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Evaluating Key Determinant of Customer Satisfaction: A Focus on Customer Relations, Service Quality, Product Quality and Supply Chain Management

Master's Degree in
International Business
Management
Spring 2025



**KAMK • University
of Applied Sciences**

Abstract

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Title of the Publication: Evaluating Key Determinants of Customer Satisfaction: A Focus on Customer Relations, Service Quality, Product Quality, and Supply Chain Management.

Degree Title: Master's degree in international business management.

Keywords: Customer Relations, Customer Experience, Service quality, Product Quality, Supply Chain Management, Customer Perception

This thesis explores strategies to enhance customer satisfaction at DD Logistics, a Ghanaian logistics company specializing in import and export services. Founded in the early 2000s, DD Logistics is a key player in Ghana's logistics sector, offering services like customs clearance, freight forwarding, warehousing, and transportation. Since 2021, the company has faced significant challenges, including a 30% decline in its customer base due to issues such as product inconsistencies, supply chain delays, and communication gaps. These factors have contributed to reduced business activities and revenue, indicating the need for strategic measures to increase customer acquisition and retention, and strengthen operational stability.

The research employs a mixed methods approach for data collection, including surveys and interviews, to assess customer satisfaction, and identify areas for improvement in customer relations, service quality, product quality, and supply chain management.

Key findings show that the decline in customers is caused by several issues: inconsistent product quality, operational delays, irregular follow-ups, and poor communication. The study emphasizes the importance of resolving these challenges by implementing Lean Six Sigma methodologies, improving quality control processes, and establishing better communication protocols. These measures could help resolve the identified problems and improve customer satisfaction and retention.

By restoring customer confidence and adopting proactive customer management strategies, DD Logistics can achieve greater competitiveness and operational resilience, ensuring sustained growth in a highly competitive industry.

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Confidentiality

For publication and academic purposes, the company's name has been anonymized as DD Logistics.

1 Introduction

The goal of this thesis is to explore strategies for enhancing customer relations, service quality, product quality, and internal logistics within DD Logistics, a Ghanaian logistics company. A mixed-method approach was employed, combining quantitative research through surveys and qualitative insights from interviews. In today's competitive marketplace, each of us, as consumers, interacts daily with a range of products and services. These interactions shape our choices, which are often influenced by the quality of the offerings and the nature of our relationship with the producer or provider. The growing importance of customers in business highlights the need for companies to cultivate positive, enduring relationships with their customers. This study explores the foundations of effective Customer Relationship Management (CRM), as well as the roles of product quality, service quality, and logistics management in fostering successful customer relationships.

The study begins by examining the principles of CRM, a business strategy focused on increasing customer loyalty and satisfaction by understanding customer needs, motivations, and behaviors at every stage of their business journey. According to Rababah et al. (2011), the goal of CRM is to have a better understanding of customers, enabling companies to serve them in more effective ways and build lasting loyalty. CRM provides advantages throughout the entire customer journey, from initial awareness to post-purchase support, offering numerous opportunities for companies to enhance their customer relationships.

Quality plays a central role in establishing these relationships. Research shows that firms or businesses aiming to meet or exceed customer expectations often benefit from higher loyalty, increased satisfaction, and enhanced market competitiveness (Rust et al., 2002; Prajogo, 2007). Quality assurance applies to both products and services. DD Logistics, for instance, ensures that its product offerings, such as eco-friendly paint supplies and other products, meet high standards that align with customer expectations, as noted by Mushtaq & Rafi (2022, p. 1). High product quality fosters satisfaction and encourages a continues purchases, in gradual process building a loyal customer base.

In addition, service quality plays a role as in equal term essential in shaping customer perceptions and experiences. Defined as the consistent ability to meet or exceed customer expectations, service quality can have a significant influence on customer loyalty and retention (Parasuraman et al., 1988). In highly competitive industries where alternatives are easily accessible, service quality

becomes a distinguishing factor that can set a company apart. The SERVQUAL model, developed by Parasuraman et al. (1988), identifies five critical dimensions of service quality: tangibles, reliability, responsiveness, assurance, and empathy. These dimensions represent the essential attributes customers expect, helping businesses refine their service delivery.

Furthermore, according to Chopra & Meindl (2019) the importance of quality, logistics ensures that products reach customers within their specification, accurate and on time. Logistics represents the movement of goods across different locations, ensuring that customers receive the right products in the right quantity, at the right time. Effective logistics is the bridge between production and consumption, facilitating the smooth transfer of goods from origin to destination, whether within local markets or across borders. DD Logistics has developed strong logistics practices that cater to both B2B and B2C customers. For B2B clients, the company ensures that shipments comply with national standards and board regulations before reaching warehouses in Ghana and international locations. For B2C customers, the company focuses on-time delivery, accurate order fulfillment that reaches end point distribution.

The commissioner of this thesis is DD Logistics, a company that remains anonymous in this study. Founded in the early 2000s in Ghana, DD Logistics has established itself as a key player in the logistics industry, specializing in import and export facilitation. The company provides services such as customs clearance, warehousing, and freight forwarding, helping businesses navigate international trade.

In recent years, DD Logistics has faced challenges, particularly a 30% decline in customer engagement, which has impacted on customer retention. Despite these difficulties, the company continues to enhance its service quality, optimize its logistics processes, and maintain its competitive edge. This study examines its supply chain strategies, challenges, and efforts to integrate sustainable practices to improve customer satisfaction.

This thesis investigates the decline in customer retention at DD Logistics by examining key factors such as customer relations, service quality, product quality, and logistics processes. The aim of this thesis is to provide recommendations to DD Logistics on how they can improve their services to enhance customer satisfaction and retain clients. The purpose of this thesis is to explore customers' perceptions of the company's service and product delivery, identify the reasons behind the decline in satisfaction, and propose actionable strategies for improvement. A mixed method

approach was used, incorporating surveys and interviews with customers to gather comprehensive insights.

Scope of the study

The thesis seeks to address the challenges faced by DD Logistics in terms of customer relations, service quality, product quality, and internal logistics. Since 2021, the company has experienced discontinuation of business from major clients, leading to a decline in business activity and revenue. To stabilize operations and retain the remaining client base, there is an urgent need to examine and improve customer engagement and internal processes. This study is designed to evaluate the factors influencing customer satisfaction, with a focus on customer relations, service quality, product quality, and supply chain management within DD Logistics in Ghana. The recent reduction in client engagement has presented areas where improvements are essential to counteract declining revenue and profit margins.

Employing a case study approach, this research will analyze specific instances where customer disengagement has occurred, providing in-depth insights into the causes of reduced patronage. By identifying patterns and potential areas for improvement, the study aims to uncover practical solutions for the company's challenges.

The research question guiding this thesis is: "What factors contribute to the decline in customer engagement at DD Logistics, and how can it be examined and improved in customer relations, service quality, product quality, and logistics processes help address this issue?"

The research will address four sub-questions:

- What is the current level of customer satisfaction at DD Logistics?
- How does the quality of service and products provide by DD Logistics influence customer satisfaction in Ghana?
- How does the efficiency of supply chain management at DD Logistics impact customer satisfaction?
- What strategies can DD Logistics implement to improve customer satisfaction and address current challenges?

Research Methodology

This study employs a mixed-methods approach to address the research questions comprehensively. By combining survey data and semi-structured interviews, it represents both numerical trends and in-depth contextual insights. The quantitative survey provides statistical analysis, while the qualitative interviews offer a deeper understanding of customer perceptions, ensuring a holistic perspective. The findings will be analyzed, and recommendations will be suggested to improve the business operations of DD Logistics and enhance customer satisfaction.

2 Customer-Centric Approach and Related Aspects

This section establishes the conceptual framework for analyzing customer needs and satisfaction, focusing on crucial fields such as customer relations, service quality, product quality, and supply chain management (internal logistics). The framework is informed by an interdisciplinary literature review, which also combines psychological, managerial, and economic perspectives to deepen understanding. These perspectives provide a more detailed view of customer satisfaction, exploring the emotional and organizational factors that influence customer experiences. Insights drawn from these frameworks will inform research aimed at optimizing customer satisfaction strategies, providing a practical recommendation for DD Logistics to enhance its service delivery, improve customer loyalty, and sustain competitive advantage in the logistics sector.

2.1 Defining Customer Relations and Customer Experience

From an operations management perspective, Lee and Ritzman (2005) suggest that customers as well as their experience play a significant role in the development of any organization, emphasizing their importance in shaping business strategies and operations. Customer Experience Management (CEM) is an approach aimed at managing a customer's multi-channel interactions with a company, product, or brand in a holistic approach (Schmitt, 2003). CEM represents a comprehensive view of all customer interactions, aiming to bridge the gap between expected and actual experiences. Literature provides several definitions of customer experience and other perspectives, each offering insights into its complexity.

Verhoef et al. (2009, p. 32) describes customer experience as a multi-dimensional concept that includes cognitive, emotional, social, and physical responses that a customer has in relation to a retailer. This emphasizes the complexity of customer experience, indicating that the quality of a product or service reflects the sensory and emotional journey of customers. In customer-centricity, it is crucial to foster commitment and reliability in logistics service and consider understanding customer emotions, behaviors, and expectations. Oliver (1997, p. 42) explained that customers develop emotional attachments to service providers when their needs are met with consistent reliability, which can reduce the risk of customer loss. In addition, Oliver (1980) explains

how customer satisfaction results from meeting or exceeding expectations, which is crucial in logistics where delays or errors lead to negative emotions and dissatisfaction. Another aim to understand customer decline should be by engaging with customers in future through regular feedback channels (such as surveys and interviews), Logistics companies can understand their customers better and gain deeper understanding into the reasons behind customer decline as emphasized by (Kun Hu et al., 2018). Rane et al. (2023, p. 427) state that understanding customers' emotional and psychological expectations allows companies to enhance their services and improve customer retention.

According to De Keyser et al. (2015, p. 23), customer experience is the sum of cognitive, emotional, physical, sensory, spiritual, and social elements that customers encounter during interactions with a company. This definition presents the various points in the customer journey where direct interactions, like customer service, and indirect ones, social media presence, come together to shape the overall customer experience (De Keyser et al., 2015, p.23). McCarthy and Wright (2004) also emphasize the complexity of experience, identifying four essential threads thus sensual, emotional, compositional, and spatiotemporal that structure a customer's interaction with technology. These dimensions show how multifaceted customer interactions have become, especially as technology plays a more central role in customer experience (McCarthy & Wright, 2004).

From a managerial point of view, customer-centricity requires aligning the organization's strategy, culture, and operations with the needs of the customer (Van den Hemel & Rademakers, 2016). In Strategic Management Theory, Porter (1985) emphasizes the need for an organization to adapt its processes to deliver value to customers, which can be facilitated by customer relationship management (CRM) systems. Effective management of customer interactions through CRM can help organizations understand customer preferences, anticipate needs, and deliver high-quality services (Porter, 1985). Nguyen et al. (2015, p. 96) stated that a managerial focus on customer-centricity can be enhanced through the implementation of customer-focused management processes, continuous employee training on customer interaction, and adopting digital tools to track customer preferences, complaints, and feedback, which can contribute to good customer satisfaction.

Pine and Gilmore (1998, p. 3) introduced the idea of "customer experiences," which they explained as different from just goods and services. They defined experiences as special events

designed to connect customers in person. This view shows how customer experience has become a valuable part of business, emphasizing that today's customers want more than just products rather than personalized, engaging experiences (Pine & Gilmore, 1998). CEM is a crucial extension of Customer Relationship Management (CRM) and forms part of a strategy to enhance brand perception and customer retention. As Kirkby et al. (2003, p. 1) argue, CEM helps organizations deliver on brand promises by meeting or exceeding customer expectations, which is essential in today's experience-driven economy. They further identify three critical benefits of valuing customer experience: (1) short-term improvements in retained business and customer retention, (2) increased customer loyalty for long-term gains, and (3) enhanced competitive differentiation (Kirkby et al., 2003).

CEM in economic perspective, customer-centricity has a direct impact on customer lifetime value (CLV), a critical measure for evaluating the long-term profitability of retaining customers (Kumar & Shah, 2004, p. 57).

2.1.1 Importance of Customer Relations in Business Strategy

Customer relations are essential to a successful business strategy, as they emphasize customer satisfaction building long-term loyalty. According to Lemon and Verhoef (2016, p. 69), fostering strong customer relations is now a priority for businesses seeking to retain and grow their customer base. In the context of service industries, where customer relationships are built through personal and frequent interactions, effective customer relations become even more critical to the customer's perception of value and quality (Lemon & Verhoef, 2016).

Customer Experience Management (CEM) plays a strategic role in maintaining high standards of customer relations. According to Lemon and Verhoef (2016, p. 71), CEM focus on managing all interactions and engagements between a company and its customers, ensuring that service quality aligns with customer expectations. In similar situations, CEM ensures that service quality aligns with customer expectations by analyzing and improving customer experience (Meyer & Schwager, 2007). Verhoef et al. (2009) suggest that customer experience includes not just customer service but extends to areas such as advertising, product features, and ease of use and encompasses all customer interactions, shaping their overall perception of the brand.

Moreover, effective customer relations management relies on understanding and responding to customer needs, expectations, and experiences. According to Kotler and Keller (2016, p. 78) argue that companies prioritizing long-term customer relationships tend to experience higher levels of loyalty and satisfaction. Effective communication, client-specific service, and quick responses to inquiries or issues are central to maintaining strong customer relations (Berry, 1995, p. 239). In relation to customer loyalty and retention, these authors further noted that customer satisfaction is vital for business survival, competitiveness, and growth. As Thomassen (2003, p. 69) explains, customer satisfaction reflects the degree to which customer expectations align with their actual experiences. Zeithaml and Bitner (2003, p. 86) describe it as a “consumer-satisfying response,” noting that a satisfied customer is expected to be loyal and advocate for the brand. Assessing and enhancing customer satisfaction should be a core component of any business strategy aimed at achieving long-term performance improvements (Kotler & Keller, 2016).

Furthermore, Customer Relationship Management (CRM) systems have emerged as essential tools in modern customer relations, enabling companies to gather, analyze, and utilize customer data to foster more unique engagement (Buttle, 2009). Payne and Frow (2005, p. 168) emphasize that CRM helps businesses anticipate customer needs and deliver solutions, which can lead to higher satisfaction and loyalty. By using CRM systems, companies can make data-driven decisions that enhance the customer’s experience and build trust.

2.1.2 The Shift Toward Customer Centricity in Modern Organizations

In recent years, there has been a notable shift in many organizations towards a customer-centric approach, where understanding and prioritizing customer needs take precedence at all organizational levels (Seligman, 2018). Ling & Mansori (2018, p. 20) emphasize this movement, which marks an important transition toward embedding customer focus within corporate culture. This shift aligns with the customer-centric framework advocated by Gulati and Oldroyd (2005), who outline a systematic, four-step journey toward cultivating a customer-centered organizational culture.

Communal Collaboration: This initial phase involves collecting all relevant data regarding customers across various channels for (e.g. social media, email). By collecting customer data,

organizations or firms gain a comprehensive view of their customer base, enabling them to make informed, data-driven decisions.

Serial Coordination: this implies organizations analyze past customer behavior and available information to derive insights. This retrospective understanding of customer actions provides a foundation for recognizing patterns and trends, enhancing the company's ability to address recurring needs and anticipate future behavior.

Symbiotic Coordination: This step focuses on projecting and building awareness into potential future customer behavior. By understanding customers' evolving expectations, companies can adjust their strategies to align with anticipated needs, thus maintaining relevance.

Integral Coordination: The final phase involves a quick response to customer needs, which requires flexible and responsive organization. The immediate response improves customer satisfaction by making customers feel valued and understood at every stage of their journey with the company. (Gulati & Oldroyd, 2005, p. 97).

2.1.3 Customer-Centricity as a Strategic Priority

In a Gulati and Oldroyd's framework, Fader (2012, p. 9) proposes a further integration of customer-centricity into organizational strategy. Fader suggests that by aligning a company's service portfolio with the needs and preferences of its most valuable customers, businesses can optimize long-term financial contributions from these customers. This strategic alignment shifts the focus from a broad, generic model to a targeted approach, where resources are directed toward meeting the specific demands of high-value customer segments. Such a strategy underlines the importance of customer value and promotes sustained revenue growth through retention and loyalty (Fader 2012).

By prioritizing customer-centricity, organizations are better equipped to foster interdisciplinary and cross-functional collaboration thus essential components in designing, managing, and enhancing customer experience. As Fader's (2012) perspectives further suggest, this transformation requires an organization-wide commitment, where departments can collaborate and work close supervision to ensure the customer experience is consistent, positive and aligned with customer

expectations. Organizations employing such strategic priorities could stay agile and responsive, thus improving customer satisfaction and loyalty while building a reputation as a brand that genuinely values its customers' needs.

2.2 Service Quality

Service quality is a critical determinant of organizational success, particularly in competitive markets where businesses strive to distinguish themselves through product offerings and by the quality of their services (Parasuraman et al., 1988, p. 12). Seligman (2018) argues that service quality influences customer satisfaction, loyalty, and the overall reputation of a company, making it a key performance metric for many businesses. Zeithaml (1988, p. 33) further explains that quality of service refers to the degree to which a service meets or exceeds customer expectations. Service quality is tied to customer perceptions and expectations. According to SERVQUAL Parasuraman et al. (1988), service quality can be explained as the gap between customer expectations and actual service performance. The five dimensions of service quality (tangibles, reliability, responsiveness, assurance, and empathy) show how customers evaluate logistics services based on their emotional satisfaction and perceived value.

Berry & Parasuraman (1991, p.45) emphasize that high service quality enhances customer satisfaction and creates opportunities for cross-selling, enhances brand loyalty, and attracts new customers through direct recommendations. Furthermore, service quality can mitigate negative customer experiences related to product quality or supply chain inefficiencies by contributing compensatory services, such as prompt customer support and adaptive service (Berry & Parasuraman, 1991).

Furthermore, from a managerial viewpoint, enhancing service quality requires systematic monitoring and continuous improvement. Techniques like Total Quality Management (TQM) and Six Sigma focus on continuous quality improvement by minimizing defects and improving service processes (Deming, 1986, p. 45). Moreover, Lean Six Sigma principles, which aim to reduce waste and improve service delivery speed, can be applied to operations, ensuring the highest service quality at optimal costs. In addition, Bitner et al. (1994, p. 55) suggest that positive impacts on

customer loyalty can have better results, especially when companies try to adjust customer experience.

Moreover, service quality, from an economic perspective, has a direct impact on costs and revenues. Christopher (2016) explains that improving service quality reduces operational costs associated with rework, complaints, and returns. It also influences customer retention and brand reputation, both of which are critical in generating repeat business (Berry & Parasuraman, 1991). By investing in service quality improvement, companies can achieve a better cost-benefit ratio, reduce customer complaints, and enhance brand value, leading to higher revenues in the long run (Christopher, 2016).

2.2.1 Key Dimensions of Service Quality (RATER Framework)

Customer satisfaction is a critical component of business success, and numerous theories and models have been developed to understand and measure it. In the logistics industry, these models assist firms in assessing their performance in delivering value to customers and maintaining customer loyalty. For instance, a study by Ghoumrassi and Tigu (2023) examines the impact of logistics management on customer satisfaction in small and mid-sized Algerian industrial companies, highlighting the importance of logistics activities in meeting customer needs and enhancing satisfaction. The RATER/SERVQUAL model, Expectancy-Disconfirmation Theory (EDT), and the Kano Model are among the most prominent frameworks for analyzing customer satisfaction. (Kano et al., 1984, p. 3). Parasuraman et al. (1988, p. 24) emphasizes that both the RATER and SERVQUAL models offer the same essential frameworks with a little difference for enhancing customer service quality, though their efficacy hinges on their application being both precise and thoughtful. In addition, Zeithaml et al. (1990, p. 54) stated the RATER model, which assesses reliability, assurance, tangibles, empathy, and responsiveness, are useful tools for regular measurement. It can be deployed through routine surveys, post-service feedback forms, or integrated into customer review platforms to facilitate quick assessments of service quality, presenting strengths and areas for improvement (Grönroos, 2000, p. 71).

In converse manner, the SERVQUAL model, also developed by Parasuraman et al., serves as a comprehensive diagnostic tool, aimed at understanding the detailed of customer expectations

and perceptions (Parasuraman et al., 1985, p. 47). This model is particularly effective when applied through specialized surveys or focus groups as it identifies the sources of service gaps in more detail (Brady & Cronin, 2001, p. 40).

