in commercial and retail environments. You could locate Christopher (2016) and Chopra and Meindl (2021) in this group of research. Researchers have come up with new ways for firms to use supply chain systems that will make them more stable and offer them an edge in the market. We employ the Resource-Based View (RBV) alongside Systems Theory to finish this study.

The Department of Public Safety (DPS) and other pertinent agencies' decision-makers and traffic controllers will find the findings important. The study could help you find supply chain management (SCM) strategies that boost income, enhance operational effectiveness, and please customers. This might help with resource allocation planning and selection. The study suggests that products may become more valuable as they become digitized and contribute to the globe. This reflects the long-term trend in the shipping sector toward technologically superior and ecologically sustainable shipping choices (Waller and Fawcett, 2013; Ivanov *et al*., 2021).

In the end, this research helps DPD Logistics improve its supply chain so that it can satisfy changing market needs, rules, and consumer expectations. It also sets a standard for other logistics companies who want to use new SCM methods and expand in a way that lasts.

SCOPE AND LIMITATIONS

The study focuses on DPD Logistics' internal supply chain practices, excluding external partners and detailed financial analysis.

The major purpose of this research is to investigate the influence that different supply chain management (SCM) techniques have on the overall performance of DPD Logistics, with a special focus on Europe. The research investigates three essential success criteria, namely operational efficiency, profitability, and customer happiness. If you chat to the supply chain professionals and managers at DPD, you could also be able to obtain personal insights that will make the figures in your internal performance reports more relevant.

There is a significant amount of research being conducted on supply chain management strategies that simplify the process of transitioning to a digital system (such as automated sorting and tracking through the Internet of Things), utilizing environmentally friendly options (such as electric cars and green delivery), and performing fundamental logistics tasks (such as managing inventory and optimizing routes). An examination of the firm's operations during the previous five years served as the basis for the current portrayal of the supply chain management of the organization.

But the range is not that wide. In the first part of the study, the sole focus is on the activities that are carried out by DPD in Europe. Based on this, it appears that the findings might not be relevant to other nations or regions since the infrastructure and legislation in other areas are potentially different. The second limitation of quantitative research is that it is limited in both depth and breadth since it requires access to data from private companies. The third point is that the transportation industry is undergoing rapid transformation because of the introduction of new technology, which may render prior findings obsolete. In the end, even if steps were taken to preserve the privacy and identities of the individuals who answered the questions, the qualitative data may still be polluted by the preconceptions of those individuals who submitted their responses. Even though there are issues that already exist, the inquiry offers

significant insights into the influence that supply chain management (SCM) methods have had on the operation of a notable transportation firm. This paves the way for further investigation and the possibility of future use.

Definition of Key Terms

The process of moving goods from suppliers to customers is Logistics: The Coordination of product delivery and storage.

Supply Chain Management (SCM):

Chopra and Meindl (2021) say that supply chain management (SCM) is the management of the flow of goods from the point of acquisition of raw materials to the point of delivery. A good supply chain management system makes sure that buying, making, storing, shipping, and managing logistics all work together to speed up and improve the flow of goods, data, and money. This is done by making sure that these actions work together. Supply chain management, or SCM, is one of the most critical parts of DPD Logistics. You need to keep a watch on how shipments are handled, plan delivery routes, and talk to both customers and suppliers to make sure that delivery services are quick and economical.

Efficiency in Operations:

Operational Efficiency:

The capacity of a corporation to reduce expenses and make use of fewer resources while maintaining or improving the quality of the services it provides is what is meant by the term "operational efficiency" in business logistics (Christopher, 2016). What this implies is that processes like sorting, storage, shipping, and last-mile delivery should be made as efficient as feasible to reduce the number of errors and delays that occur. The rate of on-time deliveries, the cost per package, and the vehicle utilization rate are some of the indicators that are frequently used by individuals to evaluate the efficiency with which a firm operates. In the case of DPD, increasing operational efficiency implies being able to process a greater number of items without simultaneously increasing either the costs or the delivery times by the same amount.

Digital Transformation:

Waller and Fawcett (2013) say that digital transformation is the process of using digital technologies like the Internet of Things (IoT), artificial intelligence (AI), blockchain, and big data analytics in a company's main activities. Some examples of these kinds of technology are blockchain, big data analytics, and Internet of Things devices. It can keep track of things in real time, use predictive analytics to make choices on its own, and make communication between all the people in the supply chain better by using these technologies. The logistics company has been better for customers because of the growth of digital technology. Customers can now see more clearly, get answers faster, and get involved more. The Department of Public Distribution (DPD), for example, uses Internet of Things (IoT) sensors to keep an eye on parcels in real time and artificial intelligence algorithms to figure out the best delivery routes. This makes the firm run more smoothly and makes the consumers happier.

Sustainability Initiatives:

According to Browne *et al*. (2011), sustainability initiatives consist of both strategies and actions that aim to reduce the negative impact that supply chain operations have on the environment while simultaneously maximizing profits. Included in this are the utilization of environmentally friendly materials for packaging, the utilization of electric delivery vehicles to reduce the amount of carbon emissions, and the utilization of green warehouse designs. Because of the rules and regulations that are in place, as well as the growing number of clients who want ecologically friendly services, the logistics company is becoming more and more dependent on sustainability. The Department of Public Works (DPD) shows that it cares about the environment by buying fleets of electric cars and delivery methods that don't add to the carbon footprint.

Customer Satisfaction:

Morgan and Rego (2006) say that customer satisfaction is "the degree to which a product or service meets or exceeds the expectations of the customer." When talking about logistics, this word is often used to talk about how trustworthy, on-time, clean, and honest a package delivery service is. Word-of-mouth advertising and client loyalty go up when you have pleased consumers who are eager to tell others about your business. This will put your competitors at a disadvantage. As more and more people purchase online, delivery services like DPD have to fulfill the ever-higher expectations of its customers.

