

**DEMOCRATIC AND POPULAR REPUBLIC OF
ALGERIA**

**MINISTRY OF HIGHER EDUCATION AND
SCIENTIFIC RESEARCH**

Ecole Supérieure de Commerce

A Dissertation Submitted in Partial Fulfillment of the Requirements
for Master's Degree in Commercial Sciences
Specialty: Organization and Management of Enterprises

**THE CONTRIBUTION OF SUPPLY
CHAIN MANAGEMENT PRACTICES
TO OPERATIONAL PERFORMANCE**

CASE STUDY: NESTLE WATERS, ALGERIA

Submitted by:
Amina Bouaouina

Supervised by:
Dr. Yahia Boukerch

Training address: Sidi El Kebir, Blida. Algeria
Training period: from April 24th 2023 to May 30th 2023

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Dedication

I dedicate this work to the most important people in my life, who have been my pillars of strength and unwavering support.

To my father, the best father in the world, thank you for your unconditional love, guidance, and belief in me. Your constant encouragement and sacrifices have shaped me into the person I am today. I am forever grateful for your presence in my life.

To my mother, you are my source of inspiration and my guiding light. Your unwavering love, sacrifices, and endless support have been the driving force behind my accomplishments. Thank you for always believing in me and for being my rock.

To my second mother, my aunt Saliha, thank you for your love, care, and support throughout my life. Your presence has brought immense joy and comfort, and I am grateful for the bond we share.

To my sisters, Linda, Sara, and the best sister Lamia, thank you for always being there for me. Your love, encouragement, and sisterly advice have been invaluable. I am blessed to have such incredible sisters who have stood by me through thick and thin. And my dear friends, Hadil, Hanane, Hiba, Maroua, Wissam, Abir, Dyna, Amani, and second sister Camelia. And all my friends.

To my brother, Aymen, thank you for your support and for being a source of strength. Your presence and brotherly bond mean the world to me.

To my lovely family, both near and far, thank you for your continuous love, encouragement, and unwavering belief in me. Your support has been invaluable, and I am grateful for the love and unity that binds us together.

This thesis is dedicated to all of you, who have played an integral role in shaping my life and supporting me on this journey. Your love, guidance, and presence have been the foundation of my success. I am forever grateful and honored to have you in my life.

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General Introduction

In an increasingly interconnected and dynamic business landscape, firms are faced with numerous challenges that require them to constantly strive for operational excellence and improved performance. The globalization of markets, rapid technological advancements, and intensifying competition have made it imperative for companies to adopt effective management strategies that enable them to adapt, innovate, and optimize their operations. One such field that has gained significant attention is Supply Chain Management (SCM).

Supply Chain Management involves the integration and coordination of various activities, processes, and stakeholders across the entire supply chain, from sourcing raw materials to delivering the final product to the end customer. Its primary goal is to enhance operational efficiency, reduce costs, improve customer satisfaction, and achieve a competitive advantage in the marketplace. However, despite its growing prominence, there is still a need for comprehensive research that explores the specific ways in which SCM practices contribute to a firm's operational performance. It has emerged as a crucial factor in determining the operational performance of firms across industries. The highly competitive business environment, and the awareness about the challenge of providing products with high quality in the right place at the right time which every company faced, lead to focus on delivering value to the customers, and to be more valuable compared to other competitors. Organizations are recognizing the significance of optimizing their supply chain processes to enhance efficiency, reduce costs, and improve customer satisfaction.. In the face of fierce competition, businesses are compelled to gain a deep understanding of customer preferences and demands in order to deliver the right product at the right place and at the right time. This heightened customer consciousness has shifted the focus of supply chains, necessitating them to become more valuable and competitive. This topic explores the contribution of supply chain management to a firm's operational performance, analyzing the various dimensions that enable organizations to achieve excellence in their supply chain operations. Merely acknowledging the importance of the supply chain is insufficient; it is crucial to elucidate the reasons behind the significant contribution of its practices to gaining a competitive advantage. By doing so, the underlying problem can be identified, leading to the following question::

1. Main Research Question

To what extent do supply chain management practices contribute to the operational performance?

1.1 Sub-Questions

This main research question is divided into the following sub-research questions in which an attempt will be made to answer them in this study:

- Do supply chain management practices influence the product quality of Nestlé Waters Algeria?
- Do the supply chain management practices (SCMP) impact the cost of Nestlé Waters?
- Do SCMP influence the delivery process of Nestlé Water's products?
- Is the flexibility of Nestlé Waters impacted by its practices of supply chain

1.2 Hypotheses

Based on these research questions, the following hypotheses were proposed:

- Hypothesis 1: Supply chain management practices, namely strategic supplier partnership, customer relationship, and information sharing, influence the product quality of firm.
- Hypothesis 2: Nestlé Water is a widely consumes product, it is hypothesized that SCMP, influence cost.
- Hypothesis 3: Due to the wide consumption of Nestlé Water's product, it is believed that SCMP influence delivery.
- Hypothesis 4: Due to its size and product category, SCMP do not influence flexibility.

2. Reasons of Choosing the Research

Apart from the inherent importance of this research subject, several reason contribute to its selection.

- Firstly, its alignment with the field of specialization, namely the organization and management of enterprises, makes it a natural choice.
- Secondly, the study of this subject during academic courses has cultivated a genuine interest and deep understanding of its intricacies.
- Lastly, the passion for conducting advanced research on this particular subject serves as a driving force, propelling the desire to delve deeper into its complexities and uncover valuable insights.

3. Research Importance

The significance of this research derives from the complexity the turbulence and the increasing changes that the business environment recognized. This makes the supply chains as a research still in its infancy, the need to aware the role of supply chain practices in achieving firms performance, and to knowing the opportunities that can it bring to its firm's operations become important for every company to be more competitive compared to its competitors. Addressing supply chain management practices will help to better understand the activities related to supply chain.

4. Research Objectives

The aim of this research is to conduct both of the theoretical and the empirical study in order to providing justification for a framework that identifies conceptual review on Supply chain and its practices, and operational performance, and aim to identify the relationship between each other, also to clarify the contribution of supply chain practices to enhancing the operational performance a firm and evaluate this practices to determine the most effective one to help in enhancing the operational performance. To obtain an understanding of these objectives, there are two concepts that needed to be explored which are: supply chain practices and operational performance of a firm.

5. Research Methodology

In order to answer the research questions, a quantitative research will be conducted right after the documentary research that aims to acquire insights and an overview of the main subject which is: electronic commerce.

The quantitative research will be conducted in a form of an unstructured in-depth interview with the decision makers included directly in the process. This research is necessary and a starting point of the quantitative research. In this quantitative research, a questionnaire will be designed, tested.

To test these hypotheses, a multiple regression analysis will be carried out. The multiple regression analysis can be used only if the following preliminary conditions are approved:

- Sample size: according to the formula $N \geq 50 + 8m$.
- Outliers: the extreme values that can be identified through the Mahalanobis distance which is determined by the value of chi-square in which the number of independent

variables is the degree of freedom and using 0.001 as level of significance. All of Mahalanobis values must be lower than the chi-square square (number of independent variables, 0.001) value.

- Normality: there are two different ways to test the assumption of normality: the first is examined through normality plot, and the second depends on the standardized residuals values, which must be neither above +3, nor below -3
- Multicollinearity and Singularity: Multicollinearity refers to the high correlation among independent variables ($\geq .90$). This condition can be examined either by tolerance statistic where this latter should be above 0.1 or through the correlation between independent variables (must be lower than 70%). Whereas singularity refers to the redundancy of variables, in which one variable is a combination of other variables.
- Independence of residuals: this can be assessed using DW: the DW value is always between 0 and 4, when it is 2 there is no autocorrelation and residuals are independent. Each DW has two values: DL (LOWER) and DU (UPPER). If the calculated value is lower than DL residual are not independent, if calculated value is higher than DU residuals are independent, and if the calculated value from SPSS is between DU and DL then the result is inconclusive.

In case of outliers, the Mahalanobis values that are higher than chi-square value are removed. To get rid of Multicollinearity, factor analysis must be conducted to group correlated variables.

6. Research Structure

This Research is divided into three chapters. Two of these chapters will be dedicated to the literature review regarding Supply Chain Management, its practices and the Operational performance, the final chapter consists of an empirical research that will put the hypotheses into test. In what follows, the structure of each chapter is discussed.

- First chapter: which is entitled: Supply Chain Management (SCM): general overview contains three sections. In the first section, an introduction to SCM, its main concepts, history, finally its stages, and flows. The second section was dedicated to the functions and decision levels of a SCM. Finally, the last section explains the practices and performance of a SCM.
- Second chapter: which is entitled: Operational performance and its dimensions. This chapter is divided into three sections, the first section explains the performance concept,

its definition, and its evolution. The second section shows the operational performance definitions, its Dimensions. The last section explore the relationship between a Supply Chain Management practices (SCMP), including strategic supplier partnership, customer relationship, and information sharing with the operational performance.

- Third chapter: which is entitled: The Empirical research, includes the case study of the research which is conducted based on the main research question that aims to determine the relationship between the practices of SCMP. The third chapter contains three sections, the first section gives a general overview of Nestlé Waters Algeria Company. The second section is dedicated to the research methodology that explains the research design. And finally the last section presents the findings of the quantitative research.

***Chapter 1: Supply Chain Management: A
General Overview***

Introduction

The business landscape is now highly competitive, characterized by a dynamic and volatile environment, which presents new challenges for companies. To achieve optimal performance, particularly in enhancing Supply Chain Management, organizations are compelled to mobilize both their internal and external resources.

In this chapter, we will systematically introduce the fundamental concepts of our research topic. To accomplish this, we have divided the presentation into three sections:

The first section will focus on defining the key concepts in logistics, supply chain, and supply chain management. Additionally, we will elucidate certain theoretical concepts associated with Supply Chain Management, such stages and flows within a supply chain framework.

The second section will delve into the diverse domains in which Supply Chain Management. Specifically, we will explore the management of upstream, internal, and downstream and decisions levels.

The third section will initially present the supply chain management practices including the strategic supplier partnership, the customer relationship, and the information sharing. Ending with the overview of supply chain performance (SCP).