Cronin and Taylor (1992, p. 58) suggest that combining the RATER and SERVQUAL models offers a balanced approach to evaluating service quality and customer satisfaction. For instance, using the RATER model as a baseline measure and the SERVQUAL model for follow-up analysis can provide a more holistic perspective on service quality. Ladhari (2009, p. 94) notes that the order in which they are used may vary depending on specific organizational needs and objectives. Applying these models to fit the industry, business, and customer demographics are essential for maximum relevance. This adaptation could involve adapting dimensions, scales, and questions, as well as modifying methods to align with specific organizational goals and contexts (Brown, Church-ill, & Peter, 1993, p. 102).

The RATER framework, developed by Parasuraman et al. (1988), outlines five dimensions of service quality: Tangibles, Reliability, Responsiveness, Assurance, and Empathy. Each of these dimensions provides a comprehensive understanding of how customers perceive service quality, offering a structured approach to evaluating and improving service delivery.

Tangibles

Zeithaml et al. (2006, p. 76) explain tangibles as the physical aspects of the service environment, including the appearance of facilities, equipment, personnel, and communication materials. It is considered the most basic component of service quality because they provide visible suggestions that shape customers' initial impressions. For companies, this dimension encompasses the condition of their retail location, the quality of their marketing materials, and the professionalism of their employees in customer-facing roles. According to Bitner (1990, p. 75) customers often judge the overall quality of service based on their first interactions with tangible elements because if a company presents itself professionally and maintains a clean and acceptable environment, it has positive influences on customer's perception of service quality.

Reliability

Reliability refers to the ability to deliver the promised services in a consistent, accurate, and dependable manner (Parasuraman et al., 1988, p. 14). In other words, customers expect companies

to fulfill their promises regarding the services they offer. Reliability is critical, especially in terms of on-time product delivery, accurate billing, and consistency in service availability. Failure to meet customer expectations in these areas could lead to customer dissatisfaction and lost sales (Parasuraman et al., 1988, p. 14). Parasuraman et al. (2005, p. 25) indicates that reliability is often considered the most important factor in service quality evaluations.

Responsiveness

Zeithaml et al. (2006, p. 88) explain that responsiveness relates to the willingness and ability of a company to assist customers and provide prompt service. This dimension focuses on the timeliness of a company's service and how quick and efficient employees respond to customer inquiries or complaints. Also, responsiveness has a direct link to customer satisfaction, as it has been suggested that customers are more anticipated to remain loyal to companies that consider their concerns in an efficient way (Boshoff & Allen, 2000, p. 46).

Assurance

Parasuraman et al. (1988, p. 17) explains that assurance encompasses the knowledge, competence, and courtesy of employees, as well as their ability to inspire reliability and confidence in customers. In companies where customers are uncertain about the technical aspects of the products or services they are purchasing, the assurance provided by knowledgeable employees becomes especially important. Customers must feel confident that the company delivers high-quality products and provides reliable information and service (Parasuraman et al., 1988).

Empathy

Empathy refers to the company's ability to provide caring and individualized attention to customers (Zeithaml et al., 2006, p.90). Customers expect companies to understand their specific needs and demonstrate a willingness to meet those needs. Empathy is reflected in a company's efforts to customize service offerings, accommodate special requests, and maintain a customer-centric approach across all operations (Zeithaml et al., 2006).

Parasuraman (1988) further explains that companies that invest in improving service quality often notice an improvement in customer satisfaction. For instance, prompt customer service, knowledgeable employees, and efficient handling of customer complaints can elevate a customer's

overall experience. In contrast, delayed responses or a lack of resolution can lead to dissatisfaction and the decline of customer retention.

Expectancy-Disconfirmation Theory (EDT)

The Expectancy-Disconfirmation Theory (EDT), originally proposed by Oliver (1980), is one of the most used models for explaining customer satisfaction. According to EDT, customer satisfaction is determined by the comparison between initial expectations and actual performance. When the actual performance of a product or service exceeds expectations, a positive disconfirmation occurs, leading to customer satisfaction. Conversely, if performance falls short of expectations, negative disconfirmation leads to dissatisfaction (Oliver, 1980, p. 461).

Oliver (1980, p. 467) indicated that EDT is useful in understanding how customer perceptions evolve. Expectations are influenced by various factors, such as prior experiences, marketing communications, and inter-personal communication recommendations. When expectations are set too high, it can be challenging for companies to meet or exceed them, which often results in dissatisfaction. On the other hand, if expectations are met or exceeded, customers are expected to develop loyalty toward the brand or services (Oliver, 1980, p. 463). This theory is frequent in industries where service levels are variable or where customers have diverse experiences, such as in hospitality or technology services. In these industries, managing customer expectations through clear communication and consistent delivery service is crucial for ensuring satisfaction.

2.2.2 Kano Model of Customer Satisfaction

The Kano Model, developed by Noriaki Kano in the 1980s, provides a unique perspective on customer satisfaction by categorizing product and service attributes into three groups: Basic Needs, Performance Needs, and Excitement Needs (Kano et al., 1984, p. 39). According to the Kano Model, not all attributes have equal contributions to customer satisfaction, and the absence or presence of certain features can have a vast different effect.

- Basic Needs are the essential features customers expect from a product or service. These attributes do not have a significant increase in customer satisfaction when present, but their absence

leads to considerable dissatisfaction (Kano et al., 1984, p. 45). For instance, in the case of a smartphone, features like a working battery or proper screen functionality are basic expectations.

- Kano et al. (1984, p. 50) emphasize that performance needs are features that have a linear relationship with customer satisfaction. The more these features are enhanced, the more satisfied customers become. For example, the processing speed of a smartphone has a direct effect on how satisfied users are with the product.

- Excitement Needs are features that customers do not expect, and their presence can significantly boost customer satisfaction. However, their absence does not lead to dissatisfaction (Kano et al., 1984, p. 52). For instance, a phone with an innovative design or a feature that goes beyond customer expectations falls into this category.

The Kano Model provides valuable insights into how companies, especially companies, can prioritize product and service attributes to maximize customer satisfaction. By identifying which attributes belong to each category, companies can make informed decisions about where to invest resources.

Service Improvement Initiatives in logistics

To sustain a competitive edge in the logistics sector, companies have undertaken a series of service improvement initiatives designed to enhance the overall customer experience. One prominent initiative is the implementation of a continuous improvement program grounded in Total Quality Management (TQM) principles. Oakland (2003, p. 108) emphasizes that this approach prioritizes customer satisfaction, employee engagement, and systematic problem-solving, aiming to enhance service quality across all customer interactions. The emphasis of TQM on creating a customer-centric culture aligns with the broader industry goal of providing consistent, high-quality service at every operational level (Dale et al., 2007, p. 92).

A focus on employee training and development is also central to service improvement efforts in logistics. In a recent phone communication with the commissioner, a senior manager participated in an advanced logistics training program in the United States, reinforcing the industry's commitment to professional development (Hayford, July 2024). Brown and Swartz (1989, p. 78) emphasize that continuous training initiatives ensure employees are knowledgeable, responsive, and

well-equipped to deliver superior service. This ongoing investment in human capital can lead to higher customer satisfaction ratings and strengthened customer loyalty.

Moreover, maintaining high service quality is a cornerstone of fostering customer satisfaction and sustaining a competitive position. Parasuraman et al. (1988, p. 34) argue that focusing on key dimensions of service quality—tangibles, reliability, responsiveness, assurance, and empathy—helps companies establish a strong framework for continuous improvement in customer service practices. This comprehensive focus positions logistics firms to adapt to evolving customer expectations and maintain a reputation for exceptional service.

2.2.3 Customer Satisfaction and Loyalty in Service Companies

The concept of customer satisfaction and loyalty is fundamental in-service marketing management. It is based on the understanding that a satisfied customer is anticipated to become loyal to a brand, which, in turn, enhances revenue and profitability (Seligman 2018). As Thorsten and Alexander (1997, p. 737) pointed out, customer satisfaction with a company's services is often viewed as the foundation of its success and long-term competitive edge. In the context of relationship marketing, customer satisfaction is widely acknowledged as a pivotal factor that influences loyalty. Kotler reinforces this by stating, "The key to customer retention is customer satisfaction" (Kotler, 1994, p. 20).

According to Seligman (2018) service-based industries, where customer experiences are shaped by the quality, consistency, and responsiveness of the service provided, maintaining high levels of satisfaction is crucial. This satisfaction often translates into loyalty, as customers who have positive service experience can be retained and recommend the company to others. For service companies, fostering strong customer satisfaction can be a strategy for retention and serve as a driver of growth through customer referrals and increased company's value (Seligman, 2018).

2.3 Product Quality

This section explores the definition of product quality, the Five (5) approaches to product quality, the Eight Dimensions of Product Quality, the standards and certifications that govern it, the role of innovation and technology, customer perceptions, and the handling of product defects.

Kotler & Armstrong (2017, p.89) defined product quality as the set of characteristics of a product that satisfies the needs and expectations of a customer, ensuring that the product performs reliably, durable, and meets the specified standards. In addition, product and service quality are the primary causes of customer satisfaction (Wilson et al., 2008, p. 79-80). Customers expect products to meet or exceed their expectations in terms of performance, durability, and reliability. High-quality products have fulfilled customers' functional needs that enhance their emotional connection to the brand (Kotler & Armstrong, 2017, p. 89). According to these authors companies that are consistent in delivering high-quality products could develop a loyal customer base and generate positive marketing strategies to attract customers. In today's competitive market, product quality is often seen as a basic expectation, aligning with the Basic Needs in the Kano Model (Kano et al., 1984, p. 45). However, Oliver (1980, p. 469) suggested companies that go beyond basic expectations by contributing superior performance or unique features can create a competitive advantage to improve customer satisfaction.

According to Garvin, quality is often viewed from two perspectives: conformance to specifications and fitness for use (Garvin, 1987, p. 104). Conformance to specifications means that the product meets the defined criteria established during the design process, such as materials, performance metrics, and durability. Fitness for use, on the other hand, implies that the product satisfies customer requirements in good condition. In addition, Feigenbaum (1951), conformance to specifications (Gilmore, 1974; Levitt, 1972), conformance to requirements (Crosby, 1979), fitness for use (Juran, 1974, 1988), loss avoidance (Ross, 1989), and meeting and/or exceeding customers' expectations (Gronroos, 1983; Parasuraman et. al.,1985). According to Bei and Chiao (2001), the cornerstone of customer satisfaction lies in the quality and price of a product. In a similar case, Khan and Ahmed (2012) emphasized that the quality of a product is a crucial factor influencing customer satisfaction. The quality of the products is the one that serves the intended purpose of the customer's needs and alternatives (Ehsani, 2015).

Indeed, product quality in logistics is often associated with the reliability and timeliness of deliveries. According to the service-product continuum theory (Grönroos, 2007), customers perceive the product's quality through both the goods and the service associated with it. These aspects of delivery timeliness, damage prevention, and accuracy in documentation are all aspects of product quality from the customer's perspective. Companies that focus on ensuring the integrity of deliveries, thus from packaging to on-time delivery could achieve good results to improve the satisfaction of their customers. Immerman (2022) emphasizes that ongoing monitoring and enhancement of quality control play a vital role in upholding high production standards. Furthermore, from a managerial perspective, effective quality control systems and continuous monitoring are essential for ensuring product quality. Imai (1986, p. 33) describes Kaizen as a Japanese philosophy centered on continuous improvement, which can be applied in logistics to enhance product handling and delivery procedures. This can be implemented through regular audits and feedback cycle to continuous enhancement service offerings. Kotler et al., (2025, p.227) posits that continuous enhancement of products can lead to increased customer satisfaction, resulting in higher customer retention rates and the ability to charge premium prices and avoid the need for the cost of products returned or replaced.

There are several common approaches to defining product quality, as mentioned above. However, Gavin's approach will be used for further explanation. Gavin (1984, p. 24-26) defines the Five (5) approaches to product quality as follows; Transcendent approach, product-based approach, User-based approach, manufacturing-based approach, and value-based approach. Then follows the Eight Dimensions of Product Quality.

2.3.1 Approaches to Product Quality

Product quality can be viewed from various perspectives, each emphasizing different aspects important to consumers and producers. Together, these perspectives provide a clear framework for analyzing and improving product quality across industries from Gavin's perspectives.

Transcendent Approach

The transcendent approach defines quality as an inherent excellence that in broad context recognized and admired by consumers, conforming to established standards, such as International

Organization for Standardization (ISO), as well as high-performance criteria (Tuchman, 1980, p. 38). In this view, a quality product is one that serves its intended purpose in an effective way, without generating additional issues for the user, and is thus perceived as achieving an exemplary standard. Tuchman (1980) further suggests that quality products represent a level of distinction that sets them apart from inferior alternatives, meeting customer reliable needs as they enter the market (Zeithaml, 1988; Kotler & Armstrong, 2012). This approach positions quality as a marker of excellence, resonating with consumers and elevating brand reputation.

Product-Based Approach

The product-based approach to quality focuses on the quantifiable and specific attributes within a product that contribute to its perceived value. This approach is grounded in the idea that quality can be measured by the presence of features (Gavin, 1984, pp. 126-127). Within this framework, companies aim to create products with distinctive, measurable attributes that align with the needs and preferences of consumers. For example, One of the DD managers (personal communication, August 17, 2024) explained that DD Logistics' investment in trucks and cars with enhanced engine performance and durability demonstrates a commitment to product quality by aligning high-performance features with consumer expectations (Hayford, 2024).

User-Based Approach

In the user-based approach, product quality is evaluated based on consumer satisfaction, acknowledging that individual users have varying preferences, tastes, and expectations (Edward, 1968, p. 37). Quality, in this view, is subjective and associated in how well a product fulfills personal desires and provides a satisfying experience. Marketing literature often associates high-quality products with the ability to meet or exceed user expectations, while economic perspectives see quality as an element that shifts demand (Kotler & Keller, 2016; Zeithaml, 1988). From an operations management perspective, quality in this context is seen as "fitness for use," aligning product design with user-specific criteria for comfort, aesthetics, and usability (Juran, 1974, 1988).

Manufacturing-Based Approach

The manufacturing-based approach to quality emphasizes consistency, precision, and adherence to production standards. Quality follows a strict conformity to specifications and design criteria

(Cosby, 1979, p. 15). For instance, DD Logistics ensures that all deliveries adhere in precise to customer specifications, minimizing deviations that could compromise quality. Adopting a strict quality assurance process, such as (Société Générale de Surveillance) SGS testing, inspection, and certification, ensures that products meet the required standards before reaching consumers (DD Logistics, 2018).

Value-Based Approach

The value-based approach interprets quality through the lens of cost-effectiveness, viewing quality as a function of product efficiency relative to its price. In this model, a product's quality is contingent on its ability to meet consumer needs at a justified cost (Gavin, 1984, p. 29). Gavin illustrates that higher-quality materials and components may demand a premium, which is reflected in the product price. For example, a premium price for high-quality materials might enable the production of a durable product, such as a luxury car, whereas budget constraints could limit the quality achievable.

2.3.2 Eight Dimensions of Product Quality

Garvin's (1987, p. 101-109) framework for assessing product quality identifies eight critical dimensions: Performance, Features, Reliability, Conformance, Durability, Serviceability, Aesthetics, and Perceived Quality, each of which plays a key role in shaping customer satisfaction, loyalty, and retention. This multidimensional view provides valuable insights for logistics companies, helping them understand how product quality influences customer perceptions and loyalty. Each dimension of Garvin's model is outlined below, detailing its impact on product quality and customer satisfaction.

Performance

Performance refers to the primary operational characteristics of a product. In the context of service-oriented businesses, Garvin (1984; 1987) suggests that performance often relates to promptness and reliability in meeting client expectations. Babbar et al. (2002) emphasizes that improving a product's performance should be a priority for producers seeking to align their contribution with customer expectations. This dimension is fundamental to a product's value proposition, as

it has direct impacts on how well the product fulfills its intended purpose or use (Garvin, 1987, p. 101-102).

Features

Features encompass the secondary aspects of a product's performance, those additional characteristics that enhance its appeal and functionality. Garvin (1987, p. 103) notes that features can increase a product's attractiveness to customers, offering added value beyond the basic function. According to Burt (2022), product features contribute to customer satisfaction by solving specific needs and problems, making the product more valuable to end-users. Features thus play a complementary role, contributing to the overall desirability of a product within a competitive market.

Reliability

Reliability measures the probability that a product will perform without failure over a specified period. Garvin (1987, p. 104) defines reliability as a product's ability to deliver consistent performance, contributing significantly to its perceived quality. Ahmed (1996) argues that reliability is a primary determinant of product quality, as it reassures customers that the product will meet their needs without unexpected malfunctions. A reliable product minimizes unforeseen costs and maintains operational efficiency, reinforcing customer trust and satisfaction (Eiklenborg et al., 2011).

Conformance

Conformance reflects how a product matches its intended design and specifications, adhering to established standards. Garvin (1987, p. 105) posits that customers often equate high quality with products that meet stated requirements. By minimizing deviations from design specifications, companies can enhance customer satisfaction, as conformance assures buyers that the product will perform as promised. This dimension is essential in quality control, as it aligns product output with expectations for consistency and reliability.

Durability

Durability assesses a product's operating life and its capacity to function in a competent way before requiring replacement. Garvin (1987, p. 106) describes durability as the measure of a product's longevity, incorporating both technical and economic considerations. From a consumer's

perspective, Karnes (1995) found durability to be among the top priorities in product quality, as it signifies cost-effectiveness and reliability. Durability is valued in markets where product lifespan influences purchasing decisions, as it assures buyers of extended utility before substantial wear and tear.

Serviceability

Serviceability states the ease, speed, and cost-effectiveness with which a product can be restored to working conditions when issues arise. Customers are concerned about a product's potential to fail, as well as the time required for repair, the reliability of service, and the demeanor of service personnel (Garvin, 1987, p. 107). This dimension emphasizes the importance of responsive customer service and the efficiency of after-sales support, as these factors influence overall product satisfaction. Failure to address service issues promptly and appropriately can lead to a negative perception of quality.

Aesthetics

Aesthetics covers the sensory and emotional aspects of a product, including its appearance, feel, sound, and overall design appeal. Garvin (1987, p. 108) highlights aesthetics as a subjective aspect of quality, shaped by individual tastes and preferences. Given their dependence on personal judgment, aesthetics can be challenging to measure but is nonetheless essential, in industries where product design has a significant impact on purchasing decisions. The sensory appeal of a product contributes to customer satisfaction by aligning with consumer expectations for style and appearance.

Perceived Quality

Perceived quality is the customer's examination of a product's overall quality, often influenced by brand image, reputation, and marketing rather than objective attributes. Garvin (1987, p. 109) explains that perceived quality is shaped by indirect indicators, as customers may lack comprehensive information about the product's actual features. Consumers sometimes depend on brand comparisons and past experiences when evaluating quality, as these secondary measures provide a basis for judging products that may otherwise be unfamiliar (Mushtaq and Rafi, 2022, p. 8).



Figure 1. The 8 dimensions of product quality (Garvin 1987).

2.3.3 Product Quality Standards and Certifications

Product quality is ensured through established industry standards and certifications, which serve as objective benchmarks of quality and reliability. These standards are critical in the global market, where customers expect consistent quality regardless of geographical boundaries. One of the most recognized standards organizations is the International Organization for Standardization (ISO), which sets global frameworks for quality management systems. ISO 9001, a quality management standard, emphasizes continuous improvement and customer satisfaction as key aspects of quality control (Oakland, 2003, p. 62). By adopting ISO 9001, companies demonstrate a commitment to meeting regulatory standards and customer expectations through systematic quality management.

For example, DD Logistics has integrated ISO 9001 into its quality management framework, a step that underlines its commitment to quality and regulatory compliance. This certification supports DD Logistics in aligning its processes with industry's best practices, ensuring consistency in product quality, and enhancing customer satisfaction. Furthermore, the company has adopted environmental standards such as ISO 14001, reflecting its response to the increasing demand for sustainable practices in its competitive market (DD Logistics, 2004;2008). By adhering to ISO 14001, the company demonstrates its commitment to reducing its environmental impact, aligning with

regulatory requirements and appealing to environmentally conscious consumers (Christopher, 2016, p. 88).