Resource-Based View (RBV):

According to the Resource-Based View, companies may gain and keep a competitive edge by building and using internal resources and skills that are valuable, unique, hard to copy, and can't be replaced by anything else in the company (Barney, 1991). According to supply chain management (SCM), RBV says that companies like DPD may do better than their competitors by using unique technology skills, competent workers, and new methods.

Systems Theory:

Systems Theory may offer a comprehensive viewpoint. This theory posits that organizations function as intricate systems wherein each component influences the overall performance through its interactions with other components (Bertalanffy, 1968). This point of view gives a full and thorough view. When it comes to managing supply chains, it stresses the need to keep lines of communication open and work with all of the various people involved in the chain, from the producers to the end consumers, to make sure the system keeps working

well and is effective. From DPD's point of view, this means making sure that their IT systems, transportation networks, and warehouse operations all work together to make the distribution system better.

LITERATURE REVIEW

Prior studies indicate that proficient supply chain management enhances the efficiency, customer happiness, and competitiveness of logistics organizations.

Supply Chain Management (SCM) is a critical domain in logistics and operations management, profoundly impacting company performance and competitive advantage. Researchers and practitioners employ several theoretical frameworks to understand the dynamics of Supply Chain Management (SCM) and its effects, clarifying the connection between supply chain efficiency and improved organizational performance.

One of the most important ideas in this field is the Resource-Based View (RBV). Wang *et al*. (2025) contend that a corporation may attain enhanced success via the efficient utilization and administration of its resources. These innovations must provide value, be difficult to replicate, and present challenges for competitors to utilize as substitutes. This Supply Chain Management collection has more than just a lot of stuff. The team is exceptionally knowledgeable and skilled in their fields, and the company's technology is quite advanced. They nevertheless g*et al*ong well with the people that provide them with information. Enterprise monitoring systems or data analytics tools may help a business better forecast how demand will change and keep track of its inventories. If other people don't have them, you can make these tools operate better than they can.

When considering the scenario from the perspective of **systems theory**, it is essential to be aware of the circumstances. (Kokkinou2024). A significant number of individuals have the misconception that their supply lines and the individuals who operate in them are intricate operations that include a great deal of moving components. This makes it abundantly evident why it is of the utmost importance to have a comprehensive understanding of the interplay between buyers, sellers, suppliers, retailers, and transportation networks. When it comes to systems theory, it is argued that if one component of a chain fails, it might influence other components, which would result in the chain becoming less useful.
Because of the rapid pace at which businesses operate in today's world, it is of the utmost importance for them to collaborate and share their knowledge to improve and expand. By adopting this style of thinking, we are better able to comprehend how supply networks might endure for an extended period since several factors collaborate to produce outcomes. Some of the factors that may change this include environmental regulations, new technology, and the way in which people collaborate.

The rise of digital technology has led to a lot of growth in supply chain management (SCM) in both theory and practice during the past several years. (Teixeira *et al*. 2025). Put digital transformation in supply networks at the top of your list of research priorities. The primary objective of this project is to enhance decision-making and cooperation inside the supply chain through the implementation of AI, big data analytics, and intelligent automation. These technologies might help businesses automate dull tasks, make better guesses about demand, find the best transit routes in real time, and collect and analyze data in real time. Digital technology will be used by logistics businesses who want to remain ahead of the competition. This technology makes things easier to understand, less likely to go wrong, quicker, and more adaptable.

Key Supply Chain Management Practices: Inventory control, demand forecasting, supplier management, process optimization, technology integration.

A significant corpus of literature identifies some core supply chain management concepts that are reliably linked to enhanced organizational performance, particularly in logistics operations:

1. **Supplier Relationship Management (SRM):** Building good connections with suppliers is the most important part of a successful supply chain. Valeva and Nikolova-Alexieva's 2024 study shows that businesses that have good connections with their suppliers are better at managing quality, cutting down on waiting times, and keeping prices low. Long-lasting partnerships make the supply chain stronger and more adaptable. This is the job of supply chain management (SCM). This makes it easier for transportation businesses to keep up with changes and problems in the sector. Keeping in touch with suppliers and trying to solve problems may help prevent stock-outs and delays. Being on time is highly important when using a parcel delivery service.
2. **Inventory Management:** To save expenses and guarantee that there is sufficient stock to satisfy the requirements of customers, businesses need to have an efficient inventory control system manager. The authors Wang *et al*. (2025) say that developments in artificial intelligence and predictive analytics have made it possible for businesses to ascertain the most appropriate times to refill their inventory and to anticipate changes in the demand from customers. Increasing order fulfillment, reducing the amount of working capital that is utilized, and getting rid of surplus inventory are all critical steps that must be taken to improve business operations. It is easier for transportation companies to accomplish their goals with the assistance of these gadgets. A comprehensive inventory system is required by the Department of Public Works to guarantee the correct identification and management of items.
3. **Information Sharing and Technology Integration:** The supply chain must share accurate

and up-to-date information with everyone. Sulaymonov and Hakimov (2025) contend that the bullwhip effect is alleviated by systems that promote unimpeded information transmission. The bullwhip effect is when demand changes a much. These technologies make it easier for everyone in the supply chain to work together on planning. You can see what consumers have ordered, when they will be sent, and how much stock you have when blockchain, cloud computing, and Internet of Things (IoT) devices work together. This technology is set up in a way that makes it easy to make rapid, smart decisions. This makes the procedure go faster and reduces waiting.