Section one: Supply Chain Management (SCM): General Overview

The first section, provides general overview of supply chain management (SCM). Starting by presenting different definitions and perspectives of SCM, highlighting its historical, tracing its roots and how it has emerged as a critical discipline in today's global business environment. Lastly, exploring its stages, and its flows.

1.1 The Evolution of Supply Chain Management (SCM)

The term Supply Chain Management (SCM) was coined in the late 1990s, it has gained significant recognition and has been studied and applied in various fields, particularly in the field of logistics.

1.1.1 Logistics Origin

Logistics, as a term and concept, has its roots in ancient Greece and was initially associated with military operations. The ancient Greeks used the term "logistikos" to refer to military officers who specialized in calculating and organizing the resources required for war expeditions. These officers were responsible for determining the provisions, equipment, and transportation needed to support military campaigns (Zanjirani Farahani, 2011). It emerged during the Second World War with the emergence of military organizations in the form of an adequate supply fleet for soldiers' requirements during the war and the provision of all the equipment they needed in a timely and appropriate manner by preserving, storing and delivering them in an appropriate manner that would allow for the preservation of confrontation capability and continuous battle (Christopher, 2011). Antoine-Henri Jomini, a general in the French army and later in the Russian service, described logistics as "the practical art of moving armies". His interpretation that logistics encompassed a wide range of responsibilities involved in the transportation and maintenance of military forces, and it included various functions such as planning, administration, supply management, encampment arrangement, and bridge and road construction (Zanjirani Farahani, 2011).

So, logistics played an indispensable role in the tactics and strategies of wars throughout history, encompassing the planning, administration, and supply management required for effective military operations.

1.1.2 Historic SCM Events

According to Tan (2001), the historical evolution towards supply chain (SC) can be summarized in the following main phases:

During the 1950s and 1960s, manufacturers primarily focused on mass production techniques to reduce costs and improve productivity. They prioritized efficiency and cost reduction over aspects like supplier partnerships, process design flexibility, and product quality. New product development relied solely on internal resources, technologies, and capacities, with limited collaboration or sharing of expertise. The reliance on inventory to maintain machinery operations and material flows resulted in substantial investments in work-in-process (WIP) inventories. Overall, there was a lack of emphasis on collaborative partnerships and innovation during this period.

In the 1970s, there was a shift towards optimizing efficiency, reducing costs, improving product quality, and streamlining processes within the company's operations. This was achieved through the adoption of new materials management concepts aimed at enhancing performance within the internal operations of the company. The focus was on improving overall operational effectiveness and achieving better outcomes within the organization.

In the 1980s, companies responded to intense competition by striving to reduce costs, enhance quality, and increase flexibility. This led to the development of the Just in Time (JIT) approach, emphasizing efficient inventory management and production processes.

During the 1990s, SCM continued to evolve, its initiation of in the manufacturing and service industry began. Organizations recognizing its importance. Collaborative relationships with suppliers and customers gained prominence, leading to significant benefits. Academic and professional studies emphasized the advantages of adopting a SCM approach.

The table (1.1) summarize the historic SCM events in three phases.

Table 1. 1 The summary of the evolution of logistic over time

Period	Appellation	Objective
1970s	Traditional function (transport, distribution, storage)	reducing unit production costs
1980s	logistic	selection of operators and purchasing policy
1990s	Supply chain management	managing corporate resources ,production process, transport, distribution.

Source: André Marchal et al. (2006). p. 12.

Building upon the historical evolution and the complex challenges that have shaped the field of SCM, before we delve into a clear definition of SCM. It is essential to define logistics and SC terms. Then identify the difference between SCM and logistics.

1.2 Logistics, SC, and SCM Definitions

1.2.1 Logistics

Logistics as any field, it has different definitions, The American Marketing Association, responsible for defining essential terms, proposed one of the first definitions of logistics in 1948, which is:

“The process by which material resources move from production step to users or customers and the management of the process”.

On another hand The Council of supply chain Professionals (CSCP) stated the definition of logistic as “the part of supply chain management that plans, implements, and controls the efficient, effective forward and reverses flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customers' requirements”.

According to Martin Christopher, (2011), logistics defined 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 in such a way that current and future profitability are maximised through the cost-effective fulfilment of orders” (p. 2).

The above definitions demonstrate that logistics concerns physical activities, from procurement, production to distribution. And reflect the multifaceted nature of logistics, its crucial role in meeting customer requirements while driving organizational profitability.

1.2.2 Supply Chain (SC)

A variety of definitions can be found in the literature. Here, we present three examples of supply chain definitions:

Martin Christopher’s definition of supply chain is “ a network of connected and interdependent organizations mutually and co-operatively working together to control, manage and improve the flow of materials and information from suppliers to end users” (p. 2).

Sunil Chopra et al (2013), defined the supply chain as “a supply chain consists of all parties involved, directly or indirectly, in fulfilling a customer request. The supply chain includes not only the manufacturer and suppliers, but also transporters, warehouses, retailers, and even customers themselves” (p.1).

According to Yves Pimor and Michel Fender (2005), supply chain is "a series of steps involved in the production and distribution of a product, starting from the suppliers' suppliers and extending all the way to the customers' customers" (p. 5).

Authors agree that the SC represent a network or a serie of steps contains three main actors: suppliers, manufacturers, customers.

1.2.3 Supply Chain Management (SCM)

If this is what a SC is then we can define SCM as the things, initiatives, and actions undertaken to actively shape and influence the behavior of the SC aiming to the results we want. Here, we present some definitions of SCM provided by different authors:

The official definition given by the Council of Supply Chain Management Professional (CSCMP) is “Supply chain management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies”.

On another hand Chopra and Meindl (2001), defined it as “SCM engages the management of flows between and among stages in a supply chain to minimize total cost” (p.).

Martin Christopher defined SCM as “The management of upstream and downstream relationships with suppliers and customers in order to deliver superior customer value at less cost to the supply chain as a whole” (p. 3).

These definitions indicate that supply chain management (SCM) consists of two primary components: upstream and downstream. It involves management of flows of products, information, and finance upstream and downstream in the supply chain, and highlight the importance of suppliers and customers relationships. These definitions highlight the importance of coordination, integration, and collaboration across the various stages of the supply chain, emphasizing the goal of delivering value to customers while optimizing costs and efficiency.

1.2.3 Logistics Versus Supply Chain Management (SCM)

SCM encompasses a broader scope than logistics, as it involves the comprehensive coordination and management of the entire supply chain network. While logistics primarily concentrates on internal planning and control, SCM focuses on synchronizing and collaborating with external partners to maximize efficiency, minimize costs, and elevate customer satisfaction across the entire SC (Christopher, 2011).

Rushton et al (2006), mention four differences between classic logistics and SCM:

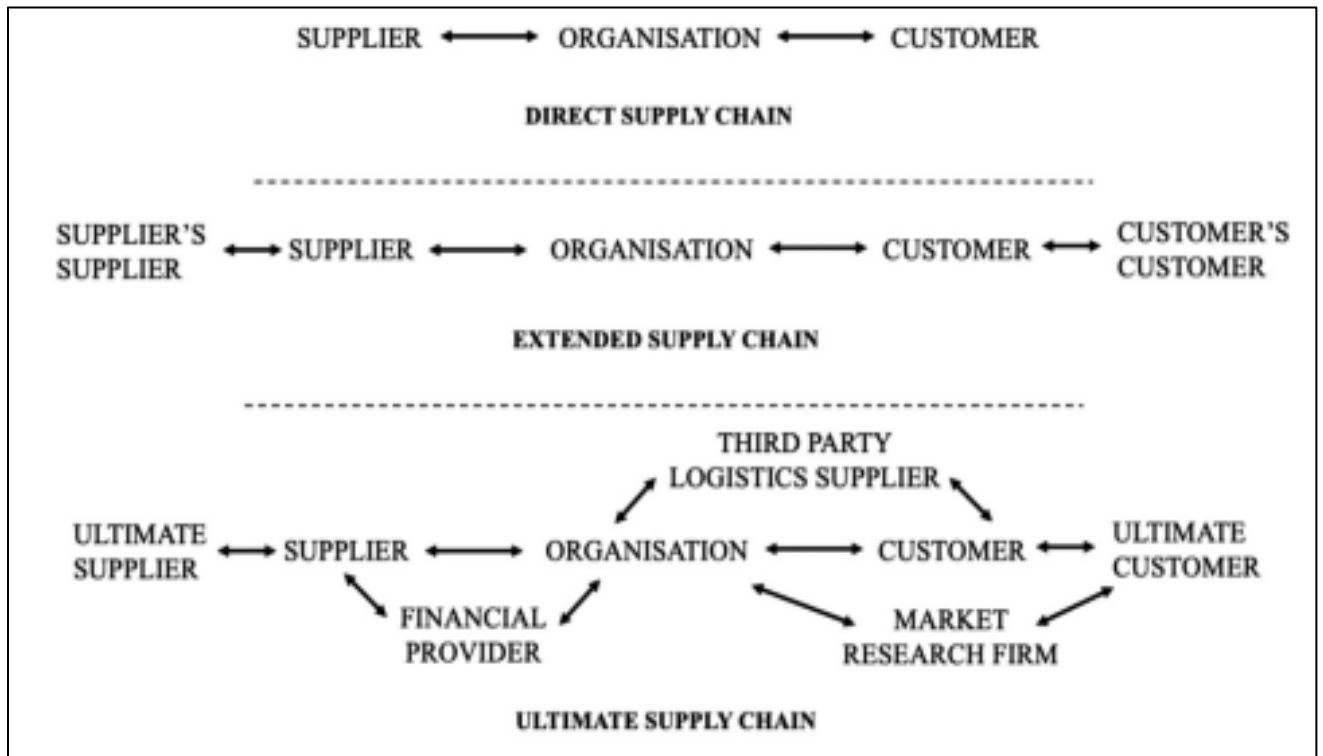
- The supply chain is considered as a whole from a systematic perspective, rather than as separate components such as procurement, manufacturing, and distribution. Additionally, the planning process involves both suppliers and end users.
- SCM is a highly strategic planning process that relies on strategic decisions, rather than operational ones.
- The view of inventory in SCM differs from the traditional approach of maintaining large inventories as safety stock for each entity in the chain. Instead, inventory is used as a last resort to balance the flow of products through the integrated chain.
- Constructing an integrated information system that provides all entities with access to information on demand and stock levels is critical in a SC. Without integration, the flow of information would not exist, which is necessary for the success of the chain.

