

Ecole des hautes études de commerce d'Alger



Final dissertation for the master's degree in business science

THEME:
**The Impact Of The Supply Chain On Customer
Satisfaction In The Online Food Delivery Industry Case
Study: Feed Me**

Option: Management

Presented by:

Beroman Khaled Abderraouf

framer:

Hoadjli Abir

Class B Lecturer

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Abstract

The online food delivery industry has emerged as a dynamic and rapidly evolving sector, driven by advancements in technology and shifting consumer preferences. This abstract provides an overview of the key themes explored in this research, which focuses on the impact of supply chain management on customer satisfaction in the online food delivery industry.

The research aims to address the central problematic of how supply chain management practices influence customer satisfaction in this industry. Through a comprehensive examination of the supply chain management challenges, the role of collaboration among supply chain actors, the importance of effective communication with customers, and the key factors influencing customer decision-making, this study seeks to shed light on the critical aspects that shape customer satisfaction in the context of online food delivery.

The study adopts a hypothesis-driven approach, with two key hypotheses proposed. Hypothesis 1 posits that the quality and timeliness of food delivery have a significant impact on customer satisfaction, while Hypothesis 2 suggests that the use of innovative technologies in supply chain management improves customer satisfaction. These hypotheses provide a framework for analyzing and understanding the factors that contribute to customer satisfaction in the online food delivery industry.

To conduct this research, a mixed-methods approach is employed, combining both qualitative and quantitative data collection methods. Primary data is gathered through interviews and surveys, while secondary data is collected from academic literature, industry reports, and market research. The data analysis process involves coding, categorization, and statistical analysis to identify patterns and correlations between supply chain management practices and customer satisfaction levels.

The findings of this research contribute to both academic knowledge and practical insights for industry stakeholders. The results confirm the significance of quality and timeliness in food delivery as key drivers of customer satisfaction. Additionally, the study reveals the positive impact of innovative technologies on supply chain management practices and their role in enhancing the overall customer experience.

In conclusion, this research underscores the importance of effective supply chain management in the online food delivery industry and its direct influence on customer

satisfaction. By understanding and addressing the challenges, fostering collaboration among supply chain actors, leveraging innovative technologies, and prioritizing communication with customers, businesses can optimize their operations and enhance customer satisfaction levels. These insights provide valuable guidance for companies seeking to thrive in the highly competitive landscape of the online food delivery industry.

Résumé

L'industrie de la livraison de nourriture en ligne a émergé en tant que secteur dynamique en constante évolution, stimulée par les avancées technologiques et les préférences changeantes des consommateurs. Ce résumé offre un aperçu des thèmes clés abordés dans cette recherche, qui se concentre sur l'impact de la gestion de la chaîne d'approvisionnement sur la satisfaction des clients dans l'industrie de la livraison de nourriture en ligne.

La recherche vise à répondre au problème central de savoir comment les pratiques de gestion de la chaîne d'approvisionnement influencent la satisfaction des clients dans cette industrie. À travers un examen complet des défis de la gestion de la chaîne d'approvisionnement, du rôle de la collaboration entre les acteurs de la chaîne d'approvisionnement, de l'importance d'une communication efficace avec les clients et des facteurs clés influençant la prise de décision des clients, cette étude cherche à mettre en lumière les aspects critiques qui façonnent la satisfaction des clients dans le contexte de la livraison de nourriture en ligne.

L'étude adopte une approche basée sur des hypothèses, avec deux hypothèses clés proposées. L'hypothèse 1 postule que la qualité et la ponctualité de la livraison de nourriture ont un impact significatif sur la satisfaction des clients, tandis que l'hypothèse 2 suggère que l'utilisation de technologies innovantes dans la gestion de la chaîne d'approvisionnement améliore la satisfaction des clients. Ces hypothèses fournissent un cadre d'analyse et de compréhension des facteurs qui contribuent à la satisfaction des clients dans l'industrie de la livraison de nourriture en ligne.