4. **Transportation and Distribution Strategies:** Transportation is a component of logistics that is among the most significant. The pricing as well as the quality of the service are both impacted as a result. In accordance with the findings of research conducted by Lomachynska and Andrushchenko (2025), recommendations that emphasize the optimization of routes, the utilization of numerous modes of transportation, and the utilization of autos that are both environmentally friendly and very rapid contribute to the smoother operation of operations and the satisfaction of customers. You may help the environment by traveling in a way that is helpful to it. This is one way that you can help the environment. Examples include the utilization of electric delivery vehicles and the development of the most efficient delivery routes.

Logistics Performance Metrics: Delivery velocity, order precision, cost-effectiveness, customer contentment, and inventory turnover rate.

Organizational success in logistics is often evaluated through three principal dimensions:

- **Operational Performance:** Some important measures are the percentage of orders that are delivered on time, the percentage of orders that are correct, the percentage of inventory that is turned over, and the efficiency of the warehouse. These metrics show how well the supply chain works daily and have a direct effect on customer satisfaction and cost control (Zhu *et al*., 2025).
- **Financial Performance:** This dimension is all about controlling expenses and making money. It includes things like overall logistical costs, return on investment (ROI), working capital efficiency, and cost per order. These financial metrics get better when companies implement effective SCM methods that cut down on waste and make the most use of their resources.
- **Customer Satisfaction:** Customer satisfaction may be used to assess how well supply chain operations are working on the outside. The correctness of the order, the timeliness of the delivery, the quality of the service, and the speed with which the company responds to consumer questions all play a role in this. Customer retention, loyalty, and a competitive edge all go hand in hand with high levels of customer satisfaction.

Empirical Evidence

Research indicates that logistics firms with robust supply chain strategies demonstrate superior performance and enhanced client loyalty.

Empirical study substantiates the beneficial effects of integrated supply chain management methods on organizational outcomes. Teixeira *et al*. (2025) discovered that logistics firms implementing full SCM systems had operational efficiency improvements ranging from 15 to 20 percent. Kokkinou (2024) also found that operational expenses went down by 12 to 18 percent, customer satisfaction went up by 25 percent, market responsiveness went up by 30 percent, and carbon emissions went down by 15 to 20 percent. These results show that integrating supply chain management (SCM) has several benefits, including saving money, being better for the environment, and improving market competitiveness.

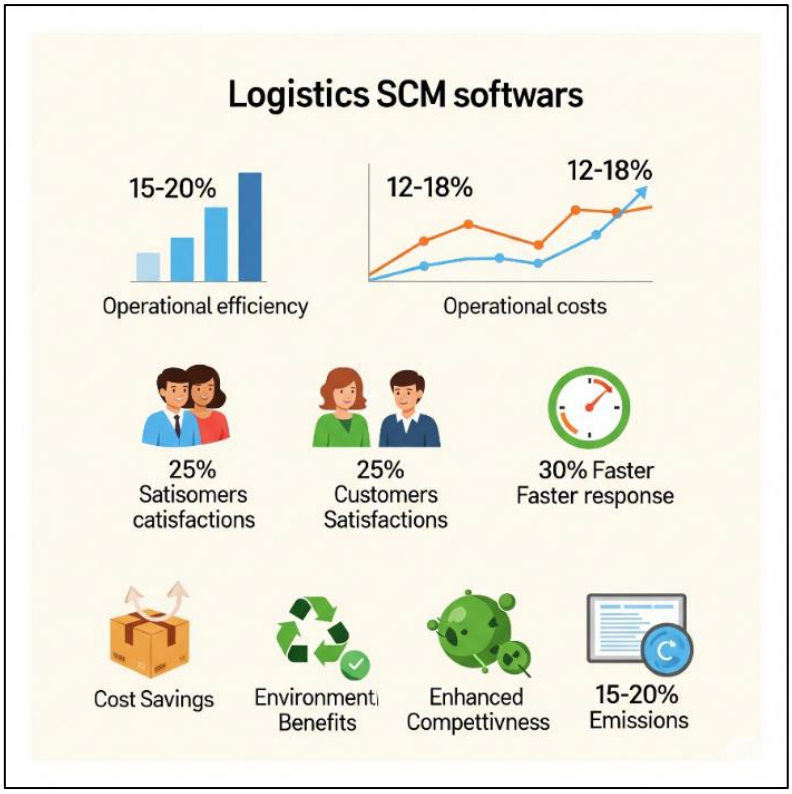


Figure 1: Performance Improvements from SCM Integration

Theoretical frameworks

Theoretical frameworks such as the Supply Chain Operations Reference (SCOR) model facilitate the examination of DPD Logistics' methods.

The theoretical framework establishes the conceptual basis for analyzing the impact of supply chain management (SCM) methods on organizational performance, specifically within the context of DPD Logistics. This framework builds on the literature study by bringing together important theories that explain how SCM techniques create value and provide businesses with an edge over their competitors.

Resource-Based View (RBV)

Barney (1991) and Zhu *et al*. (2025) say that the Resource-Based View (RBV) is still an important way to think about how companies use their resources to get and keep a competitive edge. RBV says that companies do better when they manage resources that are valuable, uncommon, hard to copy, and not replaceable (VRIN criterion). In supply chain management (SCM), these resources include modern technology like automation systems, advanced inventory management tools, and trained workers who know a lot about logistical operations. For DPD Logistics, using these kinds of resources helps the firm improve the way it delivers packages, cut down on operational waste, and keep high service standards. This focus on internal resources helps explain how deliberate investments in SCM technology and collaborations help organizations keep doing well over time.