1.3 Supply chain Stages

The stages in a SC can vary depending on the type of supply chain, these stages determine the complexity of a SC. The figure (1.1) illustrates that there are three types of supply chain complexity:

- The direct supply chain (DSC): in this type there are three stages where goods and services flow from suppliers to customers.
- The extended supply chain begins with the supplier's supplier and ends with the customer's customer
- The ultimate supply chain: starts with the ultimate supplier and ends with the ultimate customer.

Figure 1.1: Types of Supply Chain complexity



Source: Liu et al. (2021).

1.4 SCM Flows

The SCM processes create and involve three distinct types of flows: physical, informational, and financial flows. Rahman & Qureshi, (2017) defined these flows as:

1.4.1 The Physical Flow

The physical flow within a SC encompasses the transportation of products from a supplier to a customer, as well as any returns or servicing requirements from the customer.

1.4.2 The Financial Flow

The financial flow pertains to credit terms, payment schedules, and agreements on consignment and title ownership.

1.4.3 The information Flow

The concept of flow in supply chain management encompasses the transmission of orders and the regular updating of delivery status.

Based on what has been discussed throughout this section, we conclude that logistic has been practiced for centuries, and the term SCM has emerged as a result of an evolutionary process driven by various pressures and demands. SCM goes beyond traditional logistics by encompassing a broader scope of activities and focusing on the coordination and integration of processes across the entire SC. Additionally, the participants in a SC vary based on the complexity of the SC itself, with extended supply chains involving additional types of participants such as ultimate suppliers and ultimate customers. Also, the management of a SC is the management of physical, financial, and information flows.

Section Two: Functions and Decision Levels of Supply Chain Management

As an indication, the SC encompasses all functions and activities aimed at coordinating upstream procurement with suppliers and downstream product distribution to customers. In this second section, we will present the main Supply Chain's functions, and the hierarchical levels of decision-making in the functioning of the SCM.

2.1 SCM Functions

Typically, the SC starts with the vendors or suppliers who provide the raw materials, the initial stages which related to the upstream of SC that includes the procurement activity. The next stage is production, where these raw materials are transformate into the final product that is ready for sale. Finally, the product is distributed to customers, which can involve multiple intermediaries such as wholesalers, retailers, distributors (Manufacturing & technology, 2017). This offers an outline of its main functions which include the procurement of raw materials, and end with the sale of finished goods through production, storage, and distribution. We will define each of these functions in more detail, including their processes, and objectives.

2.1.1 Procurement

In order to sustain their operations, businesses need to procure goods and services from external suppliers since they can not produce everything by themselves.

Procurement is the process of purchasing products or services from external parties to ensure that production and business activities are smoothly carried out (Audino, 2022).

The main mission of the procurement function within SCM is to ensure the availability of raw materials, components, and supplies that are required for the production of goods or delivery of services, this appear in the definition of Monczeka et al, (2009), he define the procurement as the planing and sourcing processes through which a company obtains the goods

and services necessary for its operations. It is the function that plays a vital role in ensuring that the organization maximize its value. He argue that the main objective of the procurement process is to achieve the "five rights," which means procuring the right quality, quantity, timing, pricing, and sourcing. For instance, if a company needs to purchase raw materials for production, it's important to procure the right quality to avoid defects or production issues, the right quantity to meet demand without excess inventory, the right timing to ensure timely delivery, the right pricing to minimize costs, and the right sourcing to avoid supply chain disruptions. Also, Baily et al, (2005), the procurement objective is "to acquire the right quality of material, at the right time, in the right quantity, from the right source, at the right price" (p. 3).

2.1.1.1 procurement process

According to Monczkas, et al (2009), there are 6 steps in the procurement process which are:

- Forecast and plan requirement
- Need clarification (requisition)
- Supplier identification/selection
- Contract/purchase order generation
- Receipt of material or service and documents
- Settlement, payment, and measurement of performance

Based on the preceding information, it becomes evident that procurement function encompasses a range of activities and tasks aimed at acquiring diverse materials, supplies, and services under competitive conditions and long-term trust-based relationships governed by common interests between the company and its suppliers.

2.1.2 Production

Production is a crucial aspect of any manufacturing company, and it requires a careful and systematic approach to ensure that products are produced efficiently and to the required specifications.

Production function, involves a series of processes that transform raw materials and purchased components into finished products. While ensuring that they meet the required specifications through design and quality assurance. This is achieved through various steps, including the conversion of materials using machines in a factory and the assembly of

components to create the desired product. It is the process of creating a final product that satisfies the needs and expectations of the customer (Sadler, Ian. 2007).

2.1.1.2 Production process

The production process is the set of steps taken to transform inputs into outputs, it can be characterized by four main stages: extraction, analysis, fabrication, and synthesis. The extraction process involves obtaining raw materials from their original sources. The analysis stage focuses on separating and refining the raw materials to resemble the original product. In the fabrication process, the emphasis is on creating additional products using the same material. Finally, the synthesis process involves combining multiple products to form a new and distinct product (Wilson, 2022).

According to Cavagnol, (2009), Types of production process include:

- **Batch production** involves using the same production equipment to produce a variety of similar but not identical products in a single run, with each batch requiring a new setup that can increase production costs.
- **Unit production** involves manufacturing a product on an as-needed basis, with a longer production cycle and higher labor costs.
- **Mass production** involves producing large quantities of standard or similar products using specialized production equipment that must be amortized over the production period.

2.1.3 Distribution

Distribution has become a fundamental function of the SC. And it is one of the four fundamental elements of the marketing mix.

"Distribution refers to the steps taken to move and store a product from the supplier stage to a customer stage in the supply chain distribution occurs between every pair of stages in the supply chain. Raw materials and components are moved from suppliers to manufacturers, whereas finished products are moved from the manufacturer to the end consumer "(Chopra & Meindl, 2013, p. 68).

2.1.1.3 Distribution Channels

A distribution channel refers to the route that products or services take to reach their intended customers. The length of the distribution channel can vary and is determined by the number of intermediaries involved in delivering the product or service to the end consumer. Fernando, (2023), distinct three types of distribution channels:

- **Direct distribution channel** enables consumers to purchase products or services directly from the manufacturer, bypassing intermediaries such as wholesalers or retailers. This type of channel is typically shorter and may result in lower costs for consumers.
- **An indirect distribution channel** involves intermediaries such as wholesalers or retailers who purchase products from the manufacturer and sell them to consumers. This longer channel is common for goods sold in traditional brick-and-mortar stores.
- **A hybrid distribution channel** combines both direct and indirect channels, allowing manufacturers to reach consumers through both retail partners and direct sales. This approach provides flexibility and can help to increase sales while reducing costs.

2.1.4 Inventory Management Function

Inventory management known as “materials management, is identified as the organisation, securing, storage, and distribution of the right materials, of the right quality, in the right quantity, in the right place and at the right time, in order to coordinate and organise the creative movement in an integrated way within a mechanical project” (Munyaka, 2022, p. 17). According to him, the objectives of the inventory management include ensuring a continuous supply of materials for production, avoiding overstocking and under-stocking, maintaining availability of materials, optimizing costs, controlling material cost, eliminating duplication in ordering, minimizing loss, ensuring inventory accuracy, maintaining quality of goods at reasonable prices, facilitating planning, maintaining systematic record keeping, and stabilizing prices.

2.1.1.4 The importance of inventories

Inventories are held by companies for various reasons including to meet variation in production demand, cater to cyclical and seasonal demand, achieve economies of scale in procurement, take advantage of price increase and quantity discounts, reduce transit costs and transit times,

and to hold long lead and high demand items in inventory. These reasons may differ from case to case basis and holding inventories help companies remain independent and free from vendor dependencies (Kar Sharma, 2017).

2.1.1.5 Inventory Categories

Inventory can be classified into four main categories. The first category is raw materials, which refers to the materials purchased by a company for the purpose of production. These raw materials are later transformed into finished goods through various manufacturing processes. The second category is work-in-progress inventory, which represents goods that are currently in the process of being transformed from raw materials into a finished product. This category includes items at different stages of production, reflecting the ongoing manufacturing activities. Once the production process is complete, the goods fall into the third category, which is finished goods. Finished goods are the final products that are ready to be made available for sale to customers. Finally, the fourth category is maintenance, repair, and operations (MRO) goods. These items are essential for supporting the production of finished goods and are often purchased from distributors for future resale. MRO goods encompass various items needed for maintenance, repair, and operational purposes to ensure the smooth functioning of the production process (Assetinfinity, 2019).

2.2 Decisions levels in supply chain management (SCM)

According to Sunil Chopra and Peter Meindl, (2013), the importance of decisions in SCM can be summarized by the following key points:

"Supply chain design, planning, and operation decisions play a significant role in the success or failure of a firm. To remain competitive, supply chains must be adaptable to changing technology and customer expectations" (p. 6).

“Supply chain decision phases may be categorized as design, planning, or operational, depending on the time frame during which the decisions made apply. Design decisions constrain or enable good planning, which in turn constrains or enables effective operation” (p.7).

In essence, Chopra and Meindl emphasize that decisions made in SCM have a critical impact on a company's overall success. The ability to design an efficient SC, develop effective plans, and execute operations in line with those decisions are crucial for competitiveness. Additionally, they highlight the dynamic nature of supply chains, which necessitates adaptability to technological advancements and evolving customer expectations. They

underline that decisions in SCM can be considered on three hierarchical levels: strategic or design decisions, tactical or planning decisions, and operational decisions.

2.2.1 The strategic/design level

Supply chain strategic or design decisions are long-term decisions that shape the structure and configuration of the supply chain over years. They involve determining in-house or outsourcing functions, selecting facility locations and capacities, deciding product manufacturing and storage, choosing transportation modes, and selecting information systems (Chopra & Meindl, 2011).

According, too Zanjinar et al, (2011), these decisions are made by executive administrators, top managers, and stockholders. The data at hand for such decisions are often imprecise, incomplete, and need forecasts, strategic decisions are made to optimize three main objectives : the first is capital reduction is achieved by decreasing the level of investment, which depends on the amount of equipment and inventories owned by the company. The second objective is cost reduction, which aims to lower the total cost associated with transportation and storage. Another goal of supply chain management is to improve service levels, which involves enhancing customer satisfaction and reducing the order cycle time.