Pour mener cette recherche, une approche mixte est utilisée, combinant des méthodes de collecte de données qualitatives et quantitatives. Les données primaires sont recueillies à travers des entretiens et des enquêtes, tandis que les données secondaires sont collectées à partir de la littérature universitaire, des rapports sectoriels et des études de marché. Le processus d'analyse des données implique le codage, la catégorisation et l'analyse statistique pour identifier les motifs et les corrélations entre les pratiques de gestion de la chaîne d'approvisionnement et les niveaux de satisfaction des clients.

Les résultats de cette recherche contribuent à la fois aux connaissances académiques et aux idées pratiques pour les acteurs de l'industrie. Les résultats confirment l'importance de la qualité et de la ponctualité de la livraison de nourriture en tant que principaux moteurs de la

satisfaction des clients. De plus, l'étude révèle l'impact positif des technologies innovantes sur les pratiques de gestion de la chaîne d'approvisionnement et leur rôle dans l'amélioration de l'expérience globale des clients.

En conclusion, cette recherche souligne l'importance d'une gestion efficace de la chaîne d'approvisionnement dans l'industrie de la livraison de nourriture en ligne et son influence directe sur la satisfaction des clients. En comprenant et en abordant les défis, en favorisant la collaboration entre les acteurs de la chaîne d'approvisionnement, en tirant parti des technologies innovantes et en privilégiant la communication avec les clients, les entreprises peuvent optimiser leurs opérations et améliorer les niveaux de satisfaction des clients. Ces informations fournissent des orientations précieuses aux entreprises cherchant à prospérer dans le paysage hautement concurrentiel de l'industrie de la livraison de nourriture en ligne.

ملخص

برزت صناعة توصيل الطعام عبر الإنترنت كقطاع ديناميكي وسريع التطور ، مدفوعًا بالتقدم في التكنولوجيا يقدم هذا الملخص لمحة عامة عن الموضوعات الرئيسية التي تم تناولها في هذا البحث ، وتغيير تفضيلات المستهلكين يهدف البحث إلى . والتي تركز على تأثير إدارة سلسلة التوريد على رضا العملاء في صناعة توصيل الطعام عبر الإنترنت من . معالجة المشكلة المركزية المتعلقة بكيفية تأثير ممارسات إدارة سلسلة التوريد على رضا العملاء في هذه الصناعة خلال فحص شامل لتحديات إدارة سلسلة التوريد ، ودور التعاون بين الجهات الفاعلة في سلسلة التوريد ، وأهمية التواصل الفعال مع العملاء ، والعوامل الرئيسية التي تؤثر على اتخاذ قرارات العملاء ، تسعى هذه الدراسة إلى إلقاء الضوء على تتبنى الدراسة نهجًا يحركه الفرضية ، . الجوانب الحاسمة التي تشكل رضا العملاء في سياق توصيل الطعام عبر الإنترنت تفترض الفرضية 1 أن جودة وتوقيت تسليم الطعام لهما تأثير كبير على رضا العملاء ، . مع اقتراح فرضيتين رئيسيتين توفر هذه الفرضيات . بينما تشير الفرضية 2 إلى أن استخدام التقنيات المبتكرة في إدارة سلسلة التوريد يحسن رضا العملاء لإجراء هذا البحث ، . إطارًا لتحليل وفهم العوامل التي تساهم في إرضاء العملاء في صناعة توصيل الطعام عبر الإنترنت يتم جمع البيانات الأولية من خلال المقابلات . يتم استخدام نهج مختلط يجمع بين طرق جمع البيانات النوعية والكمية تتضمن عملية . والاستطلاعات ، بينما يتم جمع البيانات الثانوية من المؤلفات الأكاديمية وتقارير الصناعة وأبحاث السوق تحليل البيانات الترميز والتصنيف والتحليل الإحصائي لتحديد الأنماط والارتباطات بين ممارسات إدارة سلسلة التوريد . تساهم نتائج هذا البحث في المعرفة الأكاديمية والرؤى العملية لأصحاب المصلحة في الصناعة . ومستويات رضا العملاء بالإضافة إلى ذلك ، تكشف . تؤكد النتائج أهمية الجودة وحسن التوقيت في توصيل الطعام كمحركات رئيسية لرضا العملاء الدراسة عن التأثير الإيجابي للتقنيات المبتكرة على ممارسات إدارة سلسلة التوريد ودورها في تعزيز تجربة العملاء بشكل في الختام ، يؤكد هذا البحث على أهمية الإدارة الفعالة لسلسلة التوريد في صناعة توصيل الطعام عبر الإنترنت . عام من خلال فهم التحديات ومعالجتها ، وتعزيز التعاون بين الجهات الفاعلة في سلسلة . وتأثيرها المباشر على رضا العملاء التوريد ، والاستفادة من التقنيات المبتكرة ، وتحديد أولويات التواصل مع العملاء ، يمكن للشركات تحسين عملياتها وتعزيز توفر هذه الرؤى إرشادات قيمة للشركات التي تسعى إلى الازدهار في المشهد التنافسي للغاية . مستويات رضا العملاء لصناعة توصيل الطعام عبر الإنترنت