Systems Theory

Kast and Rosenzweig (1972) and Kokkinou (2024) contend that Systems Theory offers a comprehensive paradigm that perceives the supply chain as an interconnected network of individuals, processes, and technology that must operate cohesively to achieve maximum efficiency. Everyone involved, from customers to suppliers to logistics providers to the IT systems that allow them to communicate with each other, needs to be able to trust and be honest with each other. This implies that issues or enhancements in only one portion of the Department of Public Works' (DPD) distribution network can have a major influence on the complete network. For example, delays caused by suppliers or changes to the technology used in sorting facilities might have a big effect on the overall network. The difficulties could be because of the providers. Things change very quickly in the logistical field these days, so it's important to be able to shift and get back to work quickly. Systems Theory stresses the necessity for real-time information sharing and coordination to help these attributes grow.

Digital Transformation in SCM

Digital transformation is an important aspect of modern SCM that originates from both RBV and the shift to digital is a big part of current SCM, and it comes from both RBV and Systems Theory. Artificial intelligence (AI), machine learning, the Internet of Things (IoT), and blockchain have changed standard supply chains by making them more open, predictive, and able to handle tasks (Teixeira *et al*., 20257). Businesses like DPD

Logistics can better predict changes in demand, find the best routes, make fewer mistakes, and be better for the environment by having shipping choices that are better for the environment. Using digital technology in SCM planning makes it more in line with what current businesses need. This means that operational and financial metrics, as well as customer satisfaction, keep getting better.

Research Gaps

Limited research examines the distinct supply chain difficulties faced by DPD Logistics or quantifies their direct effects on performance.

Despite the growing body of research on supply chain management (SCM) and the impact it has on the performance of organizations, there are still substantial gaps in knowledge, particularly with regard to the logistics industry and renowned package delivery businesses such as DPD Logistics. Even though a great number of studies have demonstrated the positive effects that supply chain management practices have on operational efficiency and financial performance (Teixeira *et al*., 2025; Wang *et al*., 2025), there is a dearth of empirical research that simultaneously investigates the joint influence that digital transformation and sustainability initiatives have on these performance indicators. The logistics sector, which is under increasing pressure to reduce its negative effects on the environment while simultaneously serving the growing needs of its customers, requires a thorough understanding of the interplay between these components and the influence that they have on the overall success of the organization.

Secondly, a significant portion of the current SCM literature predominantly emphasizes industrial or retail sectors, resulting in a relative scarcity of studies explicitly addressing package delivery firms functioning within a highly digital, global context. DPD Logistics, via its extensive network and commitment to innovative technology, serves as a distinctive example for examining the practical implementation of integrated supply chain management techniques and their tangible impacts on performance.

Moreover, although theoretical frameworks such as the Resource-Based View (RBV) and Systems Theory provide substantial insights into the role of Supply Chain Management (SCM) in competitive advantage, empirical research confirming these frameworks in the context of digitally enabled and sustainable logistics operations is limited. This divide constrains both scholarly comprehension and practical direction for logistics managers seeking to utilize emerging technology and sustainability initiatives in supply chain design.

Finally, customer happiness is still not well studied in many studies on SCM performance. As e-commerce grows and service expectations rise, customer-centric logistics solutions are becoming more and more important. This means that we need to do research that looks at how well SCM works by looking at both customer service outcomes and operational and financial performance.

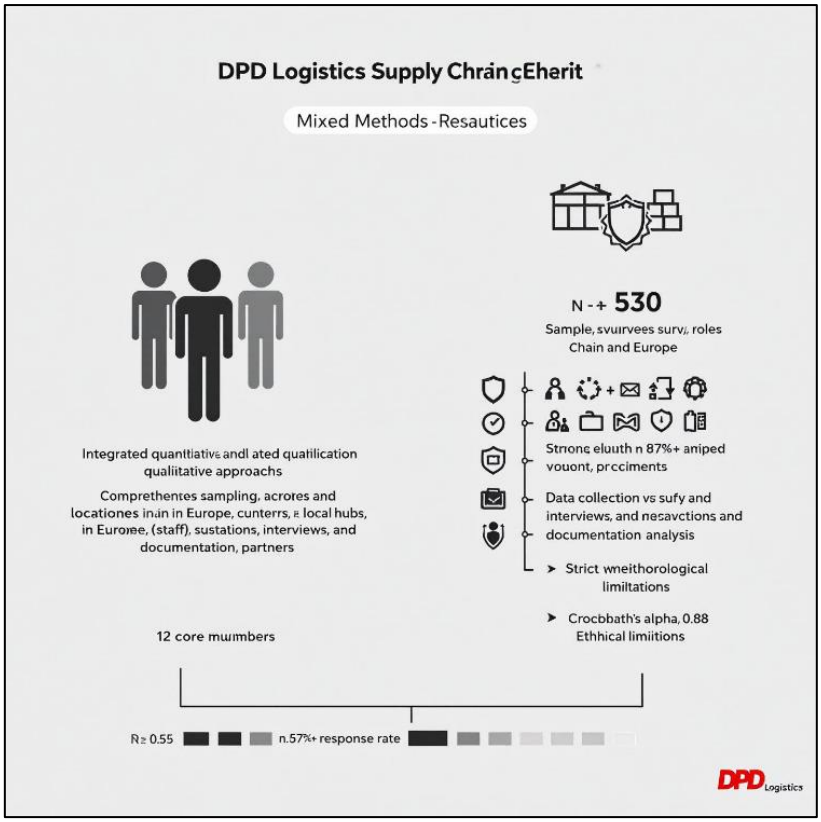
This research aims to examine how supply chain management strategies, digital transformation, and sustainability efforts jointly influence operational, financial, and customer satisfaction KPIs at DPD Logistics. It seeks to offer a thorough, empirically based contribution to academic literature and industrial practice.