2.2.2 The tactical / planning level

This level ensures the efficient planning and coordination of activities to meet customer demand and maximize performance. At the medium-term level of supply chain decision-making, companies focus on effectively utilizing resources based on strategic decisions. They engage in forecasting demand, considering costs, pricing, and market dynamics. Key decisions include market allocation, outsourcing, inventory policies, marketing and pricing promotions, and addressing uncertainties and competition (Chopra & Meindl, 2011). These decisions are often made by middle managers or logistics engineers and often with disaggregated data (Zanjirani et al, 2011).

2.2.3 The operational level

Operational decisions in supply chain management are short-term decisions made within minutes, hours, or days, with relatively low uncertainty about demand information. The main objective at this level is to efficiently manage customer orders by allocating inventory or production, determining fulfillment dates, generating pick lists, assigning shipping modes and shipments, scheduling deliveries, and placing replenishment orders. These decisions are focused on effectively executing day-to-day operations to meet customer demands and ensure

smooth order fulfillment (Chopra & Meindl, 2011). These kinds of decisions are based on lots of detailed data and usually made by supervisors (Zanjirani et al, 2011).

To summarize, decision-making in Supply Chain Management is categorized into three distinct levels: strategic, tactical, and operational. At the strategic level, decisions are made with a long-term perspective, considering their lasting effects. The tactical level involves decisions that have a medium-term impact, addressing operational planning and resource allocation. Lastly, at the operational level, decisions are made on a daily basis, focusing on immediate adjustments and responsiveness. By delineating these three levels, organizations can effectively navigate and optimize their supply chain processes.

In conclusion, By recognizing the significance of SCM functions and the presence of three hierarchical levels, namely strategic, tactical, and operational, allows for effective decision-making and control at different time horizons decision levels, organizations can enhance collaboration, streamline processes, and make informed decisions. This holistic approach enables them to achieve operational efficiency, customer satisfaction, and ultimately gain a competitive edge in today's dynamic business environment.

Section three: Practices and Performance of Supply Chain Management

In a modern and uncertain economic environment, companies strive to optimize their supply chains to meet customer demands efficiently and effectively. This section focuses on the major practices of Supply Chain Management that contribute to achieving this goal. Additionally, it delves into the concept of supply chain performance (SCP), including its main metrics: cost, quality, and time.

3.1 Supply Chain Management Practices (SCMP)

Various international research studies indicated that Supply Chain Management practices (SCMP) are generally determined by a company's ability to collaborate externally for example, by creating strategic partnerships with suppliers, relationship with customers, and by exchanging information quickly and accurately.

SCMP is defined as “A set of activities undertaken by an organization to promote effective management of its supply chain” (Li et al., 2006, p. 108).

According to Li, Nathan, Nathan & Rao (2006), SCMP refer to the collection of techniques and strategies that an organization employs to efficiently manage the operation of its supply chain.

Li et al. (2005) proposed that ‘SCM practices’ as a multi-dimensional construct that includes both upstream and downstream sides of the SC.

3.1.1 SCMP Dimensions

A comprehensive review of the literature was conducted to identify various aspects or dimensions of SCMP. The table (1.2) shows these major dimensions that extracted from the literature:

Table 1.2: SCMP Dimensions

Author	Dimensions
(Donlon 1996)	Supply chain practices includes supplier partnership, outsourcing, cycle time compression, continuous process flow and information sharing
(Tan et al. 1998)	Supply chain practices includes purchasing, quality, and customer relations
(Alvarado & Kotzab 2001)	Using inter-organizational systems in supply chain practice such as EDI, and elimination of excess stock levels by postponing customization toward the end of the supply chain
(Tan et al. 2002)	Six elements of supply chain practice (using factor analysis): supply chain integration, information sharing, supply chain characteristics, customer service management, geographical proximity and JIT capability
(Chen & Paulraj 2004)	Using supplier base reduction, long-term relationship, communication, cross-functional teams and supplier involvement to measure buyer-supplier relationships
(Min & Mentzer 2004)	There are seven elements of supply chain practice such as agreed vision and goals, information sharing, risk and award sharing, cooperation, process integration, long-term relationship and agreed supply chain leadership

Source: Jie, F et al. (2007. P.6)

According to table (1.2), we can observe that the most frequently mentioned practices in the literature are: strategic supplier partnership (SSP), customer relationship (CR), and information sharing (IS).

3.1.1.1 Strategic Supplier Partnership (SSP)

SSP defined as “the long term relationship between the organization and its suppliers. It is designed to leverage the strategic and operational capabilities of individual participating organizations to help them achieve significant ongoing benefits” (Li et al., 2006, p. 109).

Cali, (1993) introduce the concept of supplier partnership as “A mutual, ongoing relationship between a buying firm and a supplying firm involving a commitment over an extended time period, and entailing a sharing of information as well as sharing of the risks and rewards of the relationship” (cited in SCMDOJO, 2023).

3.1.1.1 The Benefits of Strategic Partnerships with Suppliers

Baased on the research conducted by Yoshino and Rangan (1995), it is argued that strategic partnerships foster collaboration and mutual benefits in key strategic areas like technology, products, and markets (cited in Thatte, 2007). This view is supported by Tan et al. (2002), who identified several advantages of involving suppliers early in the product-design process. Firstly, suppliers can offer cost-effective design alternatives, resulting in significant cost savings for the organization. Secondly, they can contribute to the selection of better components and technologies, thereby improving overall product quality. Lastly, suppliers can assist in design assessment, ensuring that the product meets required specifications and standards.

Li et al. (2006) further emphasize that strategic partnerships promote a direct and long-term association, encouraging mutual planning and collaborative problem-solving efforts. Similarly, Mentzer et al. (2001) suggest that closer relationships with suppliers are essential for effective management, particularly in the global environment.

In conclusion, authors highlight the importance of strategic partnerships and closer relationships with suppliers for organizations seeking to gain a competitive advantage. By fostering long-term associations and promoting mutual planning and problem-solving, organizations can effectively navigate the challenges of the global business landscape.

3.1.1.2 Customer Relationship (CR)

The success of a company in providing its customers with the right products and services, both locally and globally, is heavily dependent on its ability to effectively communicate and deliver at the right time, place, quantity, and quality. Establishing strong customer relationships involves various activities such as sharing product information with customers, receiving and managing customer orders, interacting with customers to manage demand, providing order status updates, and ensuring timely product delivery (Lee et al, 2002).

Successful SCM involves customer integration at the downstream and supplier integration at the upstream, considering that each entity in a supply chain is a supplier as well as a customer (Tan et al., 1999).

CR is defined as “the entire array of practices that are employed for the purpose of managing customer complaints, building long-term relationships with customers, and improving customer satisfaction” (Li et al., 2006, p.109).

3.1.1.2.1 Benefits of Customer Relationship (CR)

In the present era of intense global competition and the growing demand for personalized products and services, maintaining strong customer relationships and effective relationship management have become crucial for organizational success (Wines, 1996, cited in Sukati et al., 2017). Building close customer relationships can differentiate a company's offerings from competitors, foster customer loyalty, and enhance the overall value provided to customers (Magretta, 1998). Effective customer relationship activities play a pivotal role in the development of successful Supply Chain Management (SCM) strategies (Wisner, 2003). By establishing close relationships with customers, organizations can create a distinctive product differentiation that sets them apart from competitors (Magretta, 1998; as cited in Li et al., 2006).

In conclusion, the importance of strong customer relationships and effective relationship management cannot be underestimated in today's highly competitive business landscape. These relationships not only differentiate a company's offerings but also foster customer loyalty and enhance overall customer value.

3.1.1.3 Information Sharing (IS)

IS is defined by Li et al, (2006) as “The extent to which critical and proprietary information is communicated to one’s supply chain partner” (p. 110).

Mentzer et al. (2000) state that shared information within the context of Supply Chain Management can encompass a wide range of topics, spanning from strategic to tactical in nature. This information can pertain to various aspects such as logistics, customer orders, forecasts, schedules, markets, and more.

On another hand, Simatupang and Sridharan, (2002) suggest that, IS in the context of SCM refers to the exchange of private data between trading partners, facilitating the monitoring of product progress and order status as they traverse through different stages of the supply chain. This sharing of information enables enhanced visibility and coordination, allowing stakeholders to make informed decisions and effectively manage the flow of goods and services throughout the supply chain. Also they mentioned that in a SC is of use only if it is relevant, accurate, timely, and reliable.

3.1.1.3.1 Benefits of IS

According to Davenport et al. (2001), IS with trading partners empowers organizations to make more informed decisions and take appropriate actions by gaining greater visibility into the SC.

Also, Liu and Kumar (2003) emphasize that information sharing guarantees that the appropriate information is accessible to the relevant trading partner, precisely when and where it is needed. This ensures timely and accurate communication between supply chain participants, facilitating effective decision-making and enabling seamless coordination of activities. By sharing the right information at the right time and place, organizations can enhance collaboration, improve operational efficiency, and ultimately achieve better supply chain performance.

According to Lummus and Vokurka (1999), organizations must demonstrate a willingness to openly share information with their supply chain partners. This transparent exchange of information fosters collaboration and promotes effective decision-making across the supply chain network.

3.2 Supply Chain Performance (SCP)

Supply chain performance (SCP) is a critical aspect in supply chain management. By measuring the effectiveness and efficiency of their supply chain operations, businesses can identify areas for improve and optimize their performance to meet customer demand and reduce costs.

SCP is defined as the ability of the supply chain to deliver the correct product to the right location, at the appropriate time, and at the lowest possible cost of logistics. This definition takes into account delivery time, cost, and value for the end consumer (Zhang, Okoroafo, 2015; cited in Leonzuk, 2016). According to Whitten et al. (2012), SCP is also defined as the ability of the SC to provide products and services of the required quality, in specified quantities, and within the designated timeframe. This is crucial for meeting customer demand, ensuring customer satisfaction, and minimizing the total cost of products and services for the end customer (Whitten et al., 2012, as cited in Leonzuk, 2016). Also Ivanov et al, (2017) see that the measurement of operations and SCP is commonly related to the objective triangle “costs-time- quality” (Figure 3.1).

Figure 1.2: Objective triangle of operations and supply chain performance

Source: Ivanov, D and Schönberger, J. (2017).