Dedications

I would like to dedicate this memoir to my family, whose unwavering support and encouragement have been instrumental in my academic journey.

I would also like to express my heartfelt gratitude to my professors and mentors who have guided and inspired me throughout this process.

Finally, I would like to extend my deepest appreciation to all the participants who willingly shared their time and knowledge for this study. Your valuable contributions have enriched this research and provided meaningful insights into the challenges and opportunities in the online food delivery industry.

This memoir is dedicated to all those who have played a role in my academic and personal growth. Your belief in me and your constant encouragement have been my driving force. Thank you for being a part of this remarkable journey.

Acknowledgments

I would like to dedicate this thesis to my beloved family, whose unwavering support and encouragement have been the driving force behind my academic journey.

To my parents, who have always been my pillars of strength, I am forever grateful for your love, guidance, and sacrifices. Your belief in me and your constant encouragement have given me the confidence to pursue my goals and overcome challenges along the way.

To my siblings, thank you for your understanding and support throughout this journey. Your words of encouragement and shared moments of joy have made the path to completing this thesis more meaningful and enjoyable.

Finally, I would like to thank my supervisors and professors for their invaluable support throughout this journey. Their insightful guidance, expertise, and availability have greatly enriched this research work.

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abbreviations list

CSCMP: The Council Of Supply Chain Management Professionals

SCOR: Supply Chain Operations Research

OFD: Online Food Delivery

KPIs: Key Performance Indicators

JIT: Just-In-Time

EDI: Electronic Data Interchange

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General Introduction:

In today's fast-paced world, the online food delivery industry has witnessed a significant transformation, revolutionizing the way people enjoy meals from their favorite restaurants without leaving the comfort of their homes. As this industry continues to flourish, the supply chain management behind it plays a crucial role in ensuring customer satisfaction. This thesis aims to explore the impact of the supply chain on customer satisfaction in the online food delivery industry, with a particular focus on the startup venture "Feed Me."

Problematic:

The primary question driving this research is: How can supply chain management in the online food delivery industry affect customer satisfaction? This complex issue requires a comprehensive understanding of the challenges faced in supply chain management, the role of collaboration among supply chain actors, the importance of communication with customers, and the key factors influencing customers' choice of one meal delivery service over another.

Secondary Questions:

What are the supply chain management challenges in the meal delivery industry? Understanding the unique challenges faced in managing the supply chain is essential to identify areas that require improvement and optimization.

What is the role of collaboration between different supply chain actors (suppliers, carriers, etc.) in customer satisfaction? Effective collaboration among supply chain actors can enhance the overall customer experience by streamlining operations, improving delivery efficiency, and ensuring product quality.

How can communication with customers help improve their satisfaction in the meal delivery industry? Open and effective communication channels between the service provider and customers can foster transparency, address concerns promptly, and enhance customer satisfaction.