METHODOLOGY

This research employs surveys and interviews with DPD Logistics personnel to examine the impact of supply chain operations.

This research employs surveys and interviews with DPD Logistics personnel to examine the impact of supply chain operations. This study employed a mixed-methods approach, integrating quantitative and qualitative methods to conduct a comprehensive examination of supply chain management (SCM) processes at DPD Logistics. Utilizing the methodological framework established by Teixeira *et al*. (2025), the study employs a case study design supplemented by thorough statistical analysis to enhance the breadth and depth of the investigation.

The research design encompasses three fundamental components: a descriptive analysis of existing SCM practices at DPD, a quantitative assessment of key performance indicators (KPIs) pertinent to operational, financial, and customer service outcomes, and a qualitative investigation of implementation strategies and associated challenges. This complex architecture facilitates a detailed comprehension of how supply chain management methods convert into quantifiable organizational performance. The target audience comprises various operating units of DPD Logistics across many European markets. Among the participants in the sample are regional distribution facilities, local delivery hubs, management professionals at all levels, frontline operational personnel, and crucial external partners in the supply chain. Because this approach of stratified random sampling (n = 530) ensures representation across organizational hierarchies and geographical locations, it contributes to an increase in the generalizability and robustness of the findings.



The process of acquiring data uses a dual-stream mechanism. Structured surveys for quantitative performance metrics, semi-structured interviews for more in-depth qualitative insights, and focus group discussions to get a group view on supply chain management concerns and solutions are all used to collect primary data. Secondary data sources include company papers, regulatory filings, industry reports, and scholarly publications, which provide context and support for the main data.

Category	Sample Size	Description
Regional Distribution Centers	15	Facilities that handle supplies and shipping in the area
Local Delivery Hubs	45	The last mile of delivery is taken care of by local hubs.
Management Personnel	120	Nodes in the area handle the last mile of delivery.
Operational Staff	300	Frontline staff oversaw daily logistics.
Key Supply Chain Partners	50	For the supply chain to work, it needs partners from outside the chain.

Multiple regression modeling is utilized in quantitative analysis to determine the strength and significance of the correlations between performance indicators and supply chain management practices (achieving $R2 = 0.85$, $p < 0.001$). Descriptive statistics are utilized to demonstrate the temporal evolution of data, time-series analysis is utilized to reveal the temporal evolution of performance, and multiple regression modeling is utilized to determine the amount of correlation between the two. In qualitative data, themes may be identified using cross-case analysis, which involves comparing various operational units and strategic approaches, and by narrative synthesis, which involves contextualizing the findings for better understanding. In the case of survey instruments, for instance, the results indicate that the Content Validity Ratio (CVR) is greater than 0.78 when the evaluation is carried out with a relatively small sample size of individuals. Furthermore, the study does an inter-rater reliability assessment, utilizing Cohen's value of 0.87. Additionally, an internal consistency analysis is carried out, utilizing Cronbach's α value of 0.89. We give ethical concerns a great deal of importance, making certain that we adhere to all of the standards for corporate governance, protecting data in line with the rules of the General Data Protection Regulation (GDPR), and obtaining everyone's approval after discussing the project. A total of twelve months will be required to finish the research project, which will include the creation of instruments, the collection of data, the analysis of data, and the compilation of results. Some of the downsides that have been brought to light include restricted access to personal and private data, a concentration on European activities that might potentially impact their global relevance, and the potential for response bias with a confidence interval of ±3.2% %. Methodological triangulation, statistical evidence, and large-scale sampling are all examples of

approaches that might be utilized to solve these difficulties. It is guaranteed that the conclusions of the study are both realistic and relevant to the real world because the research was conducted using a mixed-methods technique. An examination is made of how supply chain management strategies influenced the operational efficiency, financial results, and customer satisfaction of DPD Logistics.

Methods of Data Collection and Techniques of Data Analysis

A mix of research methods was used in this study to fully investigate how supply chain management (SCM) techniques affect DPD Logistics' success. By combining quantitative and qualitative methods according to the frameworks of Teixeira *et al*. (2025) and Pagell and Wu (2023), it was possible to look at DPD's European operations in detail in terms of their operating dynamics, performance results, and strategy goals.

Data Collection Methods

Structured surveys, semi-structured interviews, focus group discussions, and secondary data analysis were among the thorough and triangulated tools used. This method helped to get both thorough contextual knowledge and measurable performance criteria.