Based on these definitions, it is evident that companies need to measure and continually improve their SCP using metrics related to time, cost, and quality. Doing so is essential for remaining competitive and meeting customer expectations while achieving cost efficiency and profitability.

3.2.1 SCP measurement

In general, measuring the performance defined as the process of quantifying the efficiency and effectiveness of the undertaken actions. In the context of a SC effectiveness is understood as the degree of fulfilment of customer expectations, while efficiency is a measure of the extent to which business assets are used to provide a given level of customer satisfaction and the performance measures as a metric or indicator used to quantify the efficiency and/or effectiveness of an action (Neely et al. 1995). Here are the three main categories of SCP metrics and its indicators measures (Murray, 2018):

3.2.1.1 Time metrics

Time metrics are crucial indicators that companies use to evaluate the operational effectiveness of their supply chains. Time metrics measuring by use the indicators of on-time deliveries, on-time receipts, and order fulfillment time. By assessing these metrics, companies can gain a clear understanding of how well their supply chain is functioning. Through continuous monitoring and improvement of time metrics, companies can enhance their operational efficiency, reduce lead times, and ultimately improve customer satisfaction.

3.2.1.2 Cost metrics

Cost metrics re another critical dimension of supply chain performance, they help companies identify areas of inefficiency and improve profitability. By focusing on cost metrics, companies can determine the cost of carrying inventory, the cost of transportation, of raw materials, and

other expenses that impact their bottom line. For instance, inventory carrying costs are a popular performance metric used by companies to determine the cost of storing and managing inventory in the warehouse. By analyzing and improving cost metrics, companies can optimize their supply chain and improve their financial performance.

3.2.1.3 Quality metrics

Quality metrics are also essential for evaluating supply chain performance, as they help companies identify opportunities for enhancing the quality of their products and services. Indicators that companies use to measure quality are defect rate, product reliability, and overall customer satisfaction. By monitoring and improving quality metrics, companies can ensure that they deliver high-quality products and services to their customers, which helps build brand loyalty and enhances their reputation in the market.

Conclusion

The first chapter of this dissertation served as a solid foundation for comprehending the fundamental principles and components of Supply Chain Management (SCM). It offered a comprehensive overview by exploring the key concepts, functions, and practices of SCM. By providing historical context and discussing the stages and flows involved in SCM implementation, the chapter laid the groundwork for understanding the evolution and importance of SCM.

Moreover, the chapter delved into the functions and decision levels within SCM, emphasizing the need for coordination and collaboration across the supply chain. It highlighted the strategic and operational decisions that drive effective SCM practices and contribute to overall performance improvement.

By exploring the practices and performance of SCM, the chapter emphasized the significance of factors such as strategic supplier partnerships, customer relationships, and information sharing. It highlighted how these elements play a crucial role in enhancing operational effectiveness and ultimately improving organizational performance.

Chapter 2: Operational Performance: A General Overview

Introduction

In today's dynamic and competitive business environment, organizations are increasingly recognizing the importance of achieving superior performance and operational performance in supply chain management. This chapter delves into the theoretical foundation of the performance concept, providing a comprehensive exploration of its origin, evolution, dimensions, characteristics, and types. By understanding the fundamental principles that underpin performance measurement, organizations can effectively assess and enhance their supply chain performance. By the end of this chapter a critical understanding the role of supply chain management practices in operational performance. It highlights a critical understanding of strategic supplier partnerships, customer relationships, and information sharing in driving operational performance improvements. Also the risk management in a supply chain management.

Section one: the theoretical foundation of the performance concept

This section serves as a comprehensive exploration of the theoretical foundation of the performance concept. Starting by its origin, evolution, dimensions, characteristics, and ending with its types.

1.1 Origin and definition of performance concept**1.1.1 Performance Origin**

Etymologically, the origin of the word performance is the Latin word "performance" which means "to complete or accomplish an assigned task." The modern meaning of performance is based on the English verb "to perform," which refers to the execution of a task that demands a specific level of skill or ability. This term is commonly used to evaluate the quality of completed work and to measure competitiveness in various fields. The term "performance" is applied in several areas, including economic, financial, technical, sporting, or social performance. In literature, there is not a completely unified vision about the performance concept, especially in regards to the business performance concept. While some definitions may be abstract or general, others may be less well defined or quite clear (Achim, 2010). This makes it a broad and versatile concept that can encompass a wide range of meanings and applications, and each discipline defines it according to its own specificities depending on the context, industry, and specific goals of the organization.

1.1.2 performance definition

To better understand the concept of performance, it is useful to present various definitions proposed by authors, particularly the clearer and more detailed ones:

In terms of the linguistic form of the word, the Oxford English Dictionary defines performance as how well or badly something is done, or how well or badly something works. It is also defined as the act or process of performing a task or action. The verb "perform" means to work or function well or badly.

Campbell (1990) defined performance as "behaviors or actions that are relevant to the organization's goals and that can be measured in terms of the level of contribution to those goals." (p.49). He believes that these behaviors can be distinguished from effectiveness, which is the impact that behaviors have on outcomes. He further considers performance of technical skills as the core of an individual's job-specific task proficiency.

On another hand Lebas (1995), defined performance as "performance is about deploying and managing well the components of the causal model that leads to the timely

attainment of stated objectives within constraints specific to the firm and to the situation” (p. 29).

According to Hoffmann (1999), the term “performance describes an evaluated contribution to the attainment of organizational goals. This contribution can be generated by individuals and groups of employees within the organization, as well as by external groups, e.g., suppliers” (p. 33).

Krause (2005) states that “Performance refers to the degree of the achievement of objectives or the potentially possible accomplishment regarding the important characteristics of an organization for the relevant stakeholders. Performance is therefore principally specified through a multidimensional set of criteria. The source of the performance is the actions of players in the business processes” (p. 17).

These definitions show us that performance is not a standalone term. It is always related to other ideas and needs to be adapted to fit the specific situation it is being used in. Therefore, performance is a subjective concept that changes depending on how it is being used and seen.

Samsonowa, (2012) found that the various definitions she had reviewed in the performance measurement literature relate to two terms: effectiveness and efficiency.

- Efficiency: In Drucker's definition, efficiency is "doing things right," and it is also defined as the ability to produce the desired result while minimizing waste (achieving the necessary outputs for little money) and using all available resources productively.
- Effectiveness: Effectiveness may be broadly defined to refer to the degree of success an organization enjoys in doing whatever it is trying to do, and it is also defined as the degree of progress towards the set objectives. While Drucker defined effectiveness as "doing the right things" to meet the organization's objectives.

1.2 Characteristics of Performance

Bessir, (1999) observed that despite some confusion surrounding the definition of performance, there are four common points.

- Firstly, performance is often used in the context of evaluation, such as performance evaluation, performance management, and performance monitoring. Performance is closely linked to value, which is the main factor in defining performance.
- Secondly, performance has multiple dimensions, with the number of dimensions varying among authors.

- Thirdly, performance is often associated with coherence and relevance. Coherence refers to decisions that are logical among themselves and in relation to a preference scale, while relevance has no precise definition and can be confused with coherence or equated with precision or accuracy. Performance, coherence, and relevance are respectively the objective, rational, and subjective dimensions of any valid evaluation.

Finally, performance is not a concept that can be defined absolutely or objectively, and is considered by authors to be a subjective concept.

1.2.1 Performance Evolution

Firm performance is a concept whose dimensions have changed from unidimensional performance to multidimensional performance with the growing of competitiveness and complexity of the economic environment in which businesses operate.

Historically, performance has been one-dimensional and was measured only from a financial perspective to ensure the sustainability of organizations. However, this approach has been heavily criticized, and there has been a shift towards a more global vision of performance that integrates social and environmental concerns. The appearance of stakeholders has changed the understanding of performance, and it is now recognized that performance is multidimensional and includes the satisfaction of stakeholders' expectations, not just shareholders. The concept of global performance has emerged to encompass the multiple aspects of performance that are important for the sustainability of organizations. The concept of global performance emerged in Europe during the 20th century, emphasizing sustainable development and social responsibility. Marcel's definition of global performance as a multidimensional goal includes economic, social, societal, financial, and environmental aspects that affect both companies and human societies, emphasizing the impact of organizational activities on various stakeholders (Mamdouhm, & Ahrouch, 2020).

We conclude that the evaluation of a company's performance was previously focused on its ability to increase profitability and control costs, in order to surpass its competitors. However, this definition has evolved and now other dimensions are taken into consideration to assess a company's performance.

1.3 Sources of dimensionality

According to Richard et al, (2009) there are three sources of dimensionality of performance concept:

1.3.1 The diversity of stakeholders (SH)

Considering an organization as an open system has led to the understanding that it both influences and is influenced by the actions of its stakeholders. This has resulted in alternative interpretations of the concept of performance.

Each stakeholder defines performance according to their own vision, interests, and expectations. The Anglo-Saxon view that shareholders are the only beneficiaries of performance has been challenged (Richard et al., 2009). Indeed, every stakeholder contributes to the formulation of performance, making them beneficiaries of this performance, not just the shareholders. The integration of other actors, such as employees and customers, has led to the emergence of multidimensionality in performance by including other non-financial aspects, such as individual productivity improvement, customer satisfaction, and better working conditions.

Ignoring the crucial role played by these actors in value creation can exclude them from the distribution of added value, which could skew the measurement tool (Richard et al., 2009).

1.3.2 Heterogeneity—Resources, the Environment, and Strategic Choice

Barney, (1991) argues that a company's resources, including physical, human, and organizational resources, are heterogeneous, as is their allocation. The variety of strategic choices made by companies reflects the diversity of resources and environments in which they operate. Therefore, the measurement of performance varies depending on the contingencies of the environment and the strategic choices made by the company.

Mc Gahan, (2000) conducted research showing that a company's performance is influenced by its environment and industry. As a result, a company's performance can impact its environment and even change the structure of its industry, leading to a multitude of performance orientations.

In addition, the specific measures chosen to evaluate the performance of a company are influenced by its strategic choices. Therefore, a change in strategy will require a corresponding change in the way performance is evaluated (Richard et al, 2009).

1.3.3 The Measurement Timeframe and the Persistence of Performance

Researchers have developed performance indicators that are specific to the temporal aspect of performance. Studies have aimed to explain the variability of performance over time and have identified certain measures or indicators linked to the temporal factor. This has prompted researchers to explore other methods for measuring this variability. Richard et al.