What are the key factors that influence a customer's decision to choose one meal delivery service over another? Identifying the factors that drive customer preferences and choices will provide valuable insights into how meal delivery services can differentiate themselves and attract and retain customers.

Hypotheses:

Hypothesis 1: Quality and timeliness of food delivery have a significant impact on customer satisfaction. It is likely that timely and high-quality food delivery is a crucial factor in determining customer satisfaction in the meal delivery industry. Any disruptions or delays in the supply chain can lead to customer dissatisfaction and reduced loyalty.

Hypothesis 2: The use of innovative technologies in supply chain management improves customer satisfaction. It is likely that leveraging innovative technologies, such as mobile apps, geolocation systems, and quality tracking tools, can enhance the speed, accuracy, and overall experience of food delivery, resulting in higher customer satisfaction.

In the following chapters, this thesis will delve into the intricacies of supply chain management and its implications for customer satisfaction in the online food delivery industry.

Chapter 1 will explore the fundamentals of supply chain management, including logistical chain definitions, types of logistics, logistic flows, logistic costs, and the differentiation between logistics and supply chain. Additionally, it will examine supply chain strategies and decision-making processes.

Chapter 2 will shift the focus to the online food delivery industry, discussing its emergence, growth, and rising customer expectations regarding satisfaction. The chapter will shed light on the importance of customer satisfaction in this industry and explore how supply chain management practices can contribute to meeting these expectations.

Chapter 3 will delve into the business plan of "Feed Me," a startup venture aiming to capitalize on the opportunities presented by the online food delivery industry. This comprehensive plan will encompass an executive summary, the creator team, a company description, a marketing plan, a business strategy, a finance plan, and a vision of the company's future.

By examining these key aspects and synthesizing the findings, this thesis will provide valuable insights into the impact of supply chain management on customer satisfaction in the online food delivery industry. It is hoped that the outcomes of this research will contribute to the continuous improvement and development of meal delivery services, enhancing the overall customer experience and fostering the success of startups like "Feed Me."

Chapter I: Supply Chain Management

1 Chapter I: supply chain management

Supply chain management plays a critical role in the success of businesses across various industries, including the online food delivery sector. This chapter provides a comprehensive exploration of supply chain management, starting with a detailed definition of the logistical chain. We examine the fundamental concepts of logistics, including the different types of logistics and the various flows involved in the movement of goods. These flows encompass direct delivery, delivery using centralized and decentralized distribution platforms, as well as cross-docking delivery. Additionally, we delve into the intricate world of logistic costs, identifying and analyzing the different types that organizations encounter in their supply chain operations.

Furthermore, this chapter delves into the broader scope of supply chain management, distinguishing it from logistics and highlighting the critical differences between the two. We investigate the function of the supply chain and its significance in ensuring seamless coordination and integration among the different actors involved, from suppliers to end customers. By understanding the distinct roles and responsibilities within the supply chain, organizations can effectively optimize their operations and enhance overall customer satisfaction.

Lastly, we explore various supply chain strategies that organizations can adopt to gain a competitive advantage in the market. These strategies encompass the different levels of supply chain decision-making, from tactical to strategic, and emphasize the importance of effective supply chain planning. By employing the right strategies, organizations can streamline their processes, optimize resource allocation, and deliver exceptional value to customers.