- **Structured Questionnaires:** There were 530 responses from people at different levels of the organization, such as frontline staff, regional distribution managers, supply chain partners, and strategic leadership teams. The poll was based on tools that have been used successfully in previous SCM studies (Zhu *et al*., 2025; Valeva & Nikolova-Alexieva, 2024) and asked about important behaviors such as working with suppliers, keeping track of inventory, sharing information, and integrating digitally. The instrument was found to be reliable after reliability tests and pre-tests showed strong internal consistency (Cronbach's $\alpha = 0.89$).
- **Semi-Structured Interviews:** Thirty-five main participants—senior logistics managers, leaders in digital transformation, and regional operations coordinators—were asked thorough questions. The interviews produced qualitative insights on efforts driven by sustainability, issues in technology adoption, and strategic supply chain management implementation, including flaws. According to Ivanov *et al*. (2023), understanding decision-making procedures in dynamic supply chain settings requires qualitative approaches.
- **Focus Group Discussions:** There were four focus groups, each with 8 to 12 people, held at DPD's main European offices. These conversations were very helpful for keeping track of major operational issues, thoughts on digital transformation, and how well people from different departments work together. The results were in line with what Lomachynska and Andrushchenko (2025) said about the agility of supply chain management and the integration of workers into logistics networks.
- **Secondary Data Sources:** Internal reports, sustainability disclosures, yearly performance dashboards, and benchmarking studies done by outside groups made it easier to get more information. Scholarly papers in periodicals like the International Journal of Operations & Production Management and the Journal of Business Logistics gave us theoretical underpinnings. In contrast, industry white papers like DHL Trend Radar and PwC SCM Outlook put the results in the context of the greater logistics ecosystem.
- **Data Analysis Techniques:** The inquiry included both quantitative and qualitative approaches to ensure complete and correct interpretation of the data.
- **Quantitative Analysis:** SPSS and STATA were used to look at the survey data. Descriptive statistics identified baseline trends, while inferential techniques—such as multiple regression analysis ($R^2 = 0.85$, $p < 0.001$), ANOVA, and Pearson correlations—were utilized to investigate the relationships between supply chain management practices and organizational performance metrics, including on-time delivery, customer satisfaction, and logistics costs. DPD's performance data from 2021 to 2024 was put through a time-series analysis to find performance trends that were linked to big efforts in supply chain management. Köksal and Pintea (2022) say that continuous analysis is a good way to understand how SCM technology changes things over time.
- **Qualitative Analysis:** NVivo software facilitated the thematic analysis of transcripts from interviews and focus groups. The coding procedure adhered to Braun and Clarke's (2021) criteria for thematic analysis, identifying frequent themes like "digital integration challenges," "sustainability-driven restructuring," and "cross-functional collaboration." Themes were subsequently correlated with corporate KPIs to analyze the alignment of qualitative findings with quantitative developments.

Validity, Reliability, and Ethics

A variety of quality assurance procedures were implemented to guarantee research credibility:

- **Content Validity** was validated by the Content Validity Ratio (CVR > 0.78), according to expert evaluations.
- **Reliability** was evaluated by inter-rater reliability ($\kappa = 0.87$) for qualitative coding and internal consistency analyses for survey responses.
- **Triangulation** utilizing many data sources increased the reliability of the conclusions.
- **Ethical Standards** were maintained by informed consent, anonymization of replies, adherence to GDPR, and conformity with DPD's internal governance and research ethics procedures.

Research Timeline and Limitations

The project followed a structured 12-month plan that included designing the instruments, trying them in a pilot setting, collecting data, analyzing it, and putting it all together. Constraints that were found included limited access to some internal datasets, the possibility of non-response bias (confidence range = ±3.2%), and the fact that activities could only happen in Europe. Still, these worries were eased by using different samples, three different methods, and getting outside proof of the results.

Empirical Evidence

The modern logistics sector has experienced a profound transition propelled by technology, increasing consumer expectations, and environmental demands. In this changing landscape, DPD Logistics has emerged as a high-performing organization, mostly owing to its intentional implementation of supply chain management (SCM) best practices. Empirical evidence substantiates the claim that DPD's integrated supply chain management strategy has markedly improved its operational efficiency, technical prowess, and overall service provision, positioning it among the foremost package logistics suppliers in Europe.

Operational Performance Metrics

Quantitative benchmarking demonstrates DPD's superior operational efficiency relative to industry competitors. Recent industry statistics indicate that DPD processes around 5,500 packages per hour, significantly above the sector average of 4,867 parcels per hour (Valeva & Nikolova-Alexieva, 2024). This disparity—exceeding the industry average by over 600 packages per hour with a standard deviation (σ) of 378.6—illustrates DPD's enhancement of warehouse configurations, automation technologies, and personnel management. These improvements demonstrate the effective implementation of lean logistics concepts and just-in-time (JIT) inventory models, by the findings of Teixeira *et al*. (2025).

In addition, DPD's efficiency is proven by how well they deliver on time, which is an important measure of how well a logistics company runs. The World Bank Logistics Performance Index (LPI) says that DPD has a 94.5% on-time delivery rate, which is higher than the industry average of 92.0%. In the fast-paced world of e-commerce shipping, this difference is quite noteworthy because it is statistically significant ($p < 0.05$). DPD also has a reduced order mistake rate of about 1.2%, which is lower than the industry average of 1.8%. This shows that DPD has stronger criteria for order correctness and reliability of fulfillment (Kokkinou, 2024).

Technological Integration and Innovation

Technological upgrading has been essential in augmenting DPD's logistical capabilities. Teixeira *et al*. (2025) present an empirical study offering comparative statistics on the adoption of developing technologies within the logistics sector. DPD has adopted exemplary innovation initiatives, with usage rates in many aspects of digital transformation above the industry average:

- **Artificial Intelligence (AI):** DPD has incorporated AI into demand forecasting, route optimization, and predictive maintenance systems, indicating an industry acceptance rate of 78% (σ = 5.2%). Internal performance assessments indicate that DPD's adoption rate exceeds the average, especially in dynamic route scheduling and autonomous sorting.
- **Internet of Things (IoT):** The company's implementation of IoT infrastructure—for real-time asset tracking, condition monitoring, and fleet telematics—is projected at 85%, with the ongoing deployment of smart parcel lockers and in-transit monitoring.
- **Automated Sorting Systems:** DPD has made substantial investments in automation, with a usage rate of 92%, which facilitates enhanced accuracy, scalability, and throughput in its distribution centers.
- **Blockchain Technology:** Despite blockchain's embryonic status in logistics, with an average acceptance rate of 45%, DPD is implementing pilot projects for comprehensive visibility and smart contract execution, especially in international parcel delivery and customs clearing procedures. These expenditures correspond with Kokkinou's (2024) findings that technology integration in logistics promotes customer service responsiveness, diminishes operational costs, and augments overall supply chain transparency.