In addition to ISO certifications, DD Logistics secures certifications that facilitate its import and export activities in the EU, North America, and Ghana. These include the EU Whole Vehicle Type-Approval (WVTA), a certification process that ensures vehicles comply with EU safety, environmental, and performance standards, and UL certification, required for safety compliance in North American markets. These credentials confirm that DD Logistics' products meet strict safety and performance standards, providing customers with confidence in their reliability. By maintaining these certifications, DD Logistics ensures compliance with regional regulations, upholds high standards of quality and safety, and reinforces its reputation as a trusted provider of superior products (DD Logistics, ISO 14001: 2004; 9001: 2008).

2.3.4 Customer Perceptions of Product Quality

Customer perception is a pivotal element in determining a company's success, as it has a direct influence on purchasing behavior, satisfaction, and loyalty. Perceived quality reflects how customers evaluate a product based on personal expectations, prior experiences, and comparisons with competitor products' offerings (Zeithaml, 1988, p. 12). Zeithaml (1988) suggest that regardless of a product's adherence to technical standards, it is the ultimate in the customer's subjective perception that determines their satisfaction and loyalty.

According to Garvin (1987, p. 105), customers evaluate product quality based on several dimensions, including durability, performance, reliability, and aesthetic appeal mentioned above. These criteria shape customers' overall perception of quality and influence their possibility of repeated purchases. In communication with the commissioner, DD Logistics in some cases gathers customer feedback through phone calls, using these insights to identify areas for improvement. This feedback-driven approach enables DD Logistics to make data-informed adjustments to their products and services, aligning them with customer expectations (DD Logistics, 2024).

Boshoff & Allen (2000) suggest that open communication help build customer trust, as it conveys a commitment to quality and customer satisfaction. They further suggested that effective service recovery, such as resolving customer complaints and offering solutions like refunds or

replacements, can improve customer satisfaction and loyalty. In addition, factors like employee training, rewards, and organizational commitment influence how frontline staff perceive service recovery performance.

2.3.5 Handling Product Defects

Product defects are an unavoidable reality in manufacturing and logistics even following a strict quality control process. The way in which a company handles these defects can have a profound effect on customer satisfaction and brand loyalty (Smith, 2020). The study emphasizes the importance of a well-organized and responsive defect-handling process, as it can mitigate the negative impact of defects on the customer experience. For example, the manager of DD Logistics shared in the phone conversation how the company recognizes and established a structured approach in managing product defects, designed to minimize customer inconvenience and highlight the company's commitment to quality improvement (Hayford, 2024).

Bitner et al. (1994, p. 97) explain that resolving service recovery well, especially after a product defect, can build customer loyalty if done in a quick and professional approach. Following this idea, companies that use a multi-step process to manage defects such as listening to customer complaints, investigating the causes, and offering solutions like product replacements, refunds, or repairs could make customers feel supported and valued when problems occur. This aligns with the broader understanding that effective defects in handling and transparent communication can contribute to customer retention by demonstrating the company's dedication to quality (Boshoff & Allen, 2000).

2.4 Internal Supply Chain Management (Logistics)

Logistics impacts customer perceptions of trust and reliability, which are critical in maintaining customer relationships. Customers expect fast and reliable service, and any disruption in logistics (e.g., delays, lost items) can cause damage or loss of trust (Gustafsson et al., 2005, p. 78). Customer satisfaction in logistics is often driven by the psychological factors of certainty and communication, especially regarding delivery updates and service disruptions (Anderson et al., 2009).

In addition, Christopher (2016, p. 15) posits supply chain management (SCM) plays a pivotal role in customer satisfaction by ensuring that products are delivered on time, in the right condition, and at the right price. Efficient supply chain operations can enhance customer satisfaction by minimizing delays, reducing costs, and ensuring that products are available when needed.

Mentzer et al. (2001, p. 11) suggest that companies that excel in supply chain management often have a strong focus on transparency and collaboration with their suppliers and customers. By integrating technology and data analytics into their supply chain processes, companies can predict demand in an accurate, optimize inventory management, and improve delivery times, all of which contribute to a smoother customer experience. For instance, Christopher (2016, p. 23) emphasizes that tracking and tracing capabilities in supply chain management provide customers with immediate information on the status of their orders, thereby improving satisfaction and trust.

From a managerial perspective, logistics management can be optimized by focusing on efficiency and reliability. This involves improving the logistics network, integrating technology, and collaborating with suppliers to ensure seamless operations. Managerial approaches like Just-In-Time (JIT) and Total Productive Maintenance (TPM) assist in optimizing inventory management and reducing system break (Bamber et al., 1999, p. 570). Stevenson (2015, p. 55) suggests that effective internal supply chain management (SCM) is critical for maintaining operational efficiency, quality control, and ensuring a flow of goods and information through various stages of production. Efficient SCM practices help reduce costs and improve the company's responsiveness to market demands, thereby enhancing customer satisfaction. The optimization of internal supply chain processes through lean methodologies, adherence to international standards, and a commitment to sustainable practices has been shown to improve a company's competitive edge. Lean thinking, which emphasizes the reduction of non-value-added activities, enhances efficiency by focusing on continuous improvement and resource optimization (Womack & Jones, 2003, p. 67).

In addition, Christopher (2016, p. 88) suggest that lean thinking and adherence to international standards, sustainable supply chain practices are crucial in today's business environment. Sustainable SCM focuses on minimizing the environmental impact of supply chain activities, a practice that has gained prominence as companies strive to meet consumer expectations for environmental responsibility.

Moreover, adhering to international standards, particularly those developed by the International Organization for Standardization (ISO), play a significant role in the SCM strategy. ISO certifications, such as ISO 9001 for quality management and ISO 14001 for environmental management, provide structured frameworks that ensure the company's supply chain processes meet both regulatory requirements and customer expectations (DD company, 2018). These standards are globally recognized as benchmarks for quality and environmental responsibility, which contribute to customer trust and brand reputation (Oakland, 2003, p. 62). The implementation of ISO 9001, for instance, enables DD Logistics to standardize its processes, fostering consistency and quality control across different stages of its supply chain.

However, internal supply chain management is not without challenges, as experience shared by one of the managers of DD logistics that common obstacles in internal SCM include delays, miscommunications, and lack of coordination between departments. The manager further highlighted that the complexity of maintaining optimize operations and some of the risks are in the flow of goods and information (Hayford 2024). These challenges highlight the critical aspects of effective communication, accurate demand forecasting, and efficient inventory management to ensure that each component of the supply chain functions in an effective way. In economic terms, Christopher (2016, p. 136) suggests that effective logistics management has an impact on operational costs and service efficiency. By improving logistics processes, companies can reduce inventory costs, optimize transportation logistics, and achieve economies of scale. Moreover, effective logistics systems enhance the speed of service delivery, which has a direct link to customer satisfaction and retention. The concept of logistics within the broader supply chain framework has evolved to encompass a range of processes, from storage and transportation to communication and network management, each critical to the smooth flow of goods (Christopher 2016). According to the U.S based Council of Supply Chain Management Professionals (CSCMP), a logistics channel represents a network of interconnected supply chain entities responsible for storage, processing, transfer, transport, and communication, all of which contribute to an efficient flow of goods (CSCMP, 2009). This channel forms the backbone of modern logistics, facilitating coordinated and on time product delivery.

Hokkanen and Karhunen (1961, p.12) provide a comprehensive view of logistics management, encompassing the management of inbound and outbound transportation, storage, materials handling, order fulfillment, and logistics network planning. They emphasized the importance of

warehouse management, demand and supply planning, and the oversight of third-party logistics service providers. These elements are foundational to effective logistics management, as they ensure the seamless movement of goods from origin to destination (Hokkanen and Karhunen 1961). Also, the historical context of logistics, with military origins, offers valuable insights into its current applications. Ballou (2007, p.4) explains that, prior to the 1950s, logistics was primarily associated with military operations, focusing on the procurement, maintenance, and transportation of military facilities, materials, and personnel. The civilian adaptation of logistics began to take shape in the subsequent decades, leading to a broader interpretation that included physical distribution and logistics management across commercial sectors. He further redefined logistics as the coordination of inbound and outbound activities from raw material acquisition to final delivery to the consumer, signifying the evolution of supply chain management into a structured discipline (Ballou, 2007, p.6).

In illustrating the development of supply chain management, Ballou (2006) presents a diagram that traces its transformation, emphasizing how logistics has shifted from a simple, tactical function to a strategic component integral to organizational success.

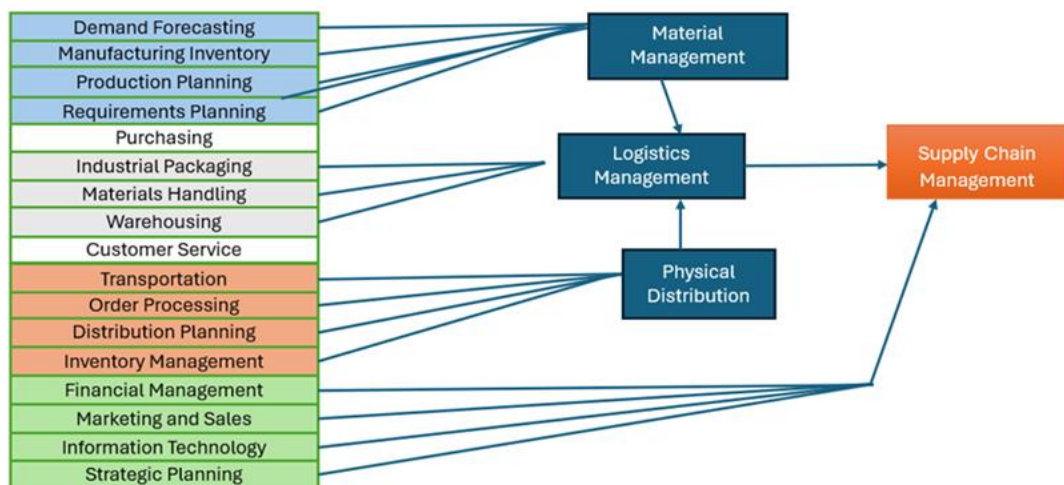


Figure 2. The evolution of supply chain management (After Ballou, 2007, p.338).

In a Business-to-Business (B2B) context, Gustafsson et al. (2005, p. 78) suggest that the supply chain entails a complex network of interconnected businesses involved in delivering a product or service to another business. This network often includes suppliers of raw materials, manufacturers, distributors, and retailers, all working together to ensure the on time and efficient delivery

of goods and services. The B2B supply chain is essential for maintaining operational efficiency and meeting end-customer demands, as it supports the various stages of product development, from raw material procurement to finished product distribution (Gustafsson et al. 2005).

Krajewski et al. (2010, p. 344) describe the supply chain as comprising interconnected procedures within a company and among various companies that result in the creation of a product or service that meets customer satisfaction. Weingarten et al. (2010) suggest the collaborative nature of B2B supply chains, where multiple stakeholders coordinate efforts to facilitate processes and optimize resource use to fulfill business objectives. In a B2B supply chain, the emphasis on customer satisfaction reflects the end goal of delivering value to each successive link in the chain, which serves the needs of the final consumer (PwC, 2021).

Moreover, in a Business-to-Consumer (B2C) context, the supply chain is aimed at delivering products or services directly to the end customer. Unlike B2B, which involves multiple intermediary businesses, the B2C supply chain revolves around meeting the direct needs and expectations of individual consumers (Yao, 2010). This process in general includes manufacturers, distributors, retailers, and logistics partners collaborating to ensure that products reach consumers in an efficient way and without delay. A Proper way of managing the B2C supply chain is essential for enhancing customer satisfaction and fostering long-term loyalty. The efficiency of the B2C supply chain is crucial in ensuring customer satisfaction, as consumers demand grows fast, faster, reliable, and cost-effective delivery options (Christopher, 2016, p. 89). As indicated by Kotler and Keller (2016, p. 110), consumer satisfaction in most cases is influenced by the speed of delivery, product availability, and the overall purchasing experience, making the B2C supply chain integral to business success. DD Logistics serves both B2B and B2C customers.

2.4.1 Lean Thinking to Improve Quality and ISC

Pavlovic and Božanic (2012, p. 23) suggest that lean thinking, which originated from the Toyota Production System, is a widely recognized philosophy focused on improving quality and efficiency within internal supply chains. Emphasizing the minimization of waste while maximizing customer value, Lean Thinking promotes a strategic approach to supply chain management, optimizing resource usage and delivering superior value to the end customer (Womack & Jones, 1996, p. 24).

These applications of Lean Thinking in the supply chain context involve improving operations, eliminating redundancies, and fostering continuous improvement, thus enhancing overall quality, efficiency, and customer satisfaction

Just-In-Time (JIT)

The Just-In-Time (JIT) approach focuses on aligning production schedules with customer demand, thereby minimizing inventory levels and associated costs (Ohno, 1988, p. 39). By reducing the need for excess inventory, JIT lowers warehousing costs and maximizes resource utilization. As part of Lean Thinking, Womack & Jones (1996, p. 45) indicates that JIT improves efficiency and aligns production activities, thereby enhancing customer responsiveness and reducing waste in the supply chain.

2.4.2 Kaizen

Imai (1986, p. 43) explains that Kaizen, a Japanese philosophy focused on continuous enhancement, encourages incremental changes by empowering every employee to contribute ideas for process enhancements. The Kaizen workshops idea could be adopted in Logistics companies to facilitate a collaborative environment where workers identify inefficiencies and risks within the supply chain, fostering ongoing quality improvements. Continuous improvements across various areas, such as quality, technology, and processes, can drive customer satisfaction and loyalty (Martin et al., 2020, p. 1-2). By embedding Kaizen within its culture, Logistics benefits from a system of steady improvements to enhance product quality and supply chain efficiency.

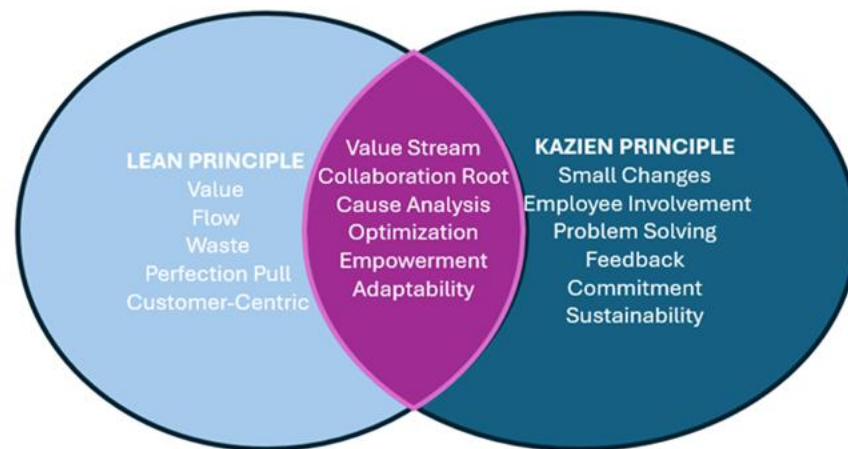


Figure 3. Lean and Kaizen: Building Continuous Improvement Together.

2.4.3 Total Productive Maintenance (TPM)

Total Productive Maintenance (TPM) is a preventive strategy focused on keeping machines and equipment running smooth, reducing interruptions, and ensuring continuous production. (Bamber et al., 1999, p. 570). This systematic maintenance approach supports a reliable production flow and upholds Lean principles by maximizing efficiency and reducing waste associated with unplanned maintenance.

2.4.4 International Organization for Standardization (ISO) adopted in Logistics Process

In addition to the above paragraphs noting ISO, the International Organization for Standardization (ISO) is instrumental in promoting quality and standardization across global supply chains. Many organizations align their operations with ISO standards to improve efficiency, quality, and customer satisfaction. Established on February 23, 1947, ISO is one of the oldest non-governmental international organizations, and it aims to foster cooperation and set benchmarks that ensure quality across borders (International Organization for Standardization, n.d.). ISO's mission is to enhance global coordination and standardization, facilitating consistent product and service quality worldwide (ISO, 2021, p. 15).

ISO standards focus on making lives and products safer, easier, and better by ensuring reliability, consistency, and quality across diverse industries. These standards benefit organizations by enhancing product and service consistency, raising customer satisfaction, and improving productivity (Oakland, 2003, p. 60). Christopher (2016, p. 145) suggests that firms that adhere to ISO standards not only build a competitive advantage but also demonstrate a commitment to high-quality processes and environmental stewardship, which strengthens trust among stakeholders.

Some relevant ISO standards in supply chain management include:

ISO 9001: Quality Management System (QMS): This standard emphasizes quality management practices that help organizations consistently meet customer expectations. ISO 9001 is adopted and supports companies in achieving consistent product quality and reducing variation (Oakland, 2003, p. 60).

ISO 14001: Environmental Management System (EMS): This standard encourages companies to reduce their environmental impact, minimize waste, and adopt sustainable practices (Christopher, 2016, p. 145).

ISO 27001: Information Security Management System (ISMS): ISO 27001 helps organizations manage information security risks, ensuring data confidentiality and security in the supply chain (ISO, 2017, p. 89).

ISO 45001: Occupational Health and Safety Management System (OHSMS): This standard aids in creating safe and healthy work environments, thus reducing workplace accidents and promoting employee well-being (Lockamy & McCormack, 2004, p. 271).

ISO 50001: Energy Management System (EnMS): ISO 50001 focuses on optimizing energy use, reducing costs, and minimizing environmental impact. Organizations that follow ISO 50001 benefit from improved energy efficiency and reduced carbon footprints (Guide & Van, 2009, p. 18).

2.4.5 Challenges and Risks in Supply Chain

Despite the adoption of lean tools and adherence to international standards, logistics firms or companies, especially DD logistics, face several significant challenges and risks within its internal

supply chain. These issues stem from a combination of external and internal factors, which have the potential to disrupt operations and impact on the company's competitive standing.

Global Supply Chain Disruptions

Agableh (2021, p. 363) states that COVID-19 pandemic reinforces the vulnerability of global supply chains. Lockdowns, transportation restrictions, and logistical disruptions led to widespread delays and material shortages. DD logistics was affected in similar way, facing delays in shipment and consignment arrival that, in turn, disrupted customers' production schedules and order fulfillment (Hayford-DD, 2024).

Supply Chain Complexity

Operating across multiple markets, it manages a complex supply chain involving numerous suppliers, distributors, and production sites. This extensive network demands coordination across varied time zones, regulatory frameworks, and logistics infrastructures, which increases the risk of miscommunication, delays, and operational inefficiencies. According to Simchi-Levi et al. (2004, p. 209), such complexity can pose serious challenges in maintaining supply chain fluidity.

Sourcing and Supplier Risks

Ensuring supplier compliance with required standards is essential to avoid production delays or compromised product quality, a risk emphasized by (Lockamy and McCormack, 2004, p. 271). Any disruption in the supply chain can have a negative impact on the consistency and quality of customers' products.

Technological Integration

Christopher (2016) explains that technological advancements hold the potential to optimize supply chain operations, but the implementation of new technology across various stages of the supply chain continues to present challenges. Integrating compatible systems among all stakeholders is crucial for attaining instantaneous data visibility and facilitating data-driven decision-making. Effective technological integration can mitigate inefficiencies, although it requires alignment across all parties involved (Christopher, 2016). Lambert and Cooper (2000) argue that an integrated supply chain relies on the continuous flow of information. However, many companies have

realized that enhancing product flows cannot be accomplished without implementing a process approach.

Sustainable Supply Chain Practices

Sustainable supply chain management (SSCM) spans from responsible sourcing to energy-efficient production processes (Carter & Rogers, 2008, p. 368). By incorporating SSCM, logistics firms can aim to reduce environmental impact, comply with regulatory requirements, and meet customer expectations for sustainable products

Green Procurement: prioritizes sourcing materials from suppliers committed to environmentally friendly practices, ensuring products meet environmental standards without sacrificing quality (Carter & Rogers, 2008, p. 368).

Waste Reduction and Recycling: Guide & Van (2009, p. 18) explains that Lean manufacturing principles, such as Just-In-Time (JIT) production, and recycling programs are central to sustainability strategy. The company also explores closed-loop supply chains, allowing repurpose or recycling of end-of-life products, thus conserving resources.

Energy Efficiency: Continuous monitoring allows companies to optimize energy consumption and identify areas for further improvement (Christopher, 2016, p. 179).