1.1 Section 1: Logistical Chain Definition

1.1.1 Definition of Logistics

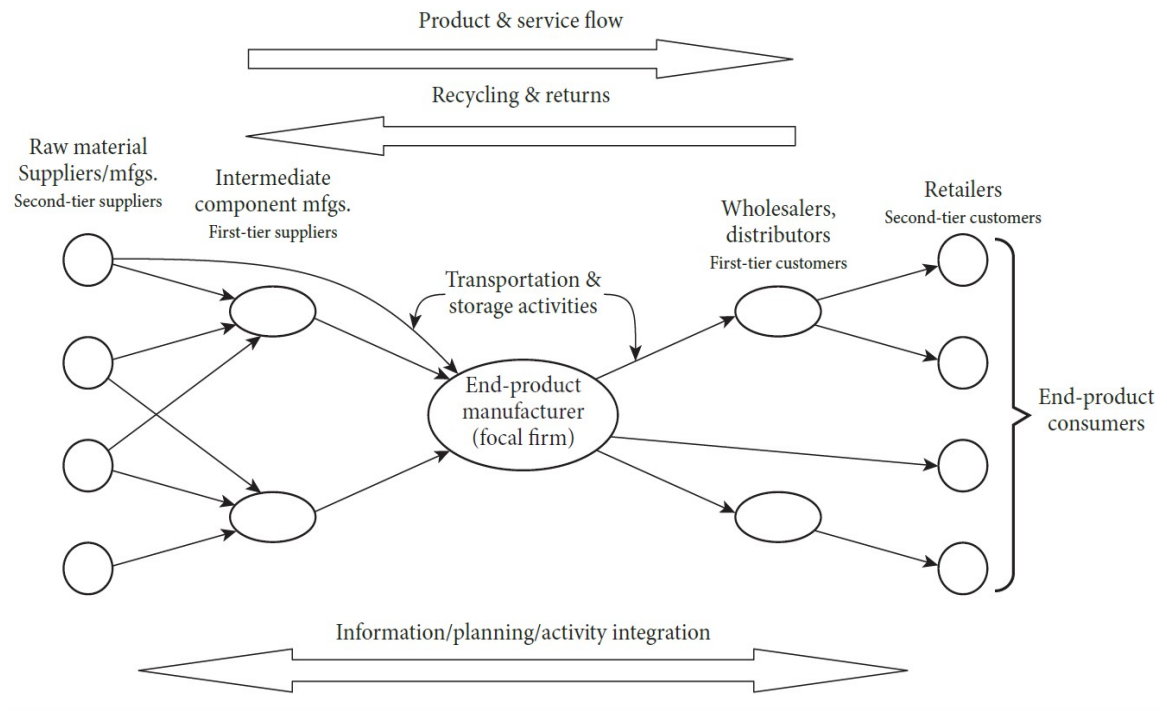
the term logistics originated around the 1930s from the French word “logistique”, which is taken from the word “loger” meaning dividing troops. The Council of Supply Chain Management Professionals (CSCMP) defines logistics as “the plans, implements, and controls that effectively and efficiently forward and reverse the flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customer’s requirements¹”. Christopher, M. (2005, p4) defines Logistics management as the process of strategically managing the procurement, movement, and storage of materials, parts, and finished inventory (and the related information flows) through the organization and its marketing channels such as way that current and future profitability are maximized through the cost-effective fulfillment of orders².

Therefore, Logistics is the management of an organization's physical flows (as well as related information and financial data), with the aim of making available the resources corresponding to (more or less) specific needs while respecting the expected economic conditions, the expected level of service quality, and the safety and security conditions deemed satisfactory.

¹ Council of Supply Chain Management Professionals (CSCMP). Glossary of Supply Chain Terms. 2023. Retrieved, May 24th,2023
https://cscmp.org/CSCMP/Educate/SCM_Definitions_and_Glossary_of_Terms.aspx

² CHRISTOPHER, Martin. Logistics and Supply Chain Management: Creating Value-Adding Networks 3rd ed. Great Britain: Prentice Hall, 2005, p. 4.

Figure 1:logistic process



Source: Joel Wisner, Keah-Choon Tan, G. Keong Leong, *Principles of Supply Chain Management: A balanced approach*, 5th edition, 20 Channel Center Street Boston, 2017, p6

The importance of logistics within the supply chain for a business has increased significantly during the past two decades due to the forces of globalization. Because nowadays customers can be based in the other part of the world, but nevertheless, they still expect to receive the product in a few days. And if a company cannot satisfy this expectation, it can find its customer segments limited only to the local market losing a large number of potential customers, and potential profit.