(2009) proposed longitudinal methods to detect temporal variation in performance and minimize the risk of fluctuation. The advantage of these methods is that they focus on the explanatory elements or factors of performance, taking into account its variation over time. In summary, measuring performance requires studying its temporal specificities while linking organizational activity to performance. Each stage of a company's life cycle has a specific level of performance that requires adapting performance measurement tools to its changing environment. Additionally, using performance indicators that measure changes over time allows companies to benchmark their performance both internally and externally, identify issues, and continuously improve their performance.

In conclusion, the conception of performance was originally focused solely on financial aspects. However, with pressure from various stakeholders, the heterogeneity of strategic choices made, and the evolution of the company in its environment, performance has become a multidimensional construct.

1.4 Types of Performance

According to Venkatraman and Ramanujam, (2009), distinguishes three types of performance: financial performance, operational performance, and organizational performance

1.4.1 Organizational performance

It can be defined as the ability of an organization to effectively and efficiently utilize its resources to achieve its objectives, while also taking into account the satisfaction of its stakeholders. This definition encompasses three key elements: effectiveness, which refers to the organization's ability to achieve its goals; efficiency, which refers to the organization's ability to utilize its resources effectively; and relevancy, which refers to the organization's ability to satisfy the needs and expectations of its stakeholders. Additionally, organizational performance covers a broad range of areas, including the alignment of performance with organizational goals, the optimization of organizational resources, and the management of stakeholder relationships (Jenatabadi, 2015).

1.4.2 Financial performance

It refers to the act of performing financial activity. In broader sense, financial performance refers to the degree to which financial objectives being or has been accomplished. It is the process of measuring the results of a firm's policies and operations in monetary terms. It is used to measure firm's overall financial health over a given period of time and can also be

used to compare similar firms across the same industry or to compare industries or sectors in aggregation (Jenatabadi, 2015).

In the subsequent section, we will discuss specifically into type of operational performance, which is one of the key types of performance that has been extensively researched and emphasized in the academic literature.

Section two: Operational Performance and its Dimensions

Achieving optimal operational performance is essential for the success of any organization, and effective operations management plays a vital role in achieving this goal. And this can be accomplished by performing the internal key processes of the firm. Operations management is crucial in enhancing production efficiency, effectiveness, flexibility, and product quality. Therefore, a strong focus on operations management is necessary to improve operational performance, as recognized in the literature. This we will provide an overview of the key concepts related to operational performance, including operations management, the definition of operational performance, and its dimensions.

2.1 Operations Management

The definition of operations management provided by Greasley, (2007) highlights the importance of managing the processes that produce or deliver goods and services. Even though not every organization has a dedicated operations department, all organizations engage in operations activities. Effective operations management can contribute significantly to the success of an organization by utilizing resources efficiently to produce goods and services that satisfy customers. Achieving this requires creativity, innovation, and continuous improvement in processes, products, and services. A successful operation can bring four types of benefits to a business, including cost reduction, increased revenue through improved customer satisfaction, decreased investment needs, and a foundation for future innovation by developing a base of operational skills and knowledge within the organization.

2.2 Operational Performance (OP)

Optimizing operational performance is crucial to ensure that a business can deliver high-quality products or services to its customers. By continuously improving its internal processes and managing well its operations, a company can enhance the quality of its products, reduce defects, and increase customer satisfaction, maintaining a competitive advantage. This, in turn, can help it to be more efficient and effective to stay ahead of their competitors, which is essential for the long-term success of any business. Operational performance is a critical

aspect for firms as it enables them to improve the effectiveness of their production activities and create high-quality products, which, in turn, can lead to increased revenue and profit (Kaynak, 2003).

2.2.1 Defintions and objective

Operational performance (OP) refers to how well a company is able to carry out its day-to-day operations to achieve its goals and objectives. By measuring and improving operational performance, businesses can become more efficient, reduce costs, and increase customer satisfaction, ultimately leading to greater competitiveness and profitability (Maryann, 2023). OP can be defined as the level of coordination between different units within a company in order to achieve specific business objectives and generate greater output. Essentially, it is the ability of different departments to work together synergistically towards common goals (Anastasiia, 2021).

According to Tan et al. (2007), OP can be defined as “the output or result achieved due to unique operational capabilities” (p. 5137).

To Heizer et al. (2008), OP refers to “the ability of a company to reduce management costs, order-time, lead-time, and improve the effectiveness of using raw material and distribution capacity” (Hug, 2017, p. 4).

OP refers to the measurable aspects of an organization's processes, encompassing factors like reliability, production cycle time, and inventory turns. Essentially, it measures how efficiently and effectively an organization is able to carry out its operational activities (Voss, Åhlström, & Blackmon, 1997; cited in Md et al, 2015).

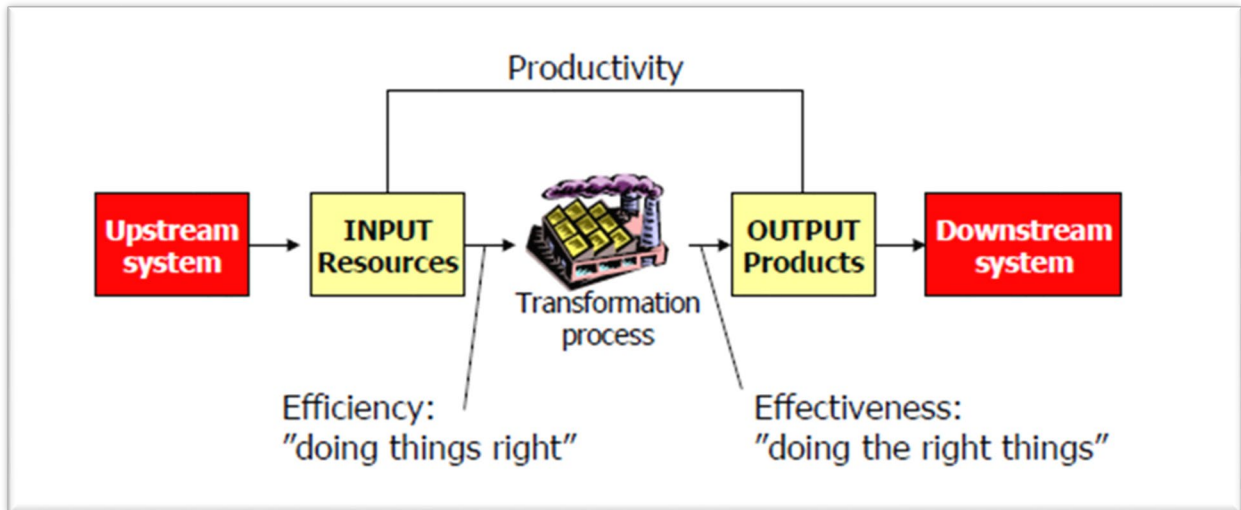
As cited in Heesung (2014, p. 79), operational performance is defined as “the efficiency which means a degree of economically using the internal resources of firms and effectiveness which means a degree of achieving the goals of firms, and this is connected with cost performance and service performance” (Brewer and Speh, 2000; Chow et al., 1995).

From the above definitions, it concluded that the OP is considered as a group of standards that are adopted and used by the organizations to achieve competitive advantage, customer satisfaction, and maximum level of profitability. And all definitions share a common characteristic related to two important concepts: effectiveness and efficiency. These two terms are essential in measuring operational performance.

2.2.2 Efficiency and effectiveness

As stated by Sink and Tuttle, (1989) and illustrated in Figure 2.1, effectiveness is usually in simple words described as ‘doing the right things’, while efficiency means ‘doing things right’.

Figure 2.1: Efficiency and effectiveness



Source: Tangen, S, (2004, p. 47)

Efficiency of a manufacturing process is closely tied to how well resources are utilized, particularly in relation to productivity. This indicates the minimum level of resources required in theory to operate a given system as opposed to the actual resources used. Measuring efficiency, whether it's based on time, money, or some other metric. Additionally, efficiency is similar to the concept of utilization rate or degree of utilization, which evaluate how much equipment or a process is used in practice versus its maximum capacity (Tangen, 2004).

Effectiveness refers to the ability of achieving a desired objective or the extent to which desired outcomes are realized. It is worth noting that there are often no limits to how effective a manufacturing process can be, as there is always a possibility for exceeding the expected and desired level of objective attainment (Tangen, 2004).

To put it in other words, efficiency deals with the inputs of a process and how effectively resources are utilized, while effectiveness is concerned with the outputs or desired outcomes of the process. While efficiency focuses on internal performance, effectiveness looks at external

performance or results achieved. And operational performance is to finding the balance between efficiency and effectiveness.

2.2.3 Operational Performance Dimensions

Bayraktar et al, (2009) argued it is difficult for firms to select a single measure for operational performance.

Numerous terms are used to refer to how a firm performs in terms of its internal operations. Operational performance can be measured through several dimensions that may vary depending on the context of the organization being studied. Table (2.1) represents the various dimensions of operational performance measures from different research studies

Table 2.1: Operational Performance Dimensions

Authors	Operational performance Dimensions
Ahmad Fathi Al-Sa'di Ayman Bahjat Abdallah Samer Eid Dahiyat , (2017)	used measures of operational performance using cost, quality, delivery and flexibility
Stock et al. (2000)	operational performance reflects competencies in specific areas of manufacturing and logistics, including (cost, delivery speed and reliability, product quality, and flexibility)
Zhu et al. (2008)	include items such as delivery reliability, quality, and inventory levels
Chow et al. (1994)	suggest that its elements include widely used measures, such as cost efficiency, customer satisfaction, ontime delivery, flexibility
Nawanir et al. (2013)	used quality, inventory minimization, delivery, productivity and cost
Hallgren and Olhager (2009)	Suggeste the dimensions of cost, quality, delivery and flexibility
Esraa Hussein Nabass, Ayman Bahjat Abdallah, (2018)	Used cost, quality, delivery and Flexibility measures.

Source: personal efforts based on literature sources

From these studies we note that cost, quality, delivery and flexibility are the most widely used measures of operational performance in the literature. Each one of these dimension will be discussed.