Summary of Key Concepts and Their Value to This Study

The study examined multiple frameworks and methodologies that contribute to improving supply chain performance, with a particular focus on efficiency, sustainability, and risk management. The key literature on the part of logistics management streams, Lean Thinking, ISO Standards, Sustainable Practices, Global Challenges, and Technological Integration, offer complementary perspectives rather than independent solutions.

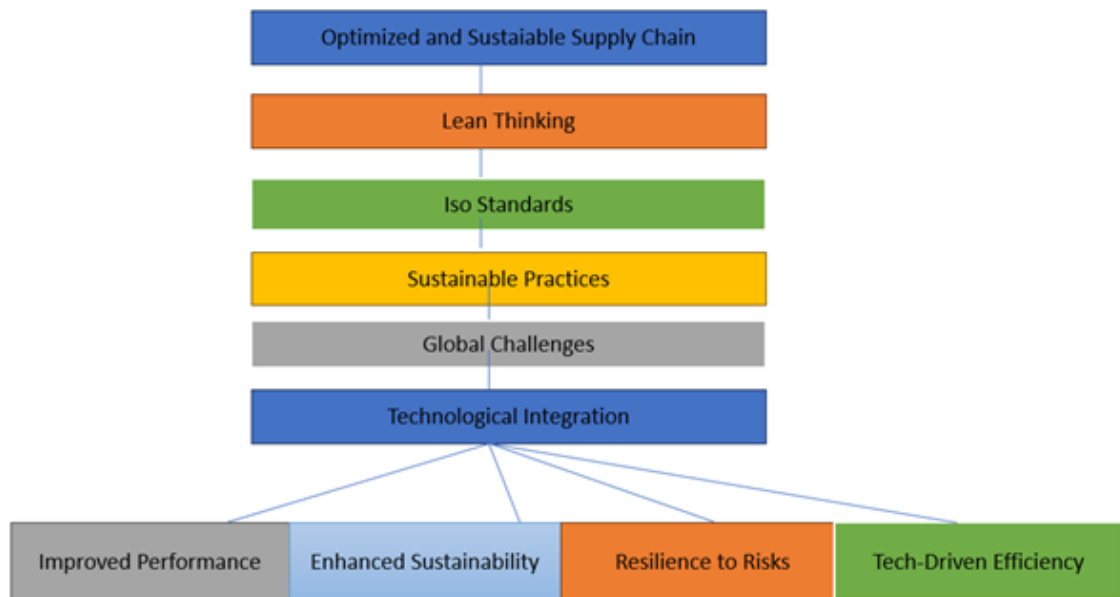


Figure 4. Key Factors Contributing to a Sustainable and Efficient Supply Chain

- Lean Thinking (JIT, Kaizen, TPM) minimizing waste, reducing lead times, and fostering continuous improvement.
- ISO Standards provide a structured and internationally recognized framework for maintaining quality, sustainability, and safety, ensuring compliance.
- Sustainable Practices focus on green procurement, reinforcing the importance of environmentally responsible logistics and energy efficiency.
- Global Challenges identify risks in supply chain disruptions and supplier-related problems, emphasizing the need for robust risk mitigation strategies.
- Technological Integration facilitates immediate data sharing and interoperability, ensuring digital transformation in mitigating inefficiencies.

While each of these components offers distinct benefits, their collective support strengthens the study's ability to resolve supply chain optimization holistically. By synthesizing these concepts, this research presents a comprehensive approach to logistics management, ensuring that best practices in efficiency, compliance, and sustainability are considered.

3 Research Methodology

As indicated in the introduction chapter, this thesis investigates methods for enhancing customer relations, service quality, product quality, and internal logistics within DD Logistics. Examining and enhancing these areas are essential to DD Logistics' continued success, especially given the direct influence of customer satisfaction on the logistics process.

A pilot studies were conducted to refine the methodology, ensuring the reliability of the data collection process. During this phase, advanced tools like sentiment analysis of customer feedback were used. For example, in the context of customer feedback, sentiment analysis was used to determine if reviews about a product or service are positive overall (e.g., *Great delivery service! From customer in the audio interview*) or negative (e.g., *delivery was late, and the customer service was unhelpful in one of the customers' urgent needs*). The tool enhanced the data's depth and provided immediate insight into operational gaps.

Ethical Consideration

Ethical considerations were at the forefront of the study. Informed consent was obtained from all participants, with explicit details provided about study purpose, data usage in the Webropol and audio questions and their right to withdraw at any time. Confidentiality was maintained, with anonymized company's name and removing personal identifier before the analysis. Participation was voluntary, with no pressure or incentives, ensuring unbiased responses. Follow-ups were conducted only to collect the necessary data for analysis. Also, responses stored in secured approach to mitigate risks. Furthermore, diverse sampling methods ensured that the study avoided biases and represented the customer base comprehensive approach. Ethical considerations were prioritized throughout the study.

Moreover, the methodological thoroughness also extended to bias mitigation strategies, such as avoiding over-reliance on subjective customer ratings by combining them with objective performance metrics. This mixed approach exemplifies an independent aimed at achieving a feasible outcome. Data integrity was maintained by presenting findings in a truth approach and ensuring transparency in the research process.

Trustworthiness in Qualitative Research

In qualitative research, trustworthiness was established through credibility, transferability, dependability, and confirmability. Credibility was achieved by validating findings through multiple data sources, including surveys and interviews. Peer debriefing was also used to verify interpretations. While the findings are specific to DD Logistics, the themes identified such as communication gaps and delivery delays are relevant to other logistics companies, increasing their applicability. Dependability was ensured by maintaining thorough documentation of the research process and cross-checking coding for consistency. Confirmability was upheld by basing findings direct from customer's responses and supporting qualitative themes with verbatim quotes using an inductive approach to ensure transparency.

Empirical Context: DD Logistics' Operations and Challenges

DD Logistics company (the commissioner) founded in the early 2000s in Ghana has established itself as a pivotal player in the logistics industry, with a focus on facilitating import and export activities across various sectors. The company provides a range of services, from customs clearance to warehousing, which supports both local businesses and international trade. Over the years, DD Logistics has built a strong reputation for reliability and efficiency, supporting Ghanaian companies as they expand into global markets. By meeting customer needs in a consistent approach and maintaining high standards, the company has established enduring relationships with prominent customers in Ghana's import and export sectors.

DD's Logistics commitment to customer satisfaction and operational excellence has helped it maintain strong relationships with its clients, many of whom are prominent players in Ghana's import and export sectors. Over the years, the company has expanded its service offerings and improved its infrastructure, positioning itself as a trusted partner for businesses looking to explore the challenges of international trade.

Despite facing challenges in recent years, including a slowdown in business due to reduction in customers engagement, DD logistics continues to focus on enhancing its services, products, and logistics process and strengthening its customer relationships to maintain its competitive edge in the industry.

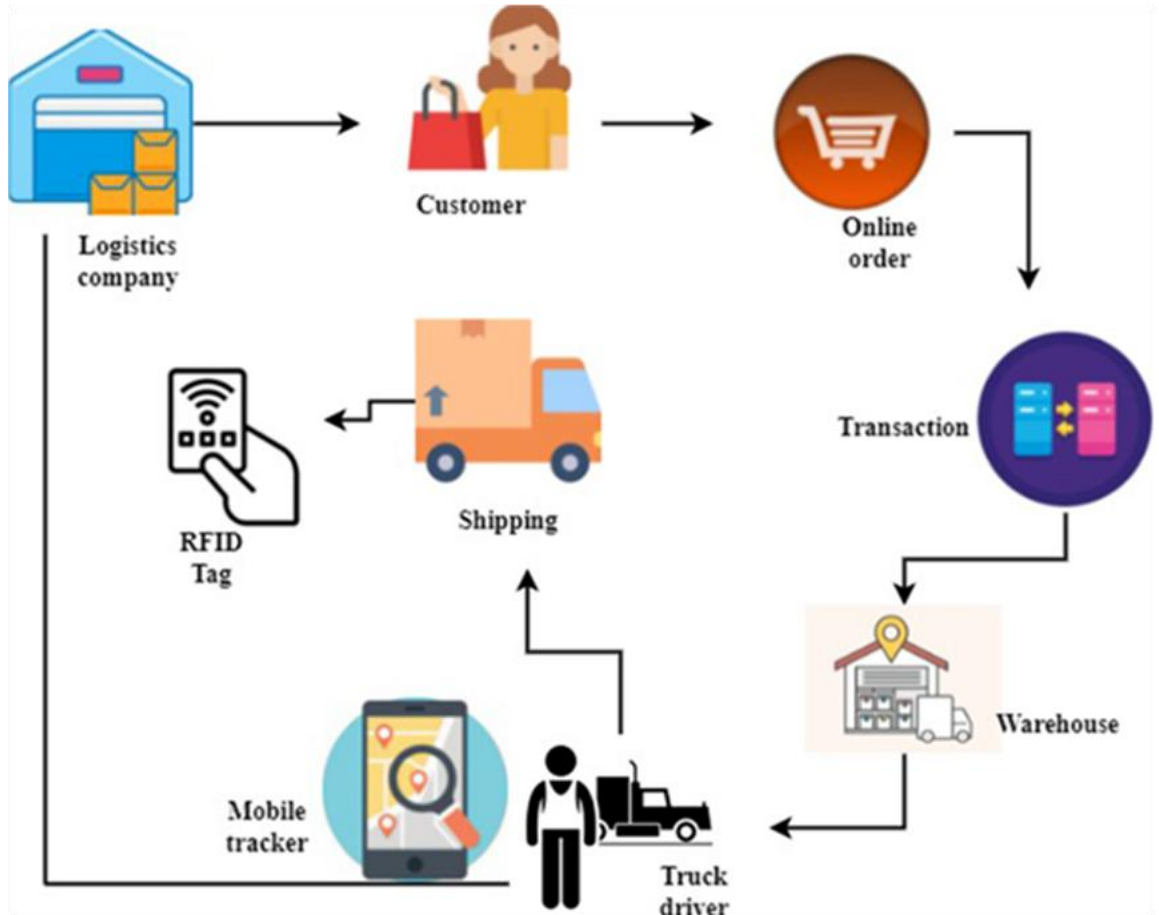


Figure 5: A detailed diagram illustrating the logistics process. Alsudani et.al (2023)

Key Duties and Responsibilities of DD Logistics

The core responsibilities of DD Logistics involve ensuring efficient movement of goods through ports and facilitating compliance with regulatory requirements, thus minimizing delays and additional costs for importers and exporters. Some of the key responsibilities include:

- **Customs Documentation:** Prepare and submit essential documentation for customs clearance and assist customs officers with inspections to verify compliance.
- **Import and Export Procedures:** Manage procedures in line with Ghana's customs regulations as well as ensure adherence to Ghana Standards Authority (GSA) and port regulations.
- **Payment of Duties and Taxes:** Calculate and remit necessary duties and taxes on behalf of clients.

- **Obtaining Permits:** Secure necessary permits for certain goods, such as health or environmental permits.
- **Port Handling and Logistics:** Coordinate transportation logistics to customer destinations.
- **Freight Forwarding:** Oversee transport arrangements for goods, whether by air, sea, or road.

In addition to meeting these responsibilities, DD Logistics prioritizes sustainability in its logistics practices, complying with national and international standards to support sustainable trade. In addition to meeting these responsibilities, DD Logistics prioritizes sustainability in its logistics practices, complying with national and international standards to support sustainable trade. According to Alarcón et al. (2021, p. 7), responsible logistics practices can be organized into distinct categories that help companies achieve compliance while promoting environmental stewardship as illustrated in figure 6. This framework consists of multiple rows, each representing a different study, and includes six columns. The first column serves as a reference for each study, while the remaining five columns correspond to key activities related to responsible logistics practices (RLP). This organization allows for easy allocation of the activities suggested in each study to the appropriate columns based on their relevance to RLP activities.

Author(s)	PLANNING	EXECUTION	CONTROL
Fleischmann et al. (2000)	–	1. Collection 2. Selection 3a. Re-processing 3b. Re-distribution 5. Disposal	–
De Brito & Dekker (2004)	–	1. Collection 2. Inspection/Selection/Sorting 3. Disposition	–
Presley et al. (2007)	–	1. Collection 2. Separation 4. Disassembly, Shredding & Grinding 5. Distribution	–

Author(s)	PLANNING	EXECUTION	CONTROL
Genchev (2011)	1. Initiate Returns 2. Determine Routing	3. Receive Returns 4. Inspection/Sorting 5. Credit Customer/Supplier	6. Analyze Return Metrics & Performance
Agrawal et al. (2015)	1. Product Acquisition	2. Collection 3. Inspection/Sorting 4. Disposition	—
Han & Ponte-Cueto (2016)	1. Initiate Returns	2. Transportation 3. Inspection/Sorting 4. Triage 5. Feeding Back	—
Sangwan (2017)	—	1. Collection 2. Inspection/Sorting 3. Product Recovery 4. Disposition	—
Rad & Guitouni (2017)	1. Planning Reverse Flow	2. Collection 4. Receiving/Storage 5. Sorting 6-12. Processing, Recycling, Re-manufacturing, etc.	13. Controlling
Sellitto (2018)	1. Waste Identification	2. Collection 3. Inspection 4. Sorting 5. Disposition	—
Banhaishem et al. (2019)	1. Product Acquisition	2. Collection 3. Inspection & Sorting 4. Disposition	—

Figure 6. Framework for the comparative analysis of the consulted works (ordered by year). Alarcón et al. (2021, p.7)

3.1 Research Design and Strategy

The research adopts a case study strategy using mixed method approach to analyze customer satisfaction at DD Logistics. Case studies are effective for in-depth examination of specific organizational contexts and challenges (Yin, 2017, p. 45). The case study approach is well-suited for examining DD Logistics because it allows an in-depth, context-rich analysis of *complex* factors like customer relations, service quality, product quality, and supply chain management. Yin (2018, p. 50) states that case studies are best for examining current events in business situations, when the distinction between the context and the phenomenon is unclear. In this study, the case study method provides a comprehensive way to explore how these interconnected factors influence customer satisfaction within DD Logistics' operational setting.

To further enhance the accuracy, reliability, and credibility of the case study (Eriksson & Kovalainen, 2015, p. 20; Robson & McCartan, 2016, p. 16; Saunders et al., 2009, p. 146), a combination of surveys and interviews was used, employing triangulation as a data collection method. In case study research, combining both quantitative and qualitative data helps present a more comprehensive understanding of the topic. While quantitative data is objective and measurable, qualitative data requires interpretation (Eriksson & Kovalainen, 2015, Chapters 7 and 11). For this thesis, a qualitative research approach was further chosen as it aims to explore "how people interpret their experiences, how they construct their words, and what meaning they attribute to their experiences" (Merriam & Tisdell, 2015, Chapter 2). This approach allows for a deeper exploration of the context and underlying meaning behind respondents or participant's responses.

The method is also valuable for identifying the specific causes of disengagement, which are central to this research's goals. Stake (1995, p. 11) suggests that case studies are effective for exploring unique cases within a specific organization. Here, accessing customer satisfaction in DD Logistics allows the researcher to point out the key drivers and challenges to this logistical environment, and provides ideas into why certain factors impact satisfaction. In addition to receiving insight, case studies support the collaboration of diverse data collection methods, enhancing the strengthening of findings. As Creswell (2013, p. 97) explains, case studies often combine qualitative and quantitative data for a comprehensive view. For DD Logistics, structured survey data on satisfaction levels can be supplemented with qualitative insights, such as customer feedback,

allowing for triangulation that strengthens the study's validity and provides a clearer picture of customer satisfaction.

4 Research and Analysis Methods

To gather reliable outcomes, quantitative data, a structured questionnaire is employed, distributed to 300 DD Logistics customers. This systematic order collects customer opinions, preferences, and behaviors, in a specific way of measuring satisfaction across dimensions such as customer relations, product, service quality, delivery responsiveness, and reliability, which allows for identifying key factors driving customer satisfaction or dissatisfaction (Creswell, 2014, p. 155). Bryman (2016, p. 37) stated that this quantitative approach was ideal for detecting patterns and correlations in customer satisfaction data, enabling broader generalization of findings through analysis of structured survey responses. The research aims to analyze a practical, significant challenge by evaluating and examining customer satisfaction across the identified core factors within the conceptual framework. Data collection facilitated by a Webropol survey link, shared with DD Logistics customers via email and WhatsApp. The survey was shared with customers between 8.08- 30.11.2024. A total of 104 respondents responded to the survey via the public weblink. Data analysis was conducted using PSPP. While the software provided decimal values, results have been rounded to whole numbers for ease of interpretation. In addition to the quantitative survey, an additional qualitative interview was conducted to complement the less data collected as well as the insignificant statistical results. The qualitative interviews were not intended to replace the quantitative findings but rather to complement them, acquiring a detailed understanding of customer satisfaction and service experiences that may not have been reflected in the quantitative data. This extension allowed for a deeper understanding and provided in-depth context that the quantitative alone could not consider.

4.1 Data Collection

Data was collected through a self-administered questionnaire distributed to DD Logistics' customers across various service categories. Questions in the survey were structured to yield quantifiable results, focusing on customer perspectives on both service and products quality, responsiveness, logistics efficiency, and overall satisfaction. The selection of customers included a mix of DD Logistics' long-term and recent clients, ensuring a comprehensive view of satisfaction levels across different customer segments.

To gain understanding from DD customers, additional qualitative data was collected through interviews. Eriksson and Kovalainen (2015, Chapter 7) and Merriam and Tisdell (2015, Chapter 2) emphasize that qualitative research focuses on descriptions, interpretations, and the meanings people attach to their experiences. This approach aligns well with the objectives of this thesis, which seeks to explore the deeper context and understanding behind respondent's responses.

Survey

Data was collected through surveys, which are designed to gather opinions, behaviors, and preferences from DD logistics customers regarding their experiences with the company's services, product delivery, logistics process and overall satisfaction. The customers were given closed-end questionnaires (Likert questions) to choose from for a statistical analysis. The closed-ended questions focus on rating customer satisfaction in terms of service quality, customer relations, product quality, and supply chain efficiency (Appendix 1).

Surveys as a Tool

Surveys are an effective tool for gathering large volumes of data from a diverse customer base, making them suitable for this research (Fowler, 2013, p. 54). A structured questionnaire was developed and distributed to customers who engage with DD's logistics services.

According to Saunders et al. (2009, p. 363), selecting an appropriate type of questionnaire necessitates consideration of several key factors, including respondent characteristics, effective methods for reaching respondents, and strategies to minimize response bias or answer distortion. It estimated the expected and desired response rates and evaluated the types and number of questions needed to collect the required data.

Interview

Interviews are a crucial method of data collection in qualitative research, as they provide comprehensive, detailed insights into participants' experiences, perceptions, and attitudes. According to Eriksson and Kovalainen (2015, p. 92), interviews can be grouped into three distinct categories: Highly Structured/Standardized, Semi-Structured, and Unstructured/Informal. These categories are based on the level of flexibility in the questioning process, with each serving different research objectives.

Highly Structured/Standardized	Semi-Structured	Unstructured/Informal
Have we met your expectations in terms of service? If not, what could we do better?	How has your experience been with our team? Have we been easy to work with?	If you could change one thing about your experience with us, what would it be?
Would you recommend us to a company, friend or colleague? Why or why not?	Is there anything we could do to improve how we communicate with you?	
	How do you feel about the quality of the product? Is it living up to what you expected?	
	How has the delivery process been for you? Was it smooth, or have there been challenges?	

Table 1. Interview structure continuum. Eriksson and Kovalainen (2015, p. 92).

The choice of interview format depends on the goals of the research and the depth of information required. Highly structured interviews typically follow a fixed set of questions with predetermined wording and order, which helps ensure consistency across interviews (Robson & McCartan, 2016, p. 118). This method helped when gathering specific data from all respondents in a standardized manner. For instance, demographic data, such as age or gender, is often collected using highly structured questions.

In contrast, semi-structured interviews make a balance between structure and flexibility. As Saunders et al. (2009, p. 157) explain, this type of interview includes a predefined set of questions but allows the interviewer the flexibility to adapt the wording and order based on the conversation's flow. This approach was suitable when the researcher seeks to gather specific data while also allowing for the exploration of unexpected insights. For example, in this study, questions about customer satisfaction, service reliability, and product quality were designed in a semi-structured format, providing both consistency and area for follow-up questions based on respondents' answers. This approach helped maintain focus while engaging a range of customer perspectives on key aspects of the service experience.