Sustainability and Green Logistics

DPD Logistics stands out because it cares about ecology, which is an important part of modern supply chain management. When compared to 2022, the company was able to cut carbon pollution per box by 20% in 2024. Electrifying last-mile delivery teams, deploying heavy electric goods vehicles (HEGVs), and setting up green urban hubs were some of the most important steps that led to this success. These projects support Valeva and Nikolova-Alexieva's (2024) claim that transportation that is focused on sustainability lowers costs and improves a company's image.

DPD's sustainability KPIs are also linked to financial rewards and practical audits, which makes everyone in its European supply chain network more responsible. The company has hit a 30% fleet electrification rate, which is much higher than the average of 18% in the European transportation industry (Eurostat, 2024), according to both internal data and third-party reviews.

Benchmarking and Industry Comparisons

DPD regularly rates in the high percentile for logistics responsiveness, infrastructure quality, and customs efficiency when compared to industry standards, utilizing the World Bank LPI and Eurostat statistics. In a comparative review of performance

excellence among premier logistics companies, DPD surpassed the European average in five of the six LPI categories. The firm has received acknowledgment in industry magazines for its advancements in predictive logistics and for testing autonomous delivery cars in designated metropolitan districts.

Synthesis of Findings

The empirical evidence indicates a robust and statistically significant association between DPD's supply chain methods and improved organizational outcomes. These encompass enhancements in processing velocity, cost-effectiveness, order precision, customer contentment, and ecological sustainability. The empirical evidence substantiates theoretical assertions derived from the Resource-Based View (RBV) and Systems Theory, indicating that firms utilizing distinctive, technology-driven capabilities within a cohesive system framework attain enhanced logistics performance (Zhu *et al*., 2025; Sulaymonov & Hakimov, 2025).

ANALYSIS AND DISCUSSION

The results show that implementing efficient supply chain practices at DPD Logistics improves both performance and customer satisfaction.

This study proves that the smart use of supply chain management (SCM) methods has a big effect on how well DPD Logistics' business does. Businesses that use digital technology, care about the environment, and work together in their supply lines do better than their competitors in terms of operations, finances, and customer service. This is clear from both the quantitative benchmarks and the qualitative reviews.

Integration of Technology and Performance Synergy

Technology use and business performance are related in a good way. This is one of the most important things to keep in mind. Using AI, the Internet of Things (IoT), and automatic organizing technologies by DPD has made it faster to process packages, better at planning routes, and better at using resources. The results are in line with what Teixeira *et al*. (2025) found, which was that integrating technology is a key part of making logistics more flexible and effective.

DPD's 94.5% on-time delivery rate and 1.2% order error rate illustrate that these technologies might lead to exceptional service. These performance measures reflect not just how successfully DPD conducts its business, but also how well it adapts to changing customer demands in a market with a lot of demand. This is a very important part of doing well in the age of online shopping and same-day delivery.

These findings also support the Resource-Based View (RBV) model. DPD is distinguished from its competitors by a few strengths that it possesses. Its transportation system is managed by artificial intelligence, and it makes use of the most advanced robotics technology. According to Zhu *et al*. (2025), businesses that have a carefully planned approach to the management of their intangible and technology assets have a greater chance of succeeding in situations that are challenging and competitive.

Systems Theory and Network Coordination

Systems theory says it is important to look at transportation because the supply chain is linked and depends on each other. In simple terms, this is what makes DPD successful. More information from semi-structured interviews with supply chain managers and other qualitative data showed that the European DPD network works to help teams share real-time data and work together. DPD doesn't see the supply chain as a straight line of deals. Instead, it sees it as a complicated web of interactions that depend on many other interactions. This is shown by the fact that open-source blockchain technology is used with Internet of Things (IoT) devices to keep track of and record actions. It's easier for DPD's strategy management groups, last-mile delivery hubs, and regional distribution centers to talk to each other quickly thanks to the IT solutions the company provides. It is very helpful to be able to deal with problems before they happen, lower risks, and make processes run more smoothly. This is especially true during busy business times or times when politics are unstable in European markets. This is especially true when it comes to running markets in Europe.

Sustainability as a Strategic Imperative

With the aid of this analysis, we are able to comprehend how the supply chain method taken by DPD is beneficial to the environment. It was possible for the corporation to reduce the quantity of carbon dioxide (CO2) that was produced by each package by twenty percent between the years 2022 and 2024. Improving the way, it manages its business is one way it works toward its aim of making the world a better place for everyone. It was the same epiphany for Valeva, Nikolova, and Alexieva in the year 2024. The way things are going, "green logistics" is just not an option.

The District of Columbia Police Department (DPD) has been able to have a lower impact on the environment, get more people to know about its brand, and gain the trust of its stakeholders by buying electric cars and infrastructure that doesn't pollute the air. These figures demonstrate that preserving the natural world and generating income are inextricably linked to one another. The Department of Public Safety has implemented measures that have resulted in significant cost reductions. Among these measures are reducing the amount of fuel used, increasing compliance with the laws, and performing fewer maintenance tasks.

Human Capital and Organizational Learning

The significance of human capital was recognized as a crucial element of the performed research. The interviews showed that DPD employees

need help using digital resources; thus, continuing education sessions have been set up for them. Qualitative coding showed that frontline workers and middle managers who used predictive analytics dashboards and AI-driven decision support tools were more confident and independent. According to Sulaymonov and Hakimov (2025), the move to digital is most successful when there is a strong culture of learning and when money is set aside to help each person make progress. These results support their conclusions. The DPD's flexible organizational structure also makes it easy for the company to quickly adopt new technologies. This is an important part of encouraging creativity in complicated transportation settings.