2.2.3.1 Cost dimension

The concept of cost is crucial for businesses as it directly impacts their profitability and competitiveness. To compete on price, a company must keep its cost base lower than its competitors, which can result in increased profits or market share. Additionally, cost management is essential for niche markets where competitors cannot provide the same products or services. By managing costs effectively and maintaining cost proximity to the market average, a company can maximize profits and discourage new competitors from entering the market (Greasley, 2007).

According to Riffat and Ul hak (2022), cost is defined as "the worth in which goods or services are measured as the combination of resources, time, energy, and other variables undertaken by a firm to produce goods or services" (p. 13). This definition highlights the importance of understanding the various components that contribute to the overall cost of producing goods and services. By managing these components effectively, a company can control its cost base and improve its profitability.

Slack et al, (2004) strongly suggest that being cost effective is the key motive of every profitable organization.

A company can reduce costs by efficiently using its production energy, as well as continuously improving product quality and innovating product design and process technology, as this is an important basis for cost reduction and helps managers support the company's cost leadership strategy. (Evans and Collier, 2007).

2.2.3.2 Quality Dimension

Effective quality management can also lead to improved customer satisfaction, loyalty, and retention, ultimately resulting in increased sales and revenue for the organization. This is because high quality products or services often lead to positive customer experiences and can create a competitive advantage in the market (Majed et al., 2016).

Additionally, organizations can use quality as a strategic tool to differentiate themselves from competitors and enter new markets. For example, a company that is known for its high quality products may be able to charge a premium price for its offerings, attracting customers who are willing to pay more for superior quality (Greasley, 2007).

Therefore, investing in quality management can have long-term benefits for organizations, such as increased competitiveness, improved financial performance, and greater customer loyalty.

2.2.3.3 Flexibility Dimension

In dynamic and uncertain environments, organizations need to be able to quickly adapt to changing circumstances and demands to remain competitive and successful. Due to the lack of stability and predictability in the environment in which manufacturing companies operate, many organizations have been forced to reorganize their production processes unexpectedly and learn how to be more flexible.

Aaker and Mascarenhas (2007) suggest that flexibility represents the “ability of the organization to adapt to substantial, uncertain, and fast occurring environmental changes (relative to the required reaction time) that have a meaningful impact on the organization’s performance” (p. 74).

According to Greasley (2007), flexibility can be defined as “the ability of an organization to change what it does quickly. This can mean the ability to offer a wide variety of products or services to the customer and to be able to change these products or services quickly” (p. 16).

According to Slack (1983), flexibility can be defined as “the capacity to adapt and change to different situations or requirements”. In the context of production systems, a more flexible system is one that can adjust to a wider range of states or behaviors, allowing it to take up different positions and perform a variety of tasks or functions (p. 7).

We can conclude that flexibility represents an organization's ability to respond to environmental changes, as well as to enhance its learning capabilities through the use of additional information. Flexibility in operations is crucial for firms to process different types of consumers, adapt to competition and excel in the market. A diverse range of products or services is an indicator of the organization's ability to produce flexibly, thereby reducing costs by producing in large volumes. The ability to produce high volume with high variety enables more production in less time, resulting in improved dependability. In essence, flexibility in operations can boost a firm's competitive edge, productivity and dependability (Riffat & Ul hak, 2022).

The willingness to produce more and more tends to be the result. Flexibility in operations management provides organizations with a significant internal advantage by enabling them to

produce high-quality products and services even in dynamic circumstances (Johnston, 2003; Riffat & Ulhak, 2022).

2.2.3.4 Delivery time dimension

In today's highly competitive market, delivery time has become a critical factor in maintaining a competitive edge. Customers not only expect a quality product at a reasonable cost but also prompt delivery. According to Turki, delivery time can be defined as "the period of time it takes for a customer demand to travel from the stock (warehouse, store, etc.) to its arrival at the customer" (p. 14).

Delivery time can be viewed from three main perspectives, as defined by Larry et al. (2013):

- Delivery speed: Refers to the prompt fulfillment of a customer's order.
- Timely delivery: Refers to meeting the agreed-upon delivery deadlines.
- Development speed: Refers to the quick introduction of a new product or service, so it can be presented on the market.

Section three: Supply chain risk and the relationship between supply chain management practices and operational performance and supply chain risk

In today's volatile and unpredictable business environment, supply chain risks can pose a significant threat to a company's performance and profitability. To mitigate these risks and maintain their competitiveness, companies must adopt effective supply chain management practices that enhance their operational performance. In the following section, we will examine some key concepts related to supply chain risk management and explore the relationship between these practices and a company's overall operational performance.

3.1 Supply chain risk

While a global supply chain management strategy can offer companies a competitive advantage, it also poses significant risks related to quality, safety, business continuity, and reputation. These risks can undermine a company's operational performance and competitiveness, making it essential to manage them proactively. By prioritizing risk management and mitigation strategies in global supply chain management, businesses can protect their operations and reputation while enhancing their competitive position.

3.1.1 definitions

Zsidisin (2003) defined supply chain risk as “The probability of an incident associated with inbound supply from individual supplier failures or the supply market occurring, in which its outcomes result in the inability of the purchasing firm to meet customer demand or cause threats to customer life and safety” (p. 222). While Wagner and Bode (2006) see that supply chain risk is “the negative deviation from the expected value of a certain performance measure, resulting in negative consequences for the focal firm” (p. 303). According to Christopher et al. (2003), it is “any risks for the information, material and product flows from original suppliers to the delivery of the final product for the end use” (p. 200).

The three definitions highlight the potential for negative outcomes resulting from supply chain risks.

Supply Chain Risk Management (SCRM) is defined as the coordinated and collaborative management of risks across supply chain partners, aimed at ensuring business profitability and continuity. In SCRM, partners work together to identify, assess, and mitigate risks to supply chain operations (Tang, 2005). This collaborative approach enables supply chain partners to share information, resources, and expertise, leading to more effective risk management, and ultimately, more effective supply chain management.

3.1.2 Supply chain risk types

According to Manuj and Mentzer, (2008). The sources of risk can be divided into

- Supply risk: refers to the likelihood of an event that is related to the inbound supply from suppliers or the supply market, which may result in failures or disruptions to the focal firm's operations. These outcomes may cause the firm to be unable to meet customer demand within expected costs, or may pose threats to customer safety and well-being (Zsidisin, 2003).
- Demand risk: Demand risks are related to outbound flows and can affect the likelihood of customers placing orders with the firm, or variance in the volume and assortment desired. These risks are caused by delayed/inappropriate new product introductions, variations in demand, and chaos in the system due to overreactions, unnecessary

interventions, and distorted information from downstream supply chain members (Johnson 2001; Wilding 1998)

- Operational risk: Operational risk refers to the potential for an event to occur within a company that may impact its ability to produce goods and services, maintain quality and timeliness of production, and/or remain profitable. These risks originate from within the company and can arise due to breakdowns in core operations or insufficient manufacturing and processing capabilities (Simon, 1999).

3.2 The relationship between supply chain management practices and operational performance

To achieve sustainable improvements in multiple aspects of performance, management must invest in coordination with upstream and downstream partners in the supply chain, Successful collaborative customer-supplier relationships are known to produce significant benefits, including reduced inventory, improved quality, improved delivery, cost reduction, faster delivery times, faster time-to-market, increased flexibility, greater responsiveness to market demands and customer service, and increased market share (Haddouch, 2020).

The literature reviews, was shown that there is a strong relationship between supply chain management practices and performance. Some studies claimed that there is a strong relationship between supplier and customer relationship and operational performance, other studies comment presence of relationship between upstream and downstream interactions and operational performance, another group of studies assured the inevitability of relationship between supplier, internal, and customer with the overall performance of firms. Many researchers around the world are investigating methods to improve operational performance, with a growing focus on the role of Supply Chain Management (SCM) practices.

According to As (Li et al, 2005) as competition shifts from individual firms to entire supply chains, SCM has emerged as a key area for enhancing efficiency and effectiveness, the implementing SCM practices is considered as a base for firms to improve their operational performance

(Kumar & Kushawaha, 2018) suggest that an effective supply chain management requires the seamless integration of both downstream and upstream members. Each member of the supply chain serves as both a supplier and a customer.

Truang & al, (2014) argued that the successful implementation of SCM practices provides opportunities to improve operational performance along the supply chain.

All studies concluded that the practices of supply chain management are a vital process that affects operational performance, consequently the organizations' overall business performance. As mentioned before the literature highlights that the practices mentioned most frequently are strategic supplier partnership, information sharing, and customer relationship management, therefore it is necessary to specify the links between the three practices of Supply Chain Management and operational performance.

3.2.1 Strategic supplier partnership and operational performance

The collaboration between a company and its suppliers is a crucial practice in managing the product lifecycle. By working closely with suppliers, buyers can ensure that the raw materials provided meet quality standards and requirements, which in turn leads to the production of high-quality products. In addition to avoiding downtime incidents and reducing the rate of damaged materials, effective supplier management can also help in reducing inventory waste and safety inventory levels (Truong and al, 2014) P 90

(Perry & Suhal, 2001) Strategic supplier partnership must be considered a key component of a strategy based on agile manufacturing or quick response. They suggest that establishing long-term relationships with suppliers can be a key strategy for organizations seeking to improve their supply chain management. By prioritizing suppliers who are flexible, responsive, and competitive, organizations can better meet the demands of their retail businesses. This requires suppliers who are committed to ensuring that their personnel can provide quick and positive responses to any issues that may arise. Additionally, suppliers who have appropriate quality assurance programs in place can help organizations to ensure that their products meet the necessary standards. Finally, suppliers who are able to provide advice and other services related to logistics, marketing, and product development can offer valuable support and contribute to the overall performance of the supply chain. By prioritizing these qualities in their relationships with suppliers, organizations can improve their supply chain management practices and achieve better operational performance.

Vonderembse and Tracey (1999) have demonstrated that establishing a strong relationship with suppliers can lead to a reduction in order time and the rate of late orders (Cited in Truong, 2014).

Suppliers can provide valuable input on the appropriate components or parts to use in designing new products, as well as help buyers procure inputs that can be used most efficiently in manufacturing processes (Truong and al, 2014).

As a result, an effective management of supplier relationships can improve operational performance dimensions such as quality, cost, delivery time, and flexibility.

3.2.2 Customer Relationship and operational performance

The way a company handles its relationships with customers can have a significant impact on its ability to manage its supply chain effectively and improve overall performance (Scott and Westbrook, 1998; Kumar and Kushawaha, 2018).