On the other hand, unstructured or informal interviews offer the greatest flexibility and are typically used for exploratory research, where the researcher is seeking to understand the broader context and uncover understanding that might not have been anticipated (Merriam & Tisdell, 2015, p. 35). These interviews tend to be more conversational and open-ended, allowing respondents to express their free thoughts and lead the discussion in areas they find most relevant. While this type of interview was not the primary method used in this study, its approach was still useful

for future research to explore unanticipated themes and delve deeper into complex customer experiences.

For this thesis, both quantitative and qualitative research methods were employed. The primary data collection method was a quantitative survey, which gathered responses from 104 customers out of a targeted sample of 300, providing statistical insights into customer demographics and satisfaction levels. However, the survey data alone did not fully capture the depth of customer experiences. To supplement these findings, 12 additional semi-structured interviews were conducted with 7 B2B and 5 B2C customers. These interviews allowed for a deeper understanding of customer perceptions, exploring key themes such as service quality, customer relations, and delivery reliability. The interviews were conducted after the survey to clarify and expand on key findings, ensuring a more comprehensive analysis of customer satisfaction

The combination of these methods—first, conducting a survey, followed by interviews—ensures a more comprehensive understanding of the research topic. The survey provided broad, quantitative insights, while the interviews added diverse, qualitative context to these findings. In this approach, the survey served as the primary method, and the interviews acted as supporting tools to validate and supplement the survey results, enhancing the validity and diversity of the findings.

Sampling Techniques

Using random sampling, the study reduces bias and improves the applicability of the results to DD Logistics' diverse customer base, which consists of both individual clients and large companies. In practice, random sampling was conducted by distributing a Webropol survey link to a broad selection of customers without pre-selection criteria, aside from being an active customer. This ensured that every participant had an equal chance of being selected, maintaining the randomness of the sample. Data was collected online through a Webropol survey, which was shared via email and WhatsApp to allow customers to complete it at their convenience. This method increased accessibility and participation rates. The data collection period spanned from August 8 to November 30, 2024, providing a sufficient timeframe for responses and ensuring comprehensive customer engagement. This approach aligns with best research practices for achieving reliable and unbiased results, as indicated by Taherdoost (2016, p. 21).

To explore the research question, a survey-based approach was implemented to collect direct feedback from customers, providing valuable insights into their perceptions and experiences. The

methodology involved designing a detailed questionnaire with twenty-four-scale questions focused on customer satisfaction, service quality, product quality, and logistics processes. These questions utilized five-point Likert scales to generate customer feedback (Cadotte et al., 1987; Churchill & Surprenant, 1982).

In a Likert scale format, respondents select a position on a continuum from one extreme to another, such as from "very satisfied" to "very dissatisfied." which was developed by psychologist Rensis Likert in 1932 to measure attitudes beyond simple Yes or No responses, this approach allows for a more complex understanding of opinions. Most questions in the survey were constructed as ordinal variables measured on a five-point scale, where a response of 1 indicated a low rating, such as "very dissatisfied," and a response of 5 a high rating, such as "very satisfied." The increasing values from 1 to 5 reflect a progressive increase in satisfaction, making it easy to interpret results, as higher values indicate better assessments of the company. Keeping the questions consistent makes analyzing responses easier and ensures that higher scores always show positive customer feedback.

The sample size was determined based on the total number of customers who have used DD Logistics' services in previous years, which range between 500 and 1,000 customers annually (DD-Logistics, 2018). From this population, a target sample of 300 customers was selected using a random sampling approach. The selection was made by DD Logistics' customer records, which included contact information from past service users. These 300 customers were invited to participate in the survey via email and WhatsApp using a Webropol survey link. Out of the 300 targeted respondents, 104 completed the survey, resulting in a response rate of 34.7%. This response rate, while lower than expected, still provides valuable insights into customer satisfaction and aligns with similar survey-based studies in logistics research. The use of random sampling ensured that both individual clients and corporate customers were represented, making the findings more applicable to DD Logistics' diverse customer base.

4.2 Quantitative Data Analysis

This research employs PSPP, a statistical software suitable for managing and analyzing survey data. The analysis consists of both descriptive and inferential, each serving a purpose together

they provide a comprehensive understanding of the dataset, allowing both to describe and interpret the findings in an effective way. Descriptive statistics summarize and describe the main features of the data, while inferential statistics assist in identifying relationships and testing hypotheses. It is important to note that while PSPP assigns numerical values to variables for coding purposes, this does not automatically make all variables numerical (Pallant, 2020).

The analysis starts with descriptive statistics, which summarize customer satisfaction trends using measures such as mean, median, and mode. These statistics provide an overview of satisfaction levels across different variables of the four key factors of the research. Frequency distributions help determine the percentage of customers who select specific satisfaction ratings. These initial analyses offer a clear picture of customer satisfaction levels before conducting further statistical testing (Field, 2018).

Given the nature of the data, basis inferential statistical tests were also conducted to explore relationships and differences among variables. A Chi-Square Test was initially performed to examine associations between categorical variables, such as customer satisfaction and demographic factors (e.g., age groups). However, this test's preconditions were not met, as more than 20% of the expected cell counts were below 5, with some even falling below 1. To resolve this, several alternative methods were explored, including merging satisfaction categories (e.g., combining "very unsatisfied" and "unsatisfied" into three levels: (Unsatisfied, Neutral, and Satisfied), using non-parametric tests (such as the Kruskal-Wallis test), and considering binary logistic regression. Unfortunately, none of these methods produced valid results due to the small sample size and problematic data distribution. In a consequent manner, a descriptive analysis was employed, summarizing satisfaction frequencies and visualizing trends through bar charts and tables, providing an overview of the data without drawing inferential conclusions.

In addition, ANOVA was used for comparisons between multiple groups (such as age groups or delivery times), but with careful consideration of the ordinal nature of the Likert scale data. Although ANOVA is typically used for continuous data, its application here was intended to assess whether observed patterns in the sample could be generalized to the broader population (Creswell & Creswell, 2018). However, using ANOVA with ordinal data presented challenges, as Likert scale data does not meet the assumptions of equal intervals between categories.

Despite plans to include methods such as regression analysis and confidence intervals, these techniques could not be executed due to the ordinal nature of the data, small sample size, and problems with the data distribution (for example, insignificant p-values, $p > 0.05$). Preconditions for multivariate linear regression (e.g., linearity, multicollinearity, and interval data) were checked, but violations of several assumptions prevented the regression analysis from being performed. As a result, the analysis was constrained by the limitations of the data and the statistical software available.

Limitations in statistical Analysis

One of the major limitations in this study was the use of Likert scale questions, which generate ordinal data rather than continuous numerical data (Sullivan & Artino, 2013). Certain statistical tests, such as t-tests, ANOVA, and Pearson's correlation, may not be appropriate due to the inherent nature of ordinal data, which lacks equal intervals between response options. These tests assume interval or ratio-level measurement, which may lead to inaccurate interpretations. For example, the difference between "neutral" and "agree/satisfied" are not the same as the difference between "agree/satisfied" and "strongly agree/very satisfied," making mean-based statistical comparisons unclear.

In addition, PSPP lacks support for essential nonparametric tests, particularly Spearman's Rank Correlation and the Mann-Whitney U Test, which are generally more appropriate for ordinal data. Due to this software-related constraint, adjustments were made to the analysis:

Descriptive statistics were used for comparison instead of the Mann-Whitney U Test when comparing two independent groups based on the key factors of the research.

ANOVA was used in place of the Kruskal-Wallis Test, though the results were insignificant, which reflects the limitations of using an inferential test on ordinal data with a small sample size.

Methods for example, confidence intervals and t-tests were in the initial plan, could not be conducted due to the ordinal nature of the data. Although Fisher's Exact Test would have been an ideal alternative for categorical data with small sample sizes, PSPP does not support this test. Future research would benefit from larger sample sizes and statistical software capable of performing Fisher's Exact Test or other appropriate nonparametric tests, enabling more accurate analysis of categorical relationships.

4.2.1 Measurement and Operationalization of Customer Satisfaction

This study employs a quantitative research approach to measure customer satisfaction across four key dimensions: customer relations, service quality, product quality, and logistics management. Data was collected using a structured survey based on a five-point Likert scale (Very Unsatisfied, Unsatisfied, Neutral, Satisfied, Very Satisfied). To derive overall satisfaction scores, responses were aggregated by summing the percentages of respondents who selected “Satisfied” and “Very Satisfied” for each variable within these four dimensions.

Operationalization of Customer Satisfaction Dimensions

The study operationalizes customer satisfaction using multiple variables within each key dimension, following established models such as the SERVQUAL framework (Parasuraman, Zeithaml, & Berry, 1985) and the Customer Satisfaction Index (CSI) (Fornell, 1992). These models emphasize multi-dimensional analysis, where satisfaction is assessed across multiple contacts. The selected dimensions and their respective variables are as follows:

Customer Relations (6 Variables): Customer relations were assessed using six key factors that influence satisfaction with company interactions. The percentage of positive feedback for example, “Satisfied” and “Very Satisfied” or “Regularly” and “Very Regularly” responses was aggregated for each:

1. Frequency of communication with company representatives
2. Responsiveness to inquiries and concerns
3. Professionalism of company representatives
4. Efficiency in problem resolution
5. Friendliness and approachability of staff
6. Clarity and transparency of information provided

For each of these variables, individual satisfaction scores were computed by summing the proportion of respondents who selected “Satisfied” and “Very Satisfied” and other positive response.

The final customer relations score was determined by averaging these six aggregated satisfaction scores.

Service Quality (4 Variables): Service quality was measured using four key indicators based on the SERVQUAL model:

1. Reliability – Consistency and dependability of service delivery
2. Responsiveness – Speed of addressing customer requests
3. Assurance – Competence and trustworthiness of employees
4. Empathy – Paying attention and understanding of customer needs

Each variable's satisfaction score was computed by aggregating the percentages of "Satisfied" and "Very Satisfied" responses. The overall service quality score was derived from the average of these four variables.

Product Quality (4 Variables): Product quality was measured based on four critical attributes that affect customer perception and satisfaction:

1. Durability – Longevity and robustness of the product
2. Performance – Whether the product meets expectations
3. Design – Aesthetic appeal and usability
4. Quality – Effectiveness of the product

As with the previous categories, the satisfaction percentage was calculated for each variable, and the overall product quality score was derived by averaging these four scores.

Logistics Management (5 Variables): Logistics management plays a crucial role in overall satisfaction, especially in industries where timely delivery is essential. This study assessed logistics performance using five variables

1. Delivery timeliness – Speed and punctuality of deliveries
2. Order accuracy – Correctness of items received

3. Condition of the products – Condition of product upon arrival
4. Safety – Delivery Handling
5. Delivery Reliability Process – exchange process

The satisfaction score for each logistics variable was computed, and the overall logistics management score was obtained by averaging these five variables.

Calculation of Overall Satisfaction Score

To derive a single Overall Customer Satisfaction Score, the mean values from each category (customer relations, service quality, product quality, and logistics management) were averaged. This method follows similar aggregation techniques used in the Customer Satisfaction Index (CSI), where multiple dimensions are consolidated into a single measure of overall satisfaction (Fornell, 1992).

The formula used to compute the overall satisfaction score is:

$$\text{Overall Satisfaction} = \frac{\text{Customer Relations Score} + \text{Service Quality Score} + \text{Product Quality Score} + \text{Logistics Score}}{4}$$

By employing this method, the study ensures comparability with existing research, internal validity, and a structured interpretation of customer feedback. See Appendix 3 for table details.

4.3 Qualitative Analysis

Content analysis was used for qualitative analysis in this study. This method is known for its flexibility in examining text data (Cavanagh, 1997). It includes a range of approaches, from more intuitive and interpretive techniques to highly systematic and structured analyses of textual content (Rosengren, 1981). Lappalainen (2023) further explain that this versatility makes it suitable for uncovering patterns, themes, and insights from qualitative data, ensuring a thorough understanding of the text under investigation.

Qualitative data for this study was collected between 27.11-15.12.2024, through semi-structured interviews conducted via phone and the WhatsApp platform. The use of the platform enabled respondents to respond at their convenience, which may have encouraged more thoughtful and detailed answers. Although the number of responses was limited, this method ensured that qualitative data was gathered from a diverse range of respondents, contributing to a comprehensive understanding of customer experiences. Questions can be found in appendix 2. This approach allowed for flexibility in how questions were posed, enabling deeper exploration of respondents' perceptions and experiences. The semi-structured format facilitated guided conversations while providing room for respondents to express their views in their own words, allowing the researcher to investigate for more detailed insights where necessary.

4.4 Co-Developmental of the Study

This study adopted a co-development approach, emphasizing collaboration with the commissioner to refine the research methodology and ensure alignment with the study's objectives. Key stakeholders, including the manager and service team members of DD Logistics, were actively engaged in shaping the study design and provided the necessary company document for the analysis. Their input was valuable in modifying the survey questionnaire to reflect DD Logistics' unique challenges, ensuring that the data collected was both relevant and comprehensive. This collaborative effort strengthened the study's reliability by ensuring that the survey questions directly addressed DD logistics concerns.

By involving the commissioner in the study design, this research ensured that its findings were practical, actionable, and aligned with the company's operational realities. This structured co-development approach contributed to the study's overall precision and validity, ensuring that the research findings were grounded in both company perspectives and customer realities.

Customer-Centric Collaboration

To improve the findings, customers were engaged in a direct way through additional interviews to better understand their expectations and experiences with DD Logistics. These interviews provided valuable insights into customer needs and preferences, ensuring the study gathered a more

accurate picture of their satisfaction levels. By involving customers in this way, the research became more aligned with their perspectives, leading to findings that are both relevant and reliable.

Engagement in Problem-Solving

The manager and other stakeholders were engaged at each step of the process, contributing their expertise to refine the study's approach. Their input helped shape the survey and interview questions to analyze the company's unique operational challenges and goals. This collaboration ensured that the methods used were practical and conformed to DD Logistics' specific context, enhancing the relevance of the results.

5 Results

This chapter presents the findings from the study, integrating both quantitative and qualitative data in a comprehensive approach to address the research questions. The idea of quantitative and qualitative methods provides a holistic perspective, enabling the study to provide numerical trends alongside in-depth, contextual insights. The analysis is structured using descriptive statistics to provide a clear and logical presentation of the results. Based on the survey feedback from 104 respondents, the key findings are summarized as follows:

5.1 Descriptive Analysis

Demographic Profile

The survey collected responses from 104 customers of DD Logistics. The age distribution, as shown in Table 2, indicates that 60% of respondents are in the 30–40 age range, making this the primary customer segment. In addition, 22% fall within the 20–30 age range, while 19% are spread across other age groups (8% below 20, 10% between 40–50, and 1% above 50). These findings suggest that DD Logistics serves younger to middle-aged customers (Appendix 3).

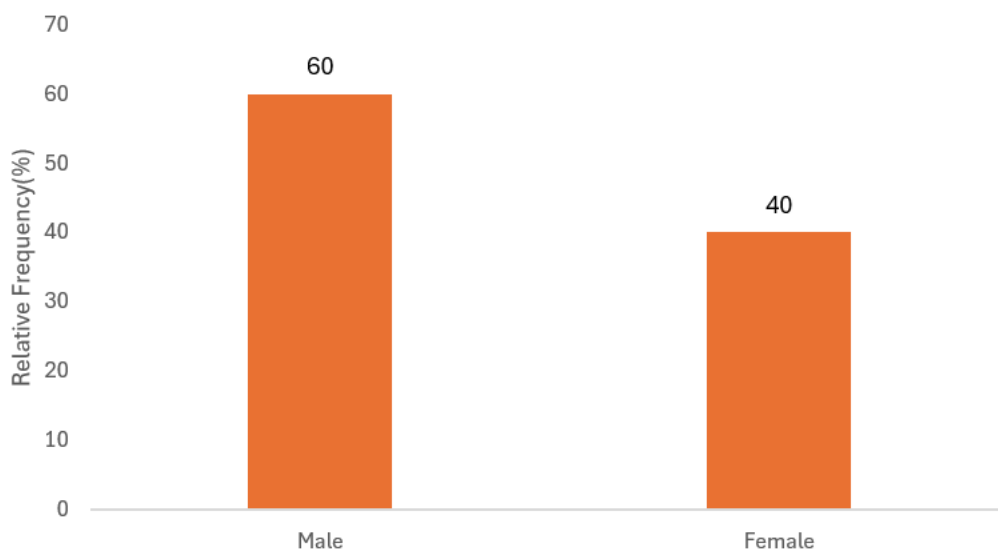


Figure 7. Gender Distribution of Survey Respondents (n=104).

The gender distribution in figure 7 indicates a male dominance (62%), with 42% female customers (Appendix 3). While males form the majority, the company has an opportunity to engage more female customers.

Regarding customer tenure in Table 3, 80% of respondents have been customers for less than five years, with 42% being customers for under a year (Appendix 3). This suggests effective marketing and customer acquisition but provided the need for retention strategies.

Customer Communication and Engagement

As shown in Table 4, the preferred communication channels include phone calls (45%), emails (30%), chat-based communication (15%), and text messaging (10%). While direct communication was preferred, engagement through digital platforms can be further optimized (Appendix 3).

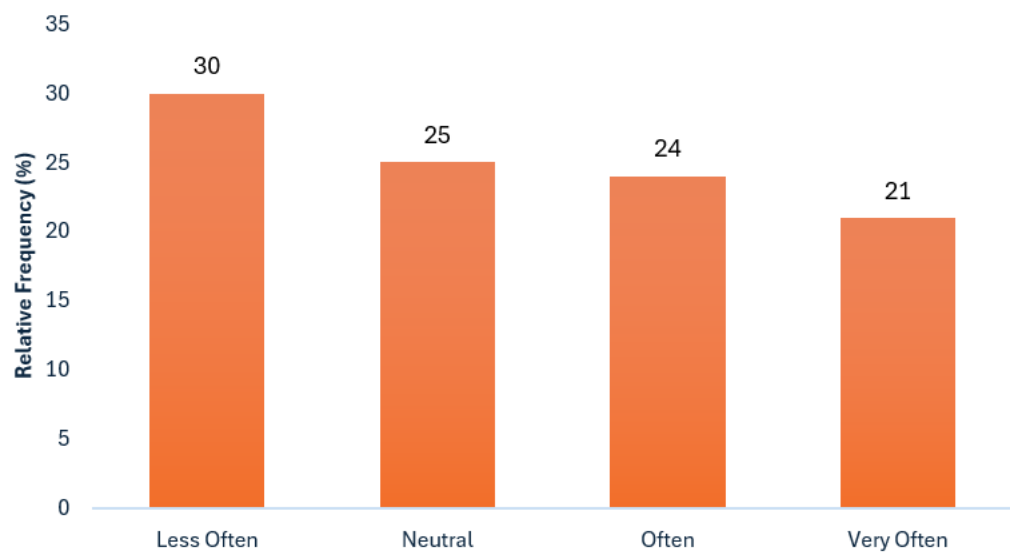


Figure 8. Survey Respondent on how often DD communicates with the Customers (n=104)

In terms of communication frequency in figure 8, a significant portion (30%) of customers report less frequent engagement, which raises concerns about customer relationship management. In addition, the 25% neutral group suggests that there is a lack of clarity or consistency in how often customers expect to hear from the company, possibly due to an unclear communication strategy. While 45% communicate regularly, the company may need to strengthen its outreach to less engaged customers (See table in Appendix 3).

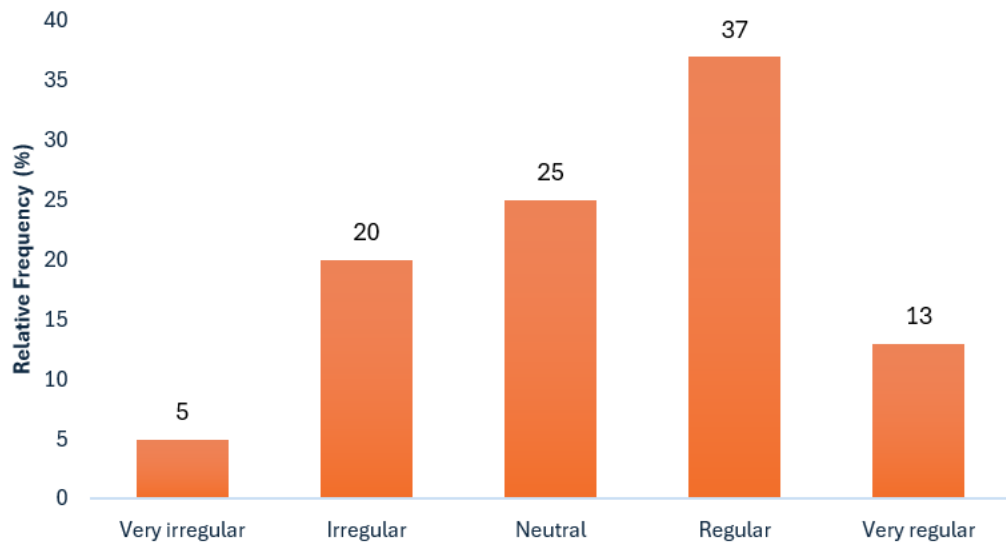


Figure 9. Survey responses on how often DD follows up with customers (n=104).