1.1.2 Logistics Flow

Logistical flows refer to the movement of goods, information, and resources within the supply chain. These flows are essential for the efficient and effective management of logistics operations³.

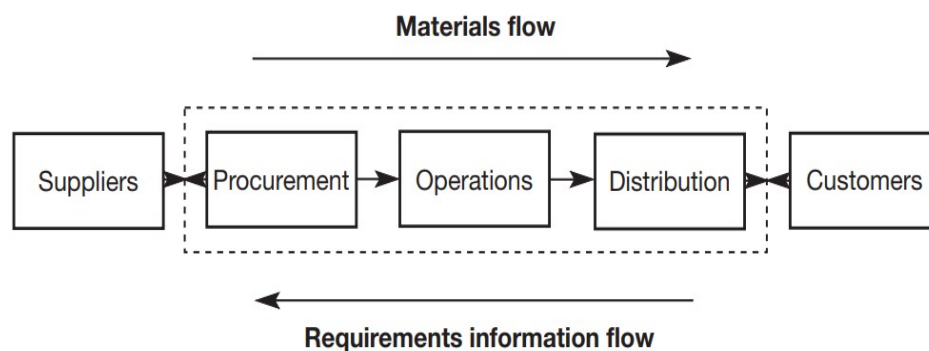
The key logistical flows include:

³ CHOPRA, Sunil and Peter MEINDL. *Supply Chain Management: Strategy, Planning, and Operation*. Pearson Education Limited, 2015, pp. 3-5.

- A. **Material Flow:** The material flow represents the physical movement of goods or products from suppliers to customers. It involves activities such as transportation, warehousing, inventory management, and order fulfillment.
- B. **Information Flow:** The information flow involves the exchange of data and information related to the movement and status of goods within the supply chain. It includes activities such as order processing, tracking and tracing shipments, inventory visibility, and demand forecasting.
- C. **Financial Flow:** The financial flow encompasses the transfer of funds and financial transactions associated with the purchase, production, and sale of goods within the supply chain. It includes activities such as invoicing, payment processing, credit terms, and financial settlement.

These logistical flows ensure the timely and accurate delivery of products to meet customer demand; enable coordination, visibility, and decision-making throughout the supply chain; ensure the proper allocation of financial resources, and facilitate financial management within the supply chain respectively.

Figure 2: logistic flows



Source: Christopher, M. *Logistics and Supply Chain Management: Creating Value-Adding Networks*, 3rd Ed. Great Britain: Prentice Hall. 2005.p15

1.1.3 Logistics Objectives

The optimization of supply and distribution networks encompasses several key objectives aimed at achieving operational excellence. These objectives include enhancing synchronization among different stages within the supply chain, optimizing production capacity utilization, and effectively responding to evolving customer demands. By effectively

aligning these aspects, organizations can enhance supply chain efficiency, optimize resource allocation, and meet customer expectations more effectively.

Another set of objectives in supply and distribution network optimization includes minimizing lead times, effectively managing risks such as delays and stock-outs, reducing waste and environmental impact, and implementing effective competition management strategies. By prioritizing these objectives, businesses can enhance operational agility, mitigate supply chain disruptions, promote sustainability, and maintain a competitive advantage in the marketplace.

1.1.4 The Different Types of Logistics

According to (Aida Kaddoussi 2012.p22) ⁴There are several types of logistics:

- supply logistics, which enable companies and factories to replenish their inventories of raw materials, components, and sub-assemblies required for production.
- production logistics consists of making the materials and components for the production lines.
- distribution logistics involves delivering the products required by the end customer or the products they need.
- military logistics, aiming to transport forces and resources to a theater of operations to ensure operational deployment and support.
- retro-logistics, which consists in taking back products that the customer does not want or wants to have repaired, or products that are in need of repair.

• ⁴ Kaddoussi, A. *Optimisation des flux logistiques : vers une gestion avancée de la situation de crise* [Logistical flow optimization: Towards advanced crisis management]. doctorat thesis, Ecole Centrale de Lille. Français, 2012. p 22.