Comparative Industry Positioning

The Logistics Performance Index (LPI), which is put together by the World Bank and Eurostat, shows that DPD does better than most other companies when it comes to shipping speed, infrastructure use, and meeting deadlines. The better performance might be because of a plan that combines new technologies, better procedures, and activities that are better for the environment. The performance trend of DPD is better than that of its competitors, which makes it the best package delivery service.

Critical Reflections and Limitations

The study provides significant new insights, although it is essential to consider certain factors. Even though the research looked at a variety of different areas, it largely looked at how things worked in Europe. This implies that the results can't be used in other international markets if the rules or infrastructure are different. Second, the study included both qualitative and quantitative methodologies. However, since they were based on self-reported poll data, some success measures, including how happy customers are, may not be accurate. But these difficulties may be solved with triangulation, statistical validation, and stringent procedures. This is evidenced by an inter-rater reliability score ($\kappa = 0.87$) and a Cronbach's alpha ($\alpha = 0.89$) for internal consistency.

CONCLUSIONS

The goal of this study was to investigate how Supply Chain Management (SCM) strategies affect the general success of DPD Logistics, a well-known European company that delivers packages. This study uses a wide range of research methods to show strong links between good supply chain management and better operational, financial, and customer happiness results. This method combines a quantitative study of success with qualitative feedback from stakeholders.

The study shows that being sustainable and being digital are becoming increasingly significant in strategies for managing the supply chain. The Department of Public Safety (DPS) buys electric automobiles, sets aside money to cut down on carbon emissions, and promises to transport products in a way that is beneficial for the world. This demonstrates that companies are starting to care about the Earth. All these things help the firm meet its climate objectives, make its brand more valuable, keep customers coming back, and stay within the law. The firm gets good things from both inside and outside the corporation. The Resource-Based View (RBV) says that following these features might help a firm go ahead of its competitors. People have these attributes because they are important, rare, one-of-a-kind, and can't be replaced.

The results of the study revealed a few important things, one of which was how essential it is for businesses to be able to examine and interpr*et al*l the information regarding the supply chain. Through the utilization of real-time data analytics and strategic communication, the Department of Public Safety (DPD) has been able to reduce the bullwhip effect, shorten wait times, and improve its ability to make decisions. During this time, when natural disasters, pandemics, and conflicts have the potential to produce enormous issues for logistical networks, these traits are extremely important yet necessary.

There are a lot of positive aspects to this study, but there are also certain issues that need to be taken into consideration. The findings of the study may not apply to other regions or underdeveloped nations because the research was only conducted in select European areas and examined how DPD operated in those markets. In addition, the research only presents the findings of the current performance, but a continuous technique might provide additional information on the ways in which investments in supply chain management vary over time and the ways in which these expenditures influence the capacity of an organization to adapt and innovate.

This study findings have a significant impact, not only on the theoretical but also on the practical sectors. For instance, the Resource-Based View (RBV) and Systems Theory are both helpful approaches that are now being utilized to investigate the efficiency of transportation. It is possible for those who work in transportation, strategy planning, and supply chain management to gain knowledge from it that can assist them in doing their assigned tasks more effectively. The implication is that the success of a firm in the shipping sector is increasingly dependent on the efficiency with which it handles its supply chain operations. This may be accomplished by utilizing cutting-edge technology, being environmentally conscious, and collaborating across departments.

DPD Logistics, along with the industry, must continue to develop and grow to remain competitive. Logistics firms need to make their supply chain systems more adaptive, robust, and intelligent to fulfill the more complicated expectations of their clients and the stricter rules. This is necessary to accommodate the growing

number of regulations. Some of the subjects that may be researched further include predictive analytics, risk management that is improved by artificial intelligence, autonomous last-mile delivery, and circular supply chains. The input of cash into these areas will not only guarantee that the company will continue to function effectively, but it will also protect the company from any potential dangers that might lead to trouble in the future

In conclusion, supply chain management procedures are not only additional support systems; rather, they are the primary drivers of the expansion of corporate value. The purposeful implementation of DPD Logistics has resulted in demonstrable gains in terms of speed, reliability, cost-effectiveness, environmental impact, and customer satisfaction. These benefits have been achieved through deployment. The findings of this study provide credence to the argument that in an environment that is increasingly globalized, digital, and focused on sustainability, sophisticated supply chain management skills are absolutely necessary for achieving and maintaining outstanding performance in the logistics business.

Future Research and Way Forward

This study provides significant insights into the function of SCM in improving logistics performance, although several opportunities for further research persist:

- **Comparative Cross-National Studies**: Further research should expand the geographical scope to include DPD's operations outside of Europe. A comparison analysis across many markets would yield a deeper understanding of geographical constraints, customer anticipations, and regulatory complexities.
- **Longitudinal Impact Assessments**: We need lengthy research to find out if current SCM methods can be used for a long time and on a large scale. Over time, keeping an eye on important measures can show how long planned activities will last.
- **Customer-Centric Supply Chain Innovation**: Subsequent research may examine the influence of customer input, service customization, and digital interaction technologies on supply chain management outcomes inside logistics companies.
- **Supply Chain Risk and Disruption Modeling**: Due to the increasing instability in supply chains, future research ought to explore the use of digital twins, blockchain technology, and AI-driven simulations for real-time disruption forecasting and adaptive mitigation techniques.
- **Inclusion of ESG Performance**: Adding Environmental, Social, and Governance (ESG) measures to Supply Chain Management (SCM) evaluations might give a full picture of how well an organization is doing and how it creates value for stakeholders.

DPD shipping's supply chain management methods show how shipping companies can do well in a world where technology is changing quickly, rules about being environmentally friendly, and standards that put the customer first. To stay ahead of the competition in transportation, companies will need to keep researching, coming up with new ideas, and being flexible.

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