The results indicated in Figure 9 shows that a significant portion of respondents (37%) experience regular follow-ups from the team, while 25% reported a neutral frequency of visits. In addition, 20% stated that the visits were irregular, and 13% reported very regular follow-ups. Only a small percentage (5%) of respondents experienced very irregular visits. The cumulative data shows that 50% of respondents receive follow-ups at a neutral or more frequent level, while 25% experience irregular or very irregular visits. This suggests that while most respondents receive consistent follow-ups, others experience some irregularity in visit frequency (see Appendix 3).

Website Accessibility and Service Responsiveness

Regarding website accessibility, 61% of respondents find it easy or very easy to access information, while 35% (neutral or uneasy responses) suggest areas for improvement in website usability, as shown in Table 5. Service responsiveness shows mixed perceptions in Table 6 as 48% found representatives helpful or very helpful, while 50% remained neutral, indicating inconsistent service experiences (Appendix 3). Complaint resolution in table 7 follows a similar pattern, with 68% expressing satisfaction, while 24% remaining neutral and 8% expressed dissatisfied reveal areas where the resolution process might be falling short, could be due to delays, unclear communication, or incomplete resolutions, suggesting potential issues in resolution clarity or timeliness (Appendix 3).

Service Quality and Timeliness

As shown in table 8, service quality was rated positive, with 80% expressing satisfaction, while 28% remaining neutral or dissatisfied, indicating occasional service inconsistencies. Delivery timeliness was rated positive by 78%, while 14 rated neutral though 8% found it very untimely, suggesting the need for process improvements in table 9. Additional qualitative feedback from respondents further presented a concern related to specific delays in qualitative interpretation, see Appendix 5 for details.

Product Quality and Condition Upon Arrival

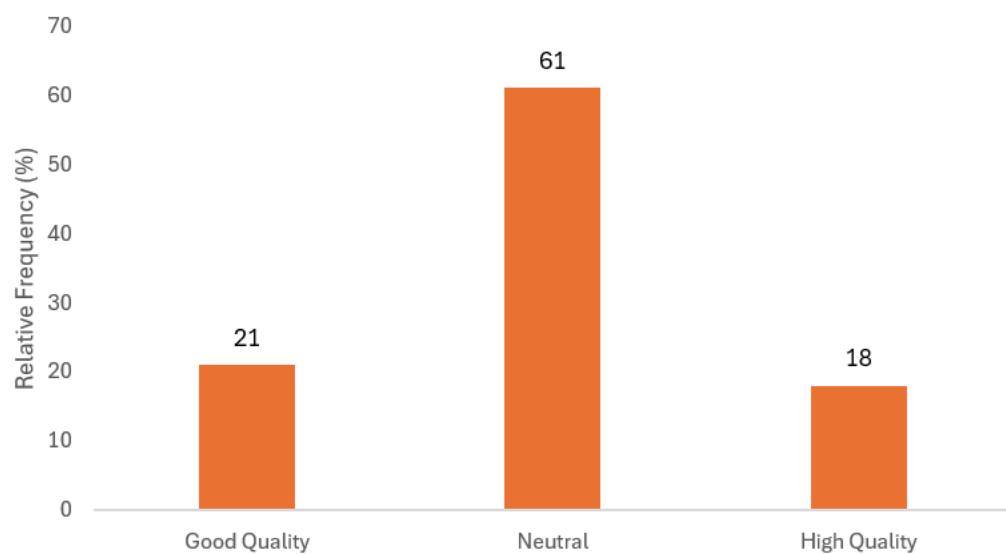


Figure 10. Survey Response on Products Quality (n=104).

As shown in Figure 10, the respondents' ratings for product quality indicate that 39% provided positive responses, which include the 'Good' and 'High Quality' ratings, while 61% remained neutral. This suggests that while there are no major complaints, customers may not be highly satisfied or engaged with the product quality. The high neutral rating could indicate a lack of strong differentiation or an opportunity for the company to improve its offerings to enhance customer perception. Considering quality enhancements, clearer value communication, or customer education may help shift more neutral respondents toward positive ratings.

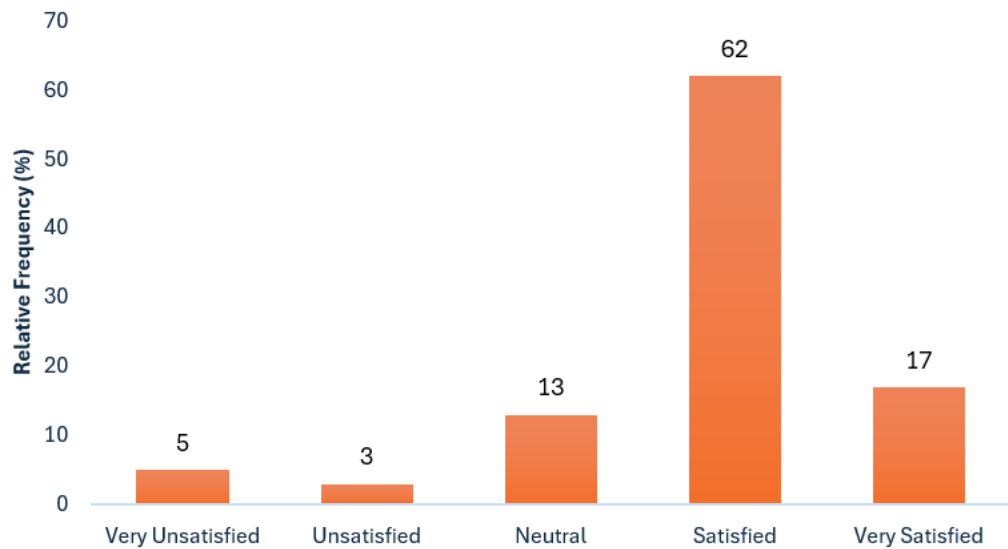


Figure 11. Survey Response on Condition and the safety of the Product (n=104).

Regarding product condition and safety in Figure 11, 84% of respondents are satisfied with the condition and safety of delivered products. However, 16% remain neutral or dissatisfied, suggesting occasional lapses in packaging or handling. Addressing these issues could further enhance customer trust and satisfaction.



Figure 12. Assessment of Customer Satisfaction Across Key Service Areas (n=104)

Before presenting the detailed breakdown, Figure 12 illustrates the statistical distribution of customer satisfaction across various service aspects at DD Logistics. The overall satisfaction score of

75% was derived by averaging the scores from four key categories, customer relations, service quality, product quality, and logistics management, using a method similar to the Customer Satisfaction Index (CSI) (see Chapter 4, pp. 49-51 and Appendix 3). This figure reveals that product quality received the highest satisfaction rating (81%), followed by logistics (79%) and service quality (76%). In contrast, customer relations scored the lowest at 64%, indicating a clear need for improved engagement strategies. Although most customers are satisfied overall, these findings suggest that targeted improvements in customer relations, service quality, and logistics could further enhance their experience.

Summary of Key Findings

The findings suggest that DD Logistics is the main provider for a younger demographic, with many customers aged 30–40 years and a higher proportion of male respondents. While the company has acquired new customers, retention strategies may need strengthening, as most respondents have been customers for less than five years. Communication preferences show a strong inclination toward direct channels such as phone calls and emails, but a significant percentage of customers report infrequent engagement, which highlights the importance of improving communication consistency. In addition, effective follow-ups play a vital role in enhancing customer satisfaction and overall company operations. Regular follow-ups help build trust, improve customer engagement, and increase loyalty, leading to repeat business and positive brand perception. In contrast, irregular follow-ups can result in dissatisfaction, missed work opportunities, and potential customer loss. By maintaining consistent communication, DD can address customers' concern, gather valuable feedback, and enhance service delivery.

Moreover, website accessibility and service responsiveness were rated positive in general, yet a substantial number of neutral responses indicate that there is room for improvement, in particular customer service interactions and complaint resolution. Service quality and delivery timeliness receive higher ratings, though some inconsistencies in responsiveness and delays in product deliveries require further attention. While product condition upon arrival rated satisfactory, product quality perceptions are more neutral, indicating that the company may need to enhance the quality of goods being delivered or improve customer expectations through better communication.

These insights suggest that while operational aspects such as service timeliness and product quality are important, customer engagement and communication may have a stronger influence on

overall satisfaction. To enhance customer experience, DD Logistics should focus on improving service consistency, resolving communication gaps, and ensuring clear expectations regarding delivery processes. To uncover potential factors influencing delivery reliability and other factors such as customer relations, product quality and service quality, qualitative methods such as customer interviews were conducted.

These approaches aim to identify detailed options on issues, such as communication effectiveness, timeliness, or perceived fairness, that might have not been collected through quantitative methods alone. Future investigations into additional factors affecting satisfaction, such as pricing, customer support efficiency, and logistics transparency, may provide deeper insights into enhancing customer retention and loyalty.

Qualitative

Following the initial quantitative analysis, seven semi-structured interviews with Appendix 2 were conducted with customers to explore key themes emerging from the survey data. The interview questions focused on understanding customer satisfaction, service reliability, and product quality in greater depth. Thematic analysis was employed to identify patterns in the responses.

Interview Method	Number of Customers
Phone Call	4
Audio	3
Written Message	5
Total	12

Table 10. Summary of the methods used to conduct interviews.

Table 10. above summarizes the methods used to conduct interviews during the qualitative data collection phase. A total of 12 customers participated in the study, with the majority (5 respondents) providing their feedback through written message, 3 audio messages on the WhatsApp platform, while 4 respondents were interviewed via a phone call. This mixed-method approach

facilitated flexibility for respondents, allowing them to provide input in a manner that was most convenient for them.

Customer	Interview Method	Channel	Language	Duration
1	Phone Call	WhatsApp	English	5 minutes
2	Audio	WhatsApp	English	2 minutes
3	Audio	WhatsApp	English	3 minutes
4	Audio	WhatsApp	English	5 minutes
5	Written	WhatsApp	English	
6	Written	WhatsApp	English	
7	Phone Call	WhatsApp	English	7 minutes
8	Written	WhatsApp	English	
9	Written	WhatsApp	English	
10	Written	WhatsApp	English	
11	Phone Call	WhatsApp	English	4 minutes
12	Phone Call	WhatsApp	English	9 minutes

Figure 13. Summary of the interview

The data presented provides an overview of customer interviews conducted using diverse methods, channels, and durations to gather feedback in an efficient approach. The methods employed included phone calls, audio recordings, and written responses, all conducted in English. WhatsApp emerged as the main channel, facilitating all interviews. Among the interviews, three (3) responses were recorded as audio, four (4) were conducted via phone calls, and five (5) were received in written form. The duration of phone calls averaged approximately 25 minutes while audio recordings ranged between 3 to 7 minutes, indicating a preference for shorter interactions. Written responses lacked a time measurement, suggesting flexibility in customer input for this format.

This structured approach reflects the importance of adapting feedback collection methods to customer preferences and logistical constraints. By providing multiple channels and formats, the researcher ensured accessibility and inclusion, accommodating variations in internet connectivity and device capabilities. The predominance of WhatsApp demonstrates its utility as a reliable communication tool in this context, while the brevity of audio responses suggests efficiency and customer convenience. The interview methods were flexible, allowing customers to present their perspectives and enabling the gathering of qualitative information for the research.

Qualitative Results interpretation

The interviews were analyzed following the qualitative analysis approach described by Hsieh and Shannon (2005, pp. 3–5) (see Figure 13, p. 63). The analysis began with a thorough review of all audio data and messages, which were listened to and read four times to ensure accuracy and familiarity with the content. Critical points or themes from the phone interview were also considered to gather all relevant information.

To structure the data in a systematic way, the interview content was categorized into three use cases, each further divided into three main themes: main categories, critical feedback/ideas, and themes for analysis. This approach helped to create a clear framework for organizing and interpreting the data. The steps of the qualitative analysis process were applied within these sub-themes to maintain coherence and ensure that the key insights aligned with the overarching research objectives.

Category	Critical Feedback/Ideas	Themes for Analysis
Communication and Team Interaction		
Responsiveness	Slow response times or delays in addressing queries	Responsiveness and Timeliness
Clarity of Communication	Suggestions to make communication clearer. Delay, or lack of clarity in the communication process	Clarity and Transparency. Communication gap
Professionalism	Improvements in courtesy, patience, and problem-solving	Professionalism and Attitude
Multiple Communication Channels	Requests for additional channels (e.g., live chat, social media especially YouTube and Facebook)	Channel Accessibility
Service Experience		
Consistency in Service Delivery	Concerns about inconsistent service quality	Reliability and Consistency
Personalized Services	Suggestions customized to match customers preferences	Customer-Centric Approaches
Faster Issue Resolution	Desire for quicker problem resolution with fewer follow-ups	Efficiency in Problem Resolution
Product Quality		
Quality Standards	Satisfaction or dissatisfaction with product durability	Quality Assurance
Alignment with Expectations	Whether delivered products match descriptions or promises	Expectation vs. Reality
Delivery Process		
Timeliness of Delivery	Concerns about late deliveries or adherence to schedules	Punctuality and Timeliness
Immediate Tracking	Requests for improved delivery tracking and status updates	Delivery Transparency
Condition of Delivered Products	Complaints about damaged goods or poor packaging	Packaging and Product Safety
Flexibility in Delivery Options	Suggestions for specific time slots or alternate locations	Customer-Friendly Delivery Options
General Feedback and Loyalty		
Overall Recommendation and Loyalty	Customers' willingness to recommend the company	Customer Advocacy and Trust

Figure 14. Categories, critical feedback and themes for qualitative analysis.

As seen in figure 14 presents the key categories, critical feedback, and themes identified in the qualitative analysis. Most of the common concerns included slow response times, unclear communication, inconsistent service quality, and delivery delays. Customers also presented the need for enhanced product packaging and more flexible delivery options. These themes were structured to align with broader service quality dimensions such as reliability, responsiveness, and customer-centric approaches. Furthermore, to provide transparency in the coding process, Appendix 5 includes direct excerpts from customer interviews demonstrating how specific responses were categorized into the themes outlined above.

5.1.1 Analysis of Qualitative Themes Using Inductive Approach

Qualitative thematic analysis is a critical step in understanding the detailed perspectives gathered from interview data. As Braun and Clarke (2006, p. 87) emphasize, thematic analysis provides a systematic framework for identifying, analyzing, and reporting patterns within qualitative data. In this study, themes were drawn from semi-structured interviews with twelve (12) customers to explore their perceptions of customer relations, service quality, product quality, and logistics reliability.

Following the guidelines of Hsieh and Shannon (2005, p. 3), a conventional content analysis approach was employed, which allowed themes to emerge from the data without being constrained by predefined categories. Thus, the analysis followed an inductive approach, where the themes and category names were created from the data itself rather than being derived from any existing theoretical framework. This approach enabled for a broader understanding of the participants' views, ensuring that the final themes were grounded in their actual experiences and perceptions.

5.1.2 Substantiating Themes with Data

Once the themes were identified, each was substantiated using data collected during the interviews. Key quotes and examples were selected to represent the respondents' perspectives and provide context. For example, Appendix 3 under the theme "*Inconsistent Delivery Times or Late Delivery*," one respondent remarked, "*Sometimes my order arrives early, but other times it's delayed with little explanation.*" Such direct quotes provide genuine insights and support the analysis. Incorporating exact responses ensures that respondents' voices remain central to the study (Creswell & Poth, 2018, p. 135).

To strengthen the analysis, patterns and variations across different demographic groups were explored. For example, some customers, at frequent times, pointed out the importance of tracking systems for their products or orders, while others were more concerned with *communication clarity*. These differences underline the importance of optimizing services to meet diverse customer expectations.

Moreover, another theme drawn up was packaging inconsistencies impact on customer satisfaction. During the interview, three customers (two B2B and one B2C) expressed concerns about phone communication, specifically regarding inconsistencies in packaging for both bulk and small orders. They noted that poor packaging led to dissatisfaction among customers and disrupted the internal workflow. To illustrate these themes, the following direct quotes from the interviewees on packaging present their perspectives in Appendix 5.

"Some of the bulk orders arrived with weak packaging, and we had to repack them before using them. It slows down our process and adds extra work." (Respondent-B2B customer)

"We received the same product in different types of packaging, which made it difficult to organize our stock properly." (Respondent – B2B customer)

"I ordered a set of delicate puzzle toys for my kids, but half of them arrived broken because they were just wrapped in thin paper instead of bubble wrap." (Respondent - B2C)

These issues were seen as contributing factors to complaints, indicating a direct connection between packaging quality and overall customer experience. The feedback suggests that standardizing packaging practices could enhance satisfaction and reduce operational disruptions. In addition, the negative impact on the work team suggests that packaging inconsistencies could also affect internal efficiency and collaboration.

Linking Themes to Research Objectives

Each identified theme following the inductive approach was structured in a systematic manner to align with the study's research objectives. As Saunders et al. (2009, p. 157) emphasize, the connection between themes and research questions ensures the relevance and coherence of qualitative findings. For example, the theme "Customer Communication gaps or late in resolving issue" addressed the research question on challenges in service interactions. In a similar approach "Product Quality Variability" provided awareness of customer satisfaction with delivered goods. By aligning themes with objectives, the analysis explores the core problem and provides actions for improvement.

5.1.3 Interpreting Themes and Their Implications

The interpretation of themes involved contextualizing the findings within broader literature. The theme 'Customer Communication Gaps or Customer Communication Gaps or delays in communicating about delivery or issues' for instance, aligns with Johnson's (2018, p. 45) assertion that effective communication is a cornerstone of customer satisfaction in logistics. However, the variability in delivery times observed in this study contrasts with previous quantitative research suggesting that such inconsistencies can be mitigated (Smith et al., 2020, p. 78). This divergence presents the need for DD Logistics to evaluate its delivery system in a critical approach.

Furthermore, Lei et al. (2022) suggest that the themes revealed hidden connections that were not obvious in the data. For instance, the theme "Delivery Reliability and punctuality" was tied to "Customer Loyalty Concerns," as several respondents expressed dissatisfaction with delays affecting their possibility of recommending the company. Further information from customers demonstrates how themes can illuminate interdependence within customer experience (Zhao et al., 2012).

The theme of overall recommendation and loyalty indicates the importance of customer satisfaction and their willingness to recommend the company to others. This reflects strong trust in the company's ability to meet expectations. Customers who act as promoters focus on their positive experiences and contribute to the company's growth through those experiences. Advocacy is established in trust, reliability, commitment and alignment with customer values, which fosters long-term loyalty (Siddiqi, 2011). However, this loyalty is contingent on consistent service quality, as both satisfaction and dissatisfaction in significant approach have impacted the chances of recommendations. By considering such concerns, for example using good communication tools and delivering as expected, DD Logistics can strengthen customer relationships and encourage support. Also, implementing strategies such as referral programs, loyalty rewards, and measuring feedback through tools like Net Promoter Score (NPS) can further enhance recommendation and trust (Dawes, 2023). Moreover, Jeong & Kim (2023) suggest that customers who recommend the company provide a competitive advantage, enhancing its reputation and driving sustained business success.



Figure 15. A flowchart illustrating the relationship between customer interaction themes (*Service Quality*, *Logistics Challenges*, and *Communication Effectiveness*) and customer perceptions, such as satisfaction, loyalty, and dissatisfaction. (Created using ChatGPT, 2024, per KAMK guidelines).

The figure illustrates the customer interaction journey and its impact on satisfaction, loyalty, and complaints. It identifies three primary themes: Service Quality, Logistics Challenges, and Communication Effectiveness, which influence customer experience. Positive outcomes such as "Good Quality," "Efficient Logistics," and "Effective Communication" lead to Customer Satisfaction, creating a positive experience and fostering Customer Loyalty & Recommendations. This emphasizes the importance of maintaining high standards across service delivery, logistical efficiency, and communication practices (Lin et al., 2023).