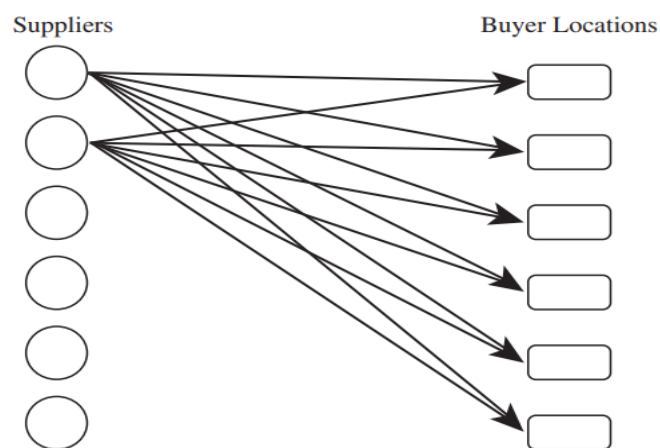
1.1.5 Types of Logistics Flows

According to Sunil Chopra and Peter Meindl (2015,pp.406-410)⁵, there are 6 different logistics flows:

1.1.5.1 Direct Delivery:

Direct delivery refers to the process of delivering goods directly from the source or supplier to the end customer without involving intermediaries or additional distribution centers. It involves a direct transportation route from the origin to the destination.

Figure 3:direct delivery

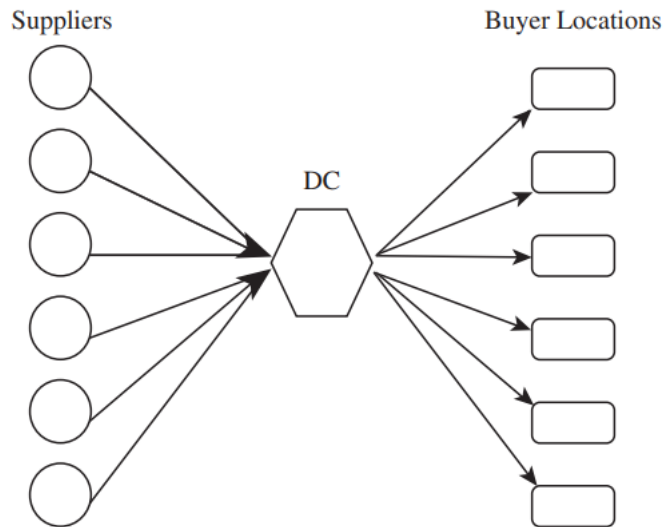


Source: CHOPRA, Sunil and Peter MEINDL. *Supply Chain Management: Strategy, Planning, and Operation*. Pearson Education Limited, 2015, p. 406.

1.1.5.2 Delivery Using a Central Distribution Center:

In this approach, goods are transported to a central distribution center where they are stored, sorted, and then dispatched to individual locations or customers. The central distribution center serves as a hub for coordinating and managing the flow of goods.

⁵ CHOPRA, Sunil and Peter MEINDL. *Supply Chain Management: Strategy, Planning, and Operation*. Pearson Education Limited, 2015, pp 406-410.

Figure 4: All Shipments via DC

Source: *CHOPRA, Sunil and Peter MEINDL. Supply Chain Management: Strategy, Planning, and Operation. Pearson Education Limited, 2015, p. 408.*

1.1.5.3 Delivery Using Decentralized Platforms:

Decentralized platforms involve the use of multiple smaller distribution centers or facilities located closer to the end customers. These facilities are strategically placed to enable faster and more efficient delivery to specific regions or areas.

1.1.5.4 Delivery Using a Multi-level Network of Platforms:

This approach involves a complex network of distribution platforms at different levels. Goods are transferred between various platforms, such as regional distribution centers, local warehouses, and delivery hubs, to optimize the delivery process.

1.1.5.5 Delivery Using a Cross-docking Platform:

Cross-docking is a logistics strategy where incoming goods from suppliers are directly transferred to outbound transportation vehicles without the need for long-term storage. This approach minimizes inventory holding time and allows for faster order fulfillment.