On the other hand, as indicated by Sutrisno et al. (2023) a poor service quality, logistics issues, and communication gaps result in Customer Dissatisfaction, leading to negative experiences. Dissatisfaction often elevates in "Complaints & Loss of Loyalty", indicating potential risks for the businesses or organizations. By analyzing these interconnected factors, the company could improve communication, resolve logistics challenges, and ensure consistent service quality as well as enhancing customer satisfaction and building long-term loyalty.

Presenting and Structuring Themes

The themes were organized into three main categories: Service Quality, Communication Effectiveness, and Logistics Challenges. Each category was supported by sub-themes to ensure clarity and a logical flow. Visual tools, such as tables and flowcharts, were utilized to represent the relationships between themes. For example, the flowchart was used to show how communication

gaps and other terms led to dissatisfaction, affecting loyalty. Visual representations as recommended by Miles et al. (2014, p. 104), enhance the accessibility and impact of qualitative findings.

6 Conclusion

The goal of this thesis was to explore strategies for enhancing customer relations, service quality, product quality, and internal logistics within DD Logistics, a Ghanaian logistics company. A mixed-method approach was employed, combining quantitative research through surveys and qualitative insights from interviews. The results of the study identified key areas for improvement, offering strategies to enhance customer satisfaction, restore customer confidence, and drive revenue growth. These findings provided a strategic recommendation to improve both operational efficiency and customer engagement within DD Logistics.

The qualitative analysis provided valuable insights into customer satisfaction and engagement, revealing a detailed perspective on DD Logistics' performance. Among the parameters examined in both methods, 63% - 80% of customers expressed high satisfaction with aspects such as the company's communication, responsiveness, product quality, service quality and logistic process. For example, the interview respondents emphasized the reliability of delivery timelines, indicating it as a key factor in their positive experiences. However, certain areas showed capacity for growth or improvement. Product quality ratings were more variable, with several customers presenting inconsistencies in packaging, communication gaps and the condition of goods upon delivery. This variability indicates operational challenges that may affect customer trust and long-term loyalty. Overall, while DD Logistics has made significant progress in some areas, the results point to opportunities for further improvement in product quality to maintain customer satisfaction and foster deeper engagement.

However, the study faced some limitations, notably in statistical analysis due to the ordinal nature of the data, small sample size, and software constraints. These limitations impacted on the application of certain statistical tests (e.g., Chi-Square, regression) and the ability to draw definitive inferential conclusions. Despite these challenges, the research provided valuable insights into customer satisfaction trends and identified areas for improvement. Future research would benefit from larger sample sizes and more advanced statistical software, which could allow for a more robust analysis of categorical and ordinal data.

Moreover, quantitative insights revealed that younger customers (20–30 years) expressed high levels of satisfaction with product quality, often presented its reliability and alignment with their

expectations. In contrast, older customers (50 years and above) often expressed neutral opinions, suggesting a lack of definitive satisfaction or dissatisfaction. These findings indicate how age-specific expectations and experiences shape perceptions of product - service quality. For instance, younger customers might value innovation and responsiveness, while older customers may focus on consistency. To resolve these differences and improve satisfaction across all age segments, DD Logistics should implement adapted strategies. Conducting focus groups or targeted surveys with older customers, for example, could provide valuable understanding into enhancing product quality perceptions and aligning services with diverse customer needs.

Furthermore, the fewer result of female could be that female customers of DD logistics might value aspects like better customer service, safer product handling, or added convenience, which the company could emphasize to attract more female clients.

In addition, follow-ups were seen in the analysis as an essential factor in customer satisfaction. However, while 50% responded satisfied with follow-ups, the remaining responded neutral and dissatisfied. To improve consistency, the company should strive for greater uniformity in its follow-up practices. Implementing a standardized follow-up schedule could help resolve concerns from customers who perceive the service as irregular.

The qualitative analysis added depth to the quantitative findings by providing context to observed trends. For example, interviews revealed themes such as "Customer Communication Gaps" and "Inconsistent Delivery Times," which have a direct relationship with quantitative results that identified service quality and reliability as key drivers of customer satisfaction. One B2B customer stated in the interview, *"It's frustrating when I don't get updates on my shipment status. Immediate tracking would make a huge difference."* This information presents the importance of implementing immediate tracking systems and improving communication to address customer concerns. In addition, the demographic data indicated that different customer groups, such as younger customers prioritizing innovation and older customers valuing consistency, have unique expectations. This indicates the need for specified strategies to cater to their varied priorities and enhance overall satisfaction.

By connecting themes to the study's research objectives, the qualitative findings provided a deeper understanding of customer experiences and their implications for DD Logistics. For instance, the connection between "Delivery Reliability Issues" and "Customer Loyalty Concerns"

pointed out the impact of operational inefficiencies on long-term client retention. These insights complemented the quantitative results, such as the statistical trends showing dissatisfaction with delivery times, offering a measurable recommendation to address customer-specific challenges.

Quantitative data identified key trends, while qualitative insights provided the context needed for practical recommendations. Together, these findings highlight several strategic priorities for DD Logistics. First, addressing inconsistencies in product quality is essential for maintaining high customer satisfaction and reducing dissatisfaction. Improving delivery reliability is crucial, as DD Logistics has a basic tracking system, and full adoption and optimization across all operations could lead to significant gains. In addition, targeted strategies aimed at both younger and older customers, based on quantitative findings, can help diversify the client base and open new revenue gains. Moreover, closing communication gaps with better customer support and clearer updates can strengthen relationships and foster trust. The Hybrid Logistics SERVQUAL model, adapted by Cengiz (2010), combines traditional SERVQUAL dimensions with logistics-specific factors, providing a more optimized approach to service quality in the logistics context. Future studies can refine and expand the model to make it a wide used tool for evaluating service quality in the logistics industry, helping companies, for example, DD Logistics achieve operational excellence and enhance customer satisfaction.

7 Discussion

The author's professional background in global supply chains, in particular her experience with a multinational company that relies on DD Logistics operation, providing valuable industry insights for this study. Her role in logistics operations helped inform the research focus on customer satisfaction and product-service quality, aligning with practical challenges observed in the field.

This study aimed to explore customer relations, product quality, service quality and the logistics at DD Logistics using a mixed-methods approach. The research aimed to determine whether key factors such as customer relations, service efficiency, product quality, and logistics reliability contributed to the decline in DD operations' customer base. Through quantitative survey data and qualitative interviews, the study provided comprehensive understanding into areas of strength and challenges within the company's operations.

This study examined the level of customer satisfaction at DD Logistics and identified key factors contributing to its 30% decline in engagement. Findings indicate that while some customers remain satisfied, many express concerns over inconsistent service delivery, delays, and ineffective communication, leading to moderate to low satisfaction levels.

Furthermore, service and product quality were found to have a direct impact on customer satisfaction. Customers expect timely deliveries, reliable packaging, and efficient customer support. However, frequent delays, poor product handling, and slow responses to inquiries have negatively influenced their perception of the company.

Another key factor explored was the role of supply chain management in customer satisfaction. Findings indicate that delivery inefficiencies and delay in custom clearance have contributed to customer dissatisfaction. In addition, the lack of immediate tracking and proactive communication has further decreased customer trust.

To improve customer satisfaction, DD Logistics must focus on service optimization and customer engagement. Strategies such as immediate tracking updates, employee training, and Lean Logistics practices can enhance service efficiency. In addition, strengthening quality control and implementing customer feedback mechanisms will help ensure continuous improvement. By adopting

these strategies, DD Logistics can rebuild trust, improve customer retention, and strengthen its market position.

In general context, the results indicated that while customers expressed satisfaction with product quality and service efficiency, significant concerns emerged regarding delivery reliability, products packaging, communication effectiveness, and response time to complaints. Also, the evaluation identified variability in customer experiences based on demographic factors such as age and gender. While quantitative findings provided numerical trends, qualitative responses deepen the interpretation by presenting customer expectations, frustrations, and suggestions for improvement.

This research provided an effective examination of its core research questions by using both forms of data, confirming that while DD Logistics meets expectations in areas such as product quality, service quality, and customer relations, issues like delivery delays, follow up and communication gaps exist, which impact customer trust, contribution, and loyalty. The result of the study shows the reliability and responsiveness impact of customer satisfaction, presented both methodology findings using SERVQUAL dimensions (Parasuraman et al., 1988).

In addition, the study revealed delays in resolving customer complaints, with an average response time of one week. While customers did not specify their preferred response time, qualitative feedback indicated dissatisfaction with the delays. Many respondents expressed a desire for quick resolutions, with one noting, *"It takes too long to get a response when there's an issue with my order. Faster communication would make me feel more valued."* These findings raised by the customer suggest that improving response times could enhance customer satisfaction and trust. Details of customer concerns can be found in (Appendix 5).

Regarding empathy, surveys indicated that customers appreciated communication but felt that the company pays less attention to individual concerns. In a similar way, in terms of tangibles, while the physical state of deliveries in the general case meets expectations, some customers raised concerns about packaging sustainability, suggesting this as a potential area for improvement.

The use of the SERVQUAL model was the central element in the study, but its limitations were given careful consideration. While SERVQUAL was good at measuring how customers felt, it did not provide enough detail about the actual logistics operations in its immediate point.

(Parasuraman et al., 1988). To fill this gap, the study included clear performance data, showing a more thorough approach in both quantitative and qualitative approach.

Bias in the customer satisfaction survey were carefully assessed, understanding that a few unusual experiences or mistakes could affect the overall results. This was the reason triangulation with operational data was adopted, providing a balanced perspective (Denzin 1978).

In addition, the findings highlight both strengths and areas for improvement at DD Logistics, providing valuable insights into customer engagement, service quality, and operational efficiency. These observations can guide the development of targeted strategies to enhance the company's overall performance. The company's strong presence among the 30–40-year-old demographic is a significant advantage. However, there is an opportunity to strengthen their engagement with a new strategy with younger customers (under 20 years) and retain older customers (over 50 years) to drive market growth. Younger customers, who possess literacy in technology and awareness of environmental issues, may respond to digital marketing initiatives that emphasize convenience, technology integration, and sustainability. On the other hand, older customers may appreciate specialized services, flexible delivery options, and loyalty programs designed to build trust and encourage repeat engagement.

Statistical feedback indicates that the company's follow-up process needs better strategizing, as customer satisfaction appears to be even, half of the respondents are satisfied while the other half are not (Appendix 3). Consistent and well-planned follow-ups can serve as gentle reminders for customers to engage with the company's products or services. This has the potential to improve overall customer satisfaction and can lead to increased loyalty, generating higher revenue for the company.

To make the follow-ups more effective, the company could personalize its approach by addressing specific customer needs or preferences. Regular follow-ups should focus on delivering value, such as sharing updates, offering exclusive deals, or seeking feedback to make customers feel valued. In addition, implementing a clear follow-up schedule can ensure that no customers feel overlooked, further boosting satisfaction and trust in the brand. These efforts could strengthen the company's reputation and foster long-term relationships with customers.

The observed variability in product quality concerning packaging indicates an urgent need for standardization and quality control measures. Customers' concerns about inconsistent delivery

standards reveal an operational gap that, if not considered, could weaken long-term customer loyalty. Establishing stringent quality assurance protocols and monitoring mechanisms could ensure that every customer receives reliable and consistent service. In addition, investing in employee training programs and adopting best practices from DD leaders may improve both product quality and operational efficiency. Such improvements aligning service delivery with customer expectations can reinforce the company's reputation for reliability.

The qualitative aspect of the study adds depth to these findings by obtaining detailed customer experiences. The theme "Inconsistent Delivery Times" indicates logistical inefficiencies that resonate with many respondents, emphasizing the extent of the delays and unpredictability in service. Considering the above problem, by including optimizing supply chain processes, leveraging predictive analytics, and implementing dynamic tracking systems can deepen reliability and transparency. Another critical area identified is the communication gap. The theme "Customer Communication Gaps" revealed dissatisfaction with unclear or inconsistent updates. Effective communication as a service attribute can be a strategic advantage that enhances overall customer satisfaction and loyalty. DD can have at their website where customers can check updates on the shipment or package with immediate updates. Chatbot can then be based on this when the customer needs more information. Furthermore, fostering a culture of accountability among customer service teams could ensure prompt and accurate responses to customer inquiries.

The analysis revealed that 60% of the service's patrons are male, compared to 40% female. Addressing this gender imbalance presents an opportunity to diversify and expand DD Logistics' customer base. Developing inclusive marketing campaigns and gender-sensitive service designs can make the company more appealing to female customers. For instance, emphasizing security features in delivery, adopting gender-balanced branding, and always seeking feedback from female customers can help create a more inclusive and welcoming service environment.

In summary, while DD Logistics demonstrates significant strengths, by engaging its core demographic and achieving high satisfaction ratings in some areas, there remain critical areas for improvement. By dealing with variability in product quality, enhancing logistical reliability, improving communication, and managing the demographics, the company can create a more resilient and customer-centric business model. Integrating these findings into strategic planning will stabilize current operations and position DD Logistics for sustainable growth in a competitive market.

Limitations of the Study

While this research provides valuable insights into customer satisfaction at DD Logistics, several limitations influenced the findings.

Response Rate Limitation

Although the study targeted 300 customers, only 104 responses were received. This lower-than-expected response rate posed a challenge and led to weaker results in the findings.

Data and Statistical Constraints

The use of Likert-scale questions to measure customer satisfaction generated ordinal data, which posed challenges for applying parametric statistical tests (e.g., t-tests and regression) that assume interval or ratio-level data. In addition, the statistical software (PSPP) lacked support for essential nonparametric tests, such as Mann-Whitney U and Fisher's Exact Test. As a result, several alternative methods, including ANOVA, Chi-Square, and Kruskal-Wallis, were tested but yielded limited results due to the small sample size and data distribution. Consequent descriptive statistics were primarily used to summarize customer satisfaction trends. Future research would benefit from larger sample sizes and statistical software capable of supporting a broader range of non-parametric tests for more reliable analysis.

Reliability of Self-Reported Data

Fowler (2013, p. 56) explains that since the qualitative data relies on self-reported data, there is a risk of response bias, where customers may underreport or overreport their satisfaction due to social desirability or question misinterpretation. This potential bias could impact on the accuracy of the study's findings. Future studies could consider alternative scaling methods or employ non-parametric statistical tests in software that supports them to enhance the accuracy of findings.

External Factors Impacting Supply Chain

Since the data was collected from DD Logistics customers, the findings may reflect a perspective that supports the company. However, insights related to issues such as poor packaging, delivery delays, and communication challenges could provide valuable lessons for other logistics companies to improve their customer service.

In addition, the logistics industry is affected by global disruptions, political instability, and economic downturns, such as those caused by the COVID-19 pandemic, which impact operational performance (Ivanov & Dolgui, 2020; Ghazi 2021). While these external factors may have contributed to some of DD Logistics' challenges, they fall beyond the scope of this study. As a result, some customer concerns may stem from conditions that DD Logistics cannot control.

7.1 Recommendation for improvement

Based on the findings of this study, the following recommendations are proposed to improve DD Logistics' business operations and customer satisfaction. While these suggestions are based on the analysis conducted in this study, they are not the result of direct input from DD Logistics, but rather self-devised proposals aimed at addressing identified gaps. Implementing these strategies in collaboration with key stakeholders could further improve customer satisfaction and operational efficiency.

Lean Six Sigma

Firms adopting Lean Six Sigma methodologies in systematic approach could improve operational efficiency, product quality, and service reliability (Saporito et al., 2023; Oladipupo et al., 2023). Lean Six Sigma combines the strengths of both Six Sigma and Lean principles, enabling the DD to handle process variability while eliminating wasteful activities.

Smith & Johnson (2020) suggest that using Six Sigma tools like DMAIC (Define, Measure, Analyze, Improve, Control), DD Logistics can strategize its processes, minimize delays, and tackle service inconsistencies in a data-driven manner. At the same time, Lean practices focus on reducing waste, such as unnecessary transportation or inefficient workflows, to deliver faster, more cost-effective services. By implementing these approaches, DD Logistics can foster a culture of continuous improvement.

Quality Control and Enhancing Product Quality Consistency

DD Logistics should incorporate comprehensive quality control measures to monitor and maintain the standard of its product services' consistency. As Garvin (1987) suggested, regular performance audits, customer feedback analysis, and tracking tools can help identify and rectify issues

in a proactive way. Establishing clear quality benchmarks and training staff to uphold these standards will ensure a reliable delivery service (Crosby, 1979). Strong quality control practices build trust with customers by ensuring that their expectations are met or exceeded.

In addition, to resolve the identified variability in product quality, DD Logistics should conduct a detailed analysis to uncover root causes, such as supply chain inefficiencies or inconsistent handling practices as suggested by (Ishikawa, 1985). Implementing rigorous quality control protocols will help standardize service delivery and ensure that customer expectations are met. Employee training programs focusing on best practices for product handling and communication of quality standards should be prioritized to foster a culture of excellence and accountability.

Good Communication Strategies for Different Age Groups

DD Logistics has an opportunity to broaden its customer base by targeting underrepresented groups, in particular younger and older demographics. Digital and social media marketing campaigns emphasizing innovation, convenience, and eco-friendly practices can attract younger customers, who are often driven by technological advancements and sustainability. For older customers, loyalty programs, and flexible delivery options can resolve their specific needs. Also, sustaining satisfaction among this group will provide a stable foundation for growth as the company expands into new markets.

Improving Communication and Delivery Reliability

To mitigate delivery reliability issues and communication gaps, DD Logistics should improve its old tracking systems to provide customers with precise and on-time updates on their orders. Establishing a centralized communication channel, such as a dedicated customer service hotline or live chat feature, can improve the speed and quality of responses to inquiries and complaints. Regular monitoring and evaluation of delivery performance will help identify the problems and inform continuous process improvements.

Establishing a Comprehensive Feedback Mechanism

DD Logistics should implement a reliable feedback mechanism that adopts both quantitative and qualitative methods to gain a comprehensive understanding of customer experience. By combining survey data with deeper insights from focus groups, the company can obtain both measurable

trends to refine customers’ concerns. This integrated approach will enable DD Logistics to explore recurring themes such as communication effectiveness and delivery reliability while also resolving external factors like market competition and seasonal demand fluctuations. A thematic framework for monitoring and analyzing this feedback will help the company to identify opportunities, refine strategies, and settle challenges as customer needs evolve.

Analytical Skills

This study enhances traditional logistics evaluations by integrating theoretical frameworks with predictive analytics (Parasuraman et al., 1988). By applying predictive analytics alongside the SERVQUAL model, the research identified patterns that might be overlooked by conventional methods, such as correlations between demographics and customer satisfaction levels. Strengthening analytical capabilities in logistics management can help organizations uncover deeper information and improve decision-making.

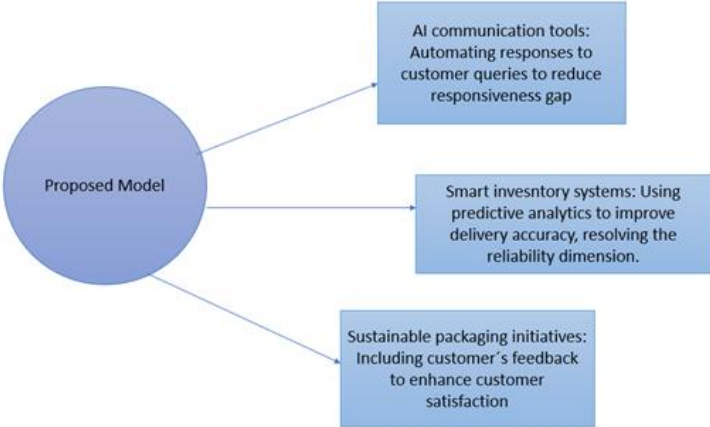


Figure 16. Proposed Model for DD logistics

The suggested model for DD Logistics focuses on improving key areas to boost efficiency and customer satisfaction. First, AI-powered communication tools will respond to customer queries, reducing delays and ensuring faster responses. Next, smart inventory systems using predictive analytics will enhance delivery accuracy, resolving issues related to reliability and consistency. Sustainable packaging initiatives, developed with customer feedback, will improve service quality while demonstrating DD Logistics' commitment to eco-friendly practices and aligning with customer values. Together, these steps will help DD Logistics become a more customer-focused and forward-thinking company.

7.2 Reliability, Validity, and Ethics in the Study

This study was conducted following ethical research principles to ensure credibility and accuracy as explained in methodology. The research design was strategic and aligned with scientific criteria, and all findings were communicated open and responsible. Proper citation of previous research and sources was maintained to uphold academic integrity.

To enhance reliability, the quantitative survey included questions covering four key factors: customer relations, service quality, products, and logistics. These questions were based on established measurement scales such as SERVQUAL to ensure accuracy (Parasuraman, Zeithaml, and Berry, 1988). The qualitative interviews followed a structured approach, and responses were analyzed through systematic analysis using thematic methods (Braun & Clarke, 2006). To further strengthen reliability, triangulation was applied by cross-verifying findings from both quantitative and qualitative data.

Validity was ensured in multiple ways. Content validity was maintained by aligning survey questions with the study's objectives and theoretical framework. Key dimensions of service quality, such as reliability, responsiveness, empathy, and tangibles, as suggested by Parasuraman et al. (1988), were defined in a clear approach (see p. 12-14). Internal validity was enhanced by minimizing bias in data collection as respondents were selected in a random manner, and anonymity was preserved to encourage honest responses. However, external validity remains a limitation, as the findings are based on a specific sample of DD Logistics customers. While the results may not be of complete generalizability to other logistics companies, they provide valuable insights for identifying patterns and areas for service improvement.

Ensuring reliability and validity in data collection and analysis, this study provides a credible and meaningful assessment of customer satisfaction at DD Logistics. Future research could expand the sample size and refine survey questions to further validate these findings across different customer groups and business environments.

Future Research Topics

Based on the findings of this study, the following areas could be explored in future research to further enhance DD Logistics' operations and customer satisfaction:

Customer Retention Strategies

Further studies could delve deeper into factors that influence long-term customer loyalty and satisfaction, helping DD Logistics refine its customer retention strategies.

Impact of Technological Advancements

Research could focus on how emerging technologies, such as artificial intelligence and automation, impact the efficiency of logistics operations and improve service delivery at DD Logistics.

Long-term Effects of Lean Six Sigma Implementation

Future research could assess the sustained impact of Lean Six Sigma methodology on DD Logistics' operational performance, tracking improvements over an extended period.

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Survey Questions and Answer Options

Section 1: Demographics

1. What is your age range?
 1. Below 20 years
 2. 20–30 years
 3. 30–40 years
 4. 40–50 years
 5. Above 50 years
2. How long have you been a customer of DD Logistics Company?
 1. Less than a year
 2. 1–5 years
 3. 5–10 years
 4. 10–15 years
 5. More than 15 years
3. When was the last time you used our service?
 1. Less than a year ago
 2. 1–5 years ago
 3. 5–10 years ago
 4. More than 15 years ago

Section 2: Customer Relations

4. How often do you communicate with company representatives?
 1. Less often
 2. Neutral
 3. Often
 4. Very often
5. How easy is it to find the information you need on the company website?
 1. Very uneasy
 2. Uneasy
 3. Neutral
 4. Easy
 5. Very easy
6. How do you prefer to communicate with the company?
 1. Phone
 2. Email
 3. Chat
 4. Other
7. How responsive and helpful are the company representatives when you contact them?
 1. Less helpful
 2. Neutral
 3. Helpful

4. Very helpful

8. How satisfied are you with the resolution of any issues or complaints you have raised with the company?

1. Very Dissatisfied
2. Dissatisfied
3. Neutral
4. Satisfied
5. Very Satisfied

9. How regularly does our team visit or follow up with you in a quarter?

1. Very irregular
2. Irregular
3. Neutral
4. Regular
5. Very regular

Section 3: Service Quality

10. How satisfied are you with the promptness of our service?

1. Very Dissatisfied
2. Dissatisfied
3. Neutral
4. Satisfied
5. Very Satisfied

11. How clear and helpful was the communication you received from our team?

1. Very Dissatisfied
2. Dissatisfied
3. Neutral
4. Satisfied
5. Very Satisfied

12. How well did our service meet your expectations?

1. Very Dissatisfied
2. Dissatisfied
3. Neutral
4. Satisfied
5. Very Satisfied

13. How would you rate the overall quality of the service provided?

1. Very Dissatisfied
2. Dissatisfied
3. Neutral
4. Satisfied
5. Very Satisfied

14. How likely are you to recommend our services to others?

1. Very Unlikely
2. Unlikely

3. Neutral
4. Likely
5. Very Likely

15. How satisfied are you with the resolution of your issue?

1. Very Dissatisfied
2. Dissatisfied
3. Neutral
4. Satisfied
5. Very Satisfied

Section 4: Product Quality

16. How would you rate the quality of the products delivered by the company?

1. Low quality
2. Good quality
3. Neutral
4. High quality

17. How satisfied are you with the delivery of the products meeting your expectations and needs?

1. Very Dissatisfied
2. Dissatisfied
3. Neutral
4. Satisfied
5. Very Satisfied

18. How satisfied are you with the quality, features, and functionality of the delivered products?

1. Very Dissatisfied
2. Dissatisfied
3. Neutral
4. Satisfied
5. Very Satisfied

19. How would you rate your overall satisfaction with the goods you received from the company?

1. Very Dissatisfied
2. Dissatisfied
3. Neutral
4. Satisfied
5. Very Satisfied

Section 5: Supply Chain Management

20. How clear and accurate is the information provided by the company regarding the delivery process?

1. Very Inaccurate
2. Inaccurate
3. Neutral

4. Accurate
5. Very Accurate

21. How convenient and flexible are the delivery options offered by the company?

1. Very Inconvenient
2. Inconvenient
3. Neutral
4. Convenient
5. Very Convenient

22. How timely and consistent are the deliveries of the products?

1. Very Untimely
2. Untimely
3. Neutral
4. Timely
5. Very Timely

23. How satisfied are you with the condition and safety of the products upon arrival?

1. Very Dissatisfied
2. Dissatisfied
3. Neutral
4. Satisfied
5. Very Satisfied

24. How reliable is the company's delivery process?

1. Very Unreliable
2. Unreliable
3. Neutral
4. Reliable
5. Very Reliable

Qualitative Questionnaire

Qualitative Questions

Set of Open-Ended Questions

1. Customer Relations:

How has your experience been with our team? Have we been easy to work with?

Is there anything we could do to improve how we communicate with you?

2. Service Satisfaction:

Have we met your expectations in terms of service? If not, what could we do better?

3. Product Quality:

Is the quality of the product living up to what you expected?

4. Logistics and Delivery:

How's the delivery process been for you? Smooth, or have there been hiccups?

5. General Wrap-Up:

If you could change one thing about your experience with us, what would it be?

Would you recommend us to a friend, colleague or company? Why or why not?

Some of the captions of PSPP run

Table 2. Age distribution of survey respondent (n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Below 20years	8	7.7%	7.7%	7.7%
20-30years	23	22.1%	22.1%	29.8%
30-40years	62	59.6%	59.6%	89.4%
40-50years	10	9.6%	9.6%	99.0%
50-above	1	1.0%	1.0%	100.0%
Total	104	100.0%		

Table 3. Distribution table of how Customers have been in operation with DD company (n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0-1yr	39	37.5%	37.5%	37.5%
1-5yrs	44	42.3%	42.3%	79.8%
5-10yrs	13	12.5%	12.5%	92.3%
10-15yrs	7	6.7%	6.7%	99.0%
15-above	1	1.0%	1.0%	100.0%
Total	104	100.0%		

Table 4. Preference Communication of DD Logistics Customers (n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Phone call	47	45.2%	45.2%	45.2%
Email	31	29.8%	29.8%	75.0%
Text message	10	9.6%	9.6%	84.6%
Chat	16	15.4%	15.4%	100.0%
Total	104	100.0%		

Table 5. Website accessibility of the survey respondents (n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid V. uneasy	2	1.9%	1.9%	1.9%
Uneasy	7	6.7%	6.7%	8.7%
Neutral	31	29.8%	29.8%	38.5%
Easy	45	43.3%	43.3%	81.7%
V. easy	19	18.3%	18.3%	100.0%
Total	104	100.0%		

Table 6. Survey Response on how responsive DD logistics are to its customers (n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid L. helpful	2	1.9%	1.9%	1.9%
Helpful	16	15.4%	15.4%	17.3%
Neutral	52	50.0%	50.0%	67.3%
V. helpful	34	32.7%	32.7%	100.0%
Total	104	100.0%		

Table 7. Survey Response on Issue Resolution Satisfaction from DD Customer (n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid V. unsatisfied	7	6.7%	6.7%	6.7%
Unsatisfied	1	1.0%	1.0%	7.7%
Neutral	25	24.0%	24.0%	31.7%
Satisfied	56	53.8%	53.8%	85.6%
V. satisfied	15	14.4%	14.4%	100.0%
Total	104	100.0%		

Table 8. Survey Response on Service Satisfaction (n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid V. unsatisfied	3	2.9%	2.9%	2.9%
Unsatisfied	5	4.8%	4.8%	7.7%
Neutral	21	20.2%	20.2%	27.9%
Satisfied	54	51.9%	51.9%	79.8%
V. satisfied	21	20.2%	20.2%	100.0%
Total	104	100.0%		

Table 9. Survey Response on Timeliness of Delivery (n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Untimely	8	7.7%	7.7%	7.7%
Neutral	15	14.4%	14.4%	22.1%
Timely	58	55.8%	55.8%	77.9%
V. timely	23	22.1%	22.1%	100.0%
Total	104	100.0%		

Table 10. Survey Response on Gender (n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	62	59.6%	59.6%	59.6%
Female	42	40.4%	40.4%	100.0%
Total	104	100.0%		

Table 11. Survey Response on Follow-up process (n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very irregular	5	4.8%	4.8%	4.8%
Irregular	21	20.2%	20.2%	25.0%
Neutral	26	25.0%	25.0%	50.0%
Regular	39	37.5%	37.5%	87.5%
Very regular	13	12.5%	12.5%	100.0%
Total	104	100.0%		

Table 12. Survey Response on Service Expectation (n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very unsatisfied	2	1.9%	1.9%	1.9%
Unsatisfied	5	4.8%	4.8%	6.7%
Neutral	28	26.9%	26.9%	33.7%
Satisfied	50	48.1%	48.1%	81.7%
Very satisfied	19	18.3%	18.3%	100.0%
Total	104	100.0%		

13. Survey Response on DD company's process (n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very unreliable	3	2.9%	2.9%	2.9%
Unreliable	4	3.8%	3.8%	6.7%
Neutral	14	13.5%	13.5%	20.2%
Reliable	57	54.8%	54.8%	75.0%
Very Reliable	26	25.0%	25.0%	100.0%
Total	104	100.0%		

14. Survey Response on How Convenient and Flexible are the delivery Option (n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Inconvenient	3	2.9%	2.9%	2.9%
Neutral	22	21.2%	21.2%	24.0%
Convenient	53	51.0%	51.0%	75.0%
Very convenient	26	25.0%	25.0%	100.0%
Total	104	100.0%		

15. Survey Response on information on Delivery Process Provided (n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Inaccurate	2	1.9%	1.9%	1.9%
Neutral	16	15.4%	15.4%	17.3%
Accurate	68	65.4%	65.4%	82.7%
Very accurate	18	17.3%	17.3%	100.0%
Total	104	100.0%		

16. Survey Response on Features and Functionality of the Product Delivered (n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Unsatisfied	1	1.0%	1.0%	1.0%
Neutral	16	15.4%	15.4%	16.3%
Satisfied	64	61.5%	61.5%	77.9%
Very satisfied	23	22.1%	22.1%	100.0%
Total	104	100.0%		

17. Survey Response on Service Promptness of DD services (n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very unsatisfied	3	2.9%	2.9%	2.9%
Unsatisfied	5	4.8%	4.8%	7.7%
Neutral	21	20.2%	20.2%	27.9%
Satisfied	54	51.9%	51.9%	79.8%
Very satisfied	21	20.2%	20.2%	100.0%
Total	104	100.0%		

18. Survey Response on How likely Customers will recommend DD services (n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very unlikely	2	1.9%	1.9%	1.9%
Unlikely	2	1.9%	1.9%	3.8%
Neutral	9	8.7%	8.7%	12.5%
Likely	62	59.6%	59.6%	72.1%
Very likely	29	27.9%	27.9%	100.0%
Total	104	100.0%		

19. Survey Response on Delivery Expectations (n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Unsatisfied	4	3.8%	3.8%	3.8%
Neutral	24	23.1%	23.1%	26.9%
Satisfied	59	56.7%	56.7%	83.7%
Very satisfied	17	16.3%	16.3%	100.0%
Total	104	100.0%		

20. Survey Response on How Often DD communicate with their customers (n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Less often	31	29.8%	29.8%	29.8%
Neutral	26	25.0%	25.0%	54.8%
Often	25	24.0%	24.0%	78.8%
Very Often	22	21.2%	21.2%	100.0%
Total	104	100.0%		

21. Survey Response on Product quality rating (104)

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Good quality	22	21.2%	21.2%	21.2%
Neutral	63	60.6%	60.6%	81.7%
High quality	19	18.3%	18.3%	100.0%
Total	104	100.0%		

22. Survey Response on Condition and Safety are DD Product Upon Arrival (n=104)

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very unsatisfied	5	4.8%	4.8%	4.8%
Unsatisfied	3	2.9%	2.9%	7.7%
Neutral	14	13.5%	13.5%	21.2%
Satisfied	64	61.5%	61.5%	82.7%
Very satisfied	18	17.3%	17.3%	100.0%
Total	104	100.0%		

23. Survey Responses on the Duration of Customers' Business Relationship with DD (n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Less than a year ago	70	67.3%	67.3%	67.3%
1-5years	25	24.0%	24.0%	91.3%
5-10years	9	8.7%	8.7%	100.0%
Total	104	100.0%		

24. Survey Responses on Overall Satisfaction with the Goods Received from the Company(n=104).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Unsatisfied	5	4.8%	4.8%	4.8%
Unsatisfied	1	1.0%	1.0%	5.8%
Neutral	10	9.6%	9.6%	15.4%
Satisfied	71	68.3%	68.3%	83.7%
Very Satisfied	17	16.3%	16.3%	100.0%
Total	104	100.0%		

Table 25. Measurement and Operationalization of Customer Satisfaction (n=104).

Customer Relation	Service Quality	Product Quality	Logistics	Total	Overall Satisfaction
39	72	78	84		
64	69	79	75		
80	79	84	74		
76	85	81	82		
48			78		
76					
383	305	322	393		
63,83333333	76,25	80,5	78,6	299,1833	74,79583333

Participants information of interview

Customer	Interview Method	Channel	Language	Duration
1	Phone Call	WhatsApp	English	5 minutes
2	Audio	WhatsApp	English	2 minutes
3	Audio	WhatsApp	English	3 minutes
4	Audio	WhatsApp	English	5 minutes
5	Written	WhatsApp	English	
6	Written	WhatsApp	English	
7	Phone Call	WhatsApp	English	7 minutes
8	Written	WhatsApp	English	
9	Written	WhatsApp	English	
10	Written	WhatsApp	English	
11	Phone Call	WhatsApp	English	4 minutes
12	Phone Call	WhatsApp	English	9 minutes

Raw Interview Excerpts	Categorization	
Raw Data	Theme	Code
<p>Customer Relation and Communication</p> <p>"Your team has been a pleasure to work with, so friendly and quick to help! One small suggestion: enhancing communication a bit more would be awesome. Sometimes it feels a little robotic, but I know you're working hard!"</p> <p>"There seems to be a persistent challenge in connecting with the appropriate contact person, accompanied by a troubling lack of follow-through on various requests."</p> <p>"I truly appreciate how responsive and helpful your team has been! One suggestion that could take the experience to the next level is to enhance your FAQ section on the website—more comprehensive answers would be a game changer."</p>	<p>Customer Relations and Communication</p>	<p>Need for improved responsiveness and communication.</p>
<p>Service Satisfaction</p> <p>"Overall, I'm really happy with the services you provide. Just a couple of times, I found myself waiting a bit longer for answers to my questions."</p> <p>"Your team has mostly fulfilled my expectations, but there are areas that could see improvement. For example, I've noticed delays in getting responses to my questions."</p> <p>"Among the suggested improvements are enhancing communication and responsiveness, even though there is genuine appreciation for the team's commitment to ensuring customer satisfaction."</p>	<p>Service Satisfaction</p>	<p>General satisfaction but room for improvement in response time.</p>

<p>Product Quality and User Experience</p> <p>"The products I've received have been absolutely fantastic. Keep up the amazing work."</p> <p>"The items I received were of satisfactory quality and aligned with my expectations. However, I did observe some minor imperfections in one of the products."</p> <p>"While the product successfully meets quality expectations, there are several concerns regarding the user interface, which could benefit from a more intuitive design."</p>	Product quality and User experience	High product quality but concerns over usability and minor imperfections.
<p>Logistics and Delivery</p> <p>"Delivery has been super smooth. I have no complaints at all!"</p> <p>"While my delivery was delayed, I'm happy to say that the process itself was seamless and hassle-free."</p> <p>"Although the delivery process typically runs smoothly, there have been recurring problems with packaging and challenges surrounding timing and tracking of shipments."</p>	Logistics and Delivery	Generally smooth process but concerns over delays and tracking
<p>Packaging Quality and Consistency</p> <p>"Some of the bulk orders arrived with weak packaging, and we had to repack them before using them. It slows down our process and adds extra work." (Respondent - B2B customer)</p> <p>"We received the same product in different types of packaging, which made it difficult to organize our stock properly." (Respondent - B2B customer)</p> <p>"I ordered a set of delicate puzzle toys for my kids, but half of them arrived broken</p>	Packaging Quality and Consistency	Inconsistent packaging leading to product damage and operational inefficiencies.

because they were just wrapped in thin paper instead of bubble wrap."		
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Thesis Data/material management plan

1. General description of the material

A survey questionnaire is a type of research material collected or used in the thesis. In addition, qualitative research was sent out for additional information to support the findings and analysis

2. Documentation and quality of the material

PSPP statistical process was used once data is collected. Afterward, the findings were documented accordingly. Also, ideas, challenges, and feedback from the planned workshop with the commissioner were documented. Themes were drawn from the interview using preventive tools like Word Cloud. All information received will be saved in my mail or cloud. Themes were drawn out from the interview.

3. Storage and backup

During the thesis process, ensuring proper storage, backup, and data security was crucial. The following helped me keep my data.

Multiple Copies: Follow the 3-2-1 rule: Maintain three copies of the data—stored on two different media, (email, in the cloud, and printed copy out)

Version Control: I kept drafted/temporary, and master copies separate.

Regular Backups: Create and verify backup copies during the research. Regularly back up the master data to prevent data loss.

4. Ethical and legal issues related to storage.

Ethical and legal practices ensure responsible data management and protect both researchers and the commissioner's company. I considered encrypting stored data to protect it from unauthorized viewing or theft.

5. Opening of the data and long-term storage.

Since the project is solely for the commissioner the company decided to stay anonymous, as DD Logistics company data and long-term storage will be saved with the commissioner.

The stages of statistical research

1. Planning
 - a. Selection of and focusing on the research problem
 - b. Selection of population
 - c. Defining the research design (general plan for practical arrangements concerning collecting and analyzing data)
 - i. Sample survey or census research. Sample survey
 - ii. Sample size? 104
 - d. Defining and choosing variables and measurement methods
 - i. Variables and scales of variables
 - ii. Compiling the questionnaire
 - iii. Testing the questionnaire, it was checked by Statistics Lecturer
 - e. Collecting the data and planning computer processing
 - i. Sampling methods
 - ii. Letter questionnaire, email questionnaire, internet questionnaire, interview...?
Email questionnaire and WhatsApp's interview
 - f. Ethical questions
 - g. The initial selection of statistical methods
 - i. Consideration of which analyzing methods will be used to find an answer to the research problems
 - h. Reporting and publishing of results
2. Data collection and editing

- a. **Inputting the data into the computer Yes, PSPP used**
- b. **Classification of variables (if necessary)**
- 3. **Describing the data**
 - a. **Frequency distributions**
 - b. **Charts**
- a. **Presentation and description of methods used**
- b. **Presentation of results and conclusions**
- c. **Assessment of the success of the study and its reliability**