1.1.5.6 Delivery Using a Consolidation Center:

A consolidation center is a facility where goods from multiple suppliers are combined or consolidated into larger shipments before being sent to customers. This approach helps optimize transportation efficiency and reduces costs.

Table 1:Flow types

Flow type	Principle	Advantages	Disadvantages
Direct delivery	From supplier to customer (factory to the delivery site) Ex: heavy goods (concrete, cement)	Reduces costs by limiting load breaks related to passing through an intermediate platform	
Delivery using a central distribution center	Deliver all customers from a central site (warehouse to the delivery site)	Reduces stock levels and improves the fill rate of vehicles making customer deliveries	
Delivery using decentralized platforms	Each platform is responsible for delivering to customers in a given region	It generates lower transport costs than centralized platforms (closer to customers)	Stock levels are higher: the same product must be kept stocked on several platforms
Delivery using a multi-level network of platforms	The platforms are organized on several levels (ex: central platforms + regional platforms)		
Delivery using a cross-docking platform	The products are loaded from incoming vehicles, possibly sorted, and then loaded into outgoing vehicles without being placed in a warehouse	Lean flows help reduce delivery times and inventory levels	Implementation difficulties (coordination between incoming and outgoing deliveries) They generate additional breakage costs

Delivery using a consolidation center	Combines goods from several suppliers on a common platform to deliver to the same customers using the same trucks	Reduce transport costs (improving the filling rate), logistics costs, and storage costs for customers (delivering smaller quantities to customers)	Difficulties in optimizing logistics networks (each company has its own network which is not interconnectable with another network)
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Source: Made by Myself

1.1.6 Logistics Cost:

The major objective of logistics is to optimize the profitability compared to the cost of the total supply chain means minimizing the total logistics cost for a given customer service objective.

According to Bowersox, D (2013, pp,36-43) The calculation of the total logistics cost involves the summation of various cost components, including transport costs, warehousing costs, order processing costs, intrinsic inventory costs, and production costs defined by batches⁶.

Transport costs need to be carefully identified and analyzed based on several segments in order to gain a comprehensive understanding. This includes distinguishing between internal transport and external transport, as well as identifying the suppliers and customers involved. Moreover, it is essential to consider the mode of transport, the specific service provider, the nature of the product being transported, and the characteristics of the distribution network. By dissecting transport costs along these segments, organizations can gain valuable insights into their transportation expenditures and make informed decisions to optimize their logistics operations.

1.1.6.1 Warehousing Costs:

Warehousing costs pertain to the expenses associated with storing and managing inventory in a warehouse or distribution center. This includes costs such as rent or lease payments for the facility, utilities, equipment maintenance, labor costs for warehouse personnel, and any additional costs related to inventory management systems or technology.

⁶ BOWERSOX, Donald J., David J. CLOSS, and M. Bixby COOPER. Supply Chain Logistics Management. McGraw-Hill Education, 2013, pp. 36-43.

1.1.6.2 Order Processing Costs:

Order processing costs encompass the expenses incurred in managing and fulfilling customer orders. This includes costs associated with order entry, order verification, order picking and packing, order tracking, and shipping documentation. It may also involve costs related to order management systems, order processing staff, and any technology or software used in the order fulfillment process.

1.1.6.3 Intrinsic Inventory Cost:

Intrinsic inventory cost refers to the expenses tied to holding inventory within a supply chain. It includes costs associated with carrying inventory, such as storage space, insurance, inventory management systems, handling and counting, and any potential costs related to inventory obsolescence, deterioration, or loss.

1.1.6.4 Production Costs Defined by Batches:

Production costs defined by batches are the expenses incurred during the manufacturing or production process, particularly when goods are produced in discrete batches or lots. This includes costs related to raw materials, labor, equipment usage, energy consumption, quality control measures, and any other expenses directly associated with the production of specific batches or lot.