Implementing customer-focused practices can be highly beneficial for companies as it enables them to gain a deeper understanding of their customers' expectations and identify potential market opportunities (Lakhal et al, 2006; Truong and al, 2014). With this understanding, companies can plan and prioritize their purchasing, production, and delivery processes more effectively, enabling them to balance supply and demand and reduce variance in their operations (Lee et al., 1997; Truong, 2014). Ultimately, this leads to an improvement in the operational performance and enhanced overall customer satisfaction

According to Truong (2014). By aligning production activities with customer demand, companies can optimize their resources and minimize process variances, resulting in reduced downtime and lead time. When employees have a clear understanding of the attributes of the products and services they are producing, they are better equipped to minimize errors and identify areas for improvement.

By leveraging this customer insight, companies can improve their operational performance and enhance their ability to meet customer needs, ultimately driving growth and profitability.

3.2.3 Information sharing and operational performance

The regular exchange of information, whether through formal or informal means, is crucial for partners to gain a better understanding of customer needs and respond quickly to market changes. This also enables partners to coordinate and plan more effectively throughout the supply chain (Ho et al., 2002; Haddouch, 2014).

By sharing information on a regular basis, partners can stay informed about each other's capabilities, limitations, and requirements, allowing them to make informed decisions and take

actions that benefit the entire supply chain. Effective communication and collaboration between partners can lead to a more agile and responsive supply chain, capable of meeting customer needs and adapting to changes in the market. This can result in improved delivery times, reduced costs, and better overall performance, leading to increased customer satisfaction and business success

Sharing information with trading partners allows organizations to make more informed decisions and take action based on improved visibility. This increased visibility can lead to better coordination and planning across the supply chain, resulting in improved performance and more efficient operations (Davenport et al., 2001; Thatte, 2007).

Conclusion

This chapter has provided a comprehensive examination of operational performance and its dimensions. By understanding the evolution of performance measurement and management, we gained insights into the significance of operational performance in today's business landscape. We explored the various dimensions of operational performance, highlighting the key areas that organizations must focus on to achieve operational excellence.

Furthermore, we investigated the critical relationship between Supply Chain Management Practices (SCMP) and operational performance. Recognizing the importance of strategic supplier partnerships, customer relationships, and information sharing, we discovered how these elements contribute to enhancing operational effectiveness.

To achieve optimal operational performance, a company must focus on reducing costs, delivery time, and improving quality. These four dimensions are interconnected components that play a vital role in operational performance and competitiveness. Failure to meet quality standards can lead to delayed delivery and customer dissatisfaction. Therefore, delivering quality products or services and meeting customers' demands and expectations is critical in achieving operational performance and gaining a competitive advantage.

The knowledge gained from this chapter serves as a foundation for organizations seeking to optimize their operational performance. By implementing effective performance measurement and management systems and aligning their SCMP practices, businesses can improve their efficiency, responsiveness, and customer satisfaction. This, in turn, can lead to a competitive advantage in the marketplace.

***Chapter 3: The Contribution of Supply
Chain Management Practices on
Operational Performance***

Introduction

In the previous chapter, we laid the groundwork by establishing a theoretical foundation for our research on the contribution of supply chain management to a firm's operational performance. In this chapter, our focus shifts to conducting an empirical study that delves into the practical aspects of the theoretical concepts discussed. Building on our chosen methodology, this chapter is structured into three distinct sections.

The first section provides an overview of the company included in the study. The second section presents the detailed methodology employed in our research. We outline the steps taken to develop the questionnaire, select the target companies, and gather the necessary data. Lastly the third section which presents the findings of the quantitative research.

Section one: General overview of the company “Nestle Waters Algeria”

The company Nestle has capitalized on its expertise in various fields, particularly in the area of water, and has gained global recognition in this field. It has developed products that contribute to improving consumers' lifestyles, thus becoming an undisputed leader in their category. In this section, we will seek to provide a comprehensive overview of this company by defining it, tracing its history, discussing its missions and core principles, and presenting its organizational structure with its different departments and divisions.

1.1 Nestlé Group

Nestlé is a multinational Swiss company and one of the largest food and beverage companies globally. Founded in 1866 by Henri Nestlé, it has grown into a global powerhouse with a presence in over 180 countries. The company operates in various business areas, including Food and Beverages, Confectionery, Nutrition and Health Science, and Nestlé Professional. In addition to its extensive food and beverage offerings, Nestlé Group has expanded its reach to include pet care products, pharmaceuticals, and nutritional supplements. The company invests heavily in research and development to develop new products and improve existing ones. With a strong emphasis on nutritional science, Nestlé employs a dedicated team to create products that promote healthier choices and contribute to overall well-being. Furthermore, Nestlé Group has a significant presence in the water sector. It operates in the production, distribution, and marketing of bottled water through its division known as Nestlé Waters (Nestlé, 2022). Nestle Group has around 275000 employees worldwide, and it sells in 188 countries. In 2022, Nestlé Group's net profit decreased by 45% to 9,230 million euros compared to 2021, when it reached 15,638 million euros (Nestlé Annual Review, 2022).

1.2 Nestlé Waters

In 1992, Nestlé expanded its position in the mineral water market by acquiring France's Perrier Group, and the following year, Nestlé Sources Internationales was established. By 1997, Nestlé had solidified its leadership in "Nutrition, Health, and Wellness." In 1998, the company further strengthened its water division through the acquisition of the renowned Italian mineral water business, Sanpellegrino Group, which was later renamed Nestlé Waters in 2002. Today, Nestlé Waters, a division of Nestlé Group, they employ approximately 35,000 people worldwide, they offer a portfolio of 52 well-known brands such as VITTEL, Poland Spring, Aqua Panna, Deer Park, and Ozarka. Among these brands, Nestlé Pure Life stands out as the flagship brand, having been launched in 1998. With the slogan "The Healthy Hydration

Company," Nestlé Pure Life has gained global recognition for its commitment to providing consumers with clean and safe drinking water. Produced in numerous countries worldwide, including Algeria, Nestlé Pure Life offers a wide range of formats and sizes to cater to diverse consumer preferences. With a strong focus on quality and promoting hydration and well-being, Nestlé Pure Life remains dedicated to delivering high-quality purified drinking water to consumers around the globe (Nestlé, 2023).

1.3 Nestlé Waters Algeria

Nestlé Waters Algeria has been present in Algeria since 2005 through a partnership with the national group “Boissons gazeuses” of Zahaf brothers. In 2006, the company established its presence by constructing its first factory at the Taberkachent source, situated in Sidi El Kebir, Blida. This modern production site covers an area of approximately 225,000 square meters, incorporates cutting-edge technologies to meet the most rigorous international standards. With a workforce of over 230 employees, including skilled workers and experienced professionals, Nestlé Waters is committed to producing and promoting high-quality mineral water bottles that prioritize the trust and satisfaction of Algerian consumers.

The initial production capacity of the factory was 40 million liters, which increased to 75 million liters in 2009 and further to 270 million liters in 2017. The water is packaged in bottles of various sizes, including 0.5 L, 1.5 L, and 5 L, and it accounts for 10% of the total sales of the parent company. Nestlé Waters strives to uphold its commitment to producing and promoting high-quality mineral water bottles, with a focus on meeting the preferences and expectations of Algerian consumers.

Nestlé Waters emphasizes certain fundamental principles that guide its actions. These principles revolve around consumers, individuals, suppliers, customers, and the environment. They represent a strong commitment by Nestlé Waters to adhere to legal standards and contribute positively to society.

1.4 Missions of the Company

The mission of Nestlé Waters Algeria is focused on commitment to health, environment, and value creation, achieved through:

- Providing a healthy product, promoting healthy hydration, and delivering pure nutritional value to the maximum number of consumers.

- Ensuring a high-quality consumable end product that complies with Algerian legislation and meets the standards set by the Nestlé Group.
- Respecting the environment through the rational use of resources based on three principles: manage, protect, and promote sustainable practices.
- Supporting sustainable development and contributing to overall and regional economic growth.

1.5 Nestlé Waters Algeria Organizational Chart

The organizational structure of Nestlé Waters Algeria is divided into five key departments, each managed by a senior leader, followed by team leaders. The team leaders within each department are responsible for managing specific teams or divisions, and the staff members carry out the day-to-day tasks related to their respective roles. This hierarchical structure ensures effective management and coordination within the company. The figure in appendix 1 illustrates the organizational chart of the company.

Section Two: The Research Methodology

2.1 Research Design: An Overview

To address the research questions at hand, this study adopts a combination of exploratory and conclusive approaches.

2.1.1 Types of Research Design

2.1.1.1 Exploratory Research

The utilization of exploratory research in this study serves two key purposes: gaining a clearer definition of the research problem and obtaining a comprehensive understanding of the topic. Exploratory research is valuable for exploring research problems that lack sufficient understanding and for identifying potential variables or relationships that warrant further investigation. It is also an effective method for generating new ideas and hypotheses, as well as evaluating the feasibility of conducting more extensive research (Malhotra, 2010).

Given the need to develop a reliable theoretical framework for understanding the interaction between SCMP influencing Operational Performance, it is imperative to employ exploratory research. Qualitative research and secondary data analysis are the primary methods utilized in exploratory research.

2.1.1.1.1 Secondary Data

Secondary data, as highlighted by Kothari (2004), can be a cost-effective and efficient means of obtaining information, as it eliminates the need for primary data collection. This is particularly beneficial in situations where practical, ethical, or financial constraints make primary data collection unfeasible, as emphasized by Bryman (2015).

Secondary data can be sourced from various resources, such as books, personal records, journals, newspapers, websites, and government documents, among others. Compared to primary data, secondary data is generally more readily available and requires relatively less research effort and manpower, especially with the widespread availability of electronic media and the internet.

2.1.1.1.2 Qualitative Research

Qualitative research, as described by Creswell (2009), aims to acquire in-depth knowledge and understanding of a specific subject. It provides a valuable means to explore individuals' feelings, thoughts, emotions, and perceptions by drawing insights from various sources such as people, environments, texts, artifacts, and events (Sekaran & Bougie, 2009).

Qualitative research methods can be categorized into direct and indirect methods. Direct methods encompass techniques like focus groups, where small groups of participants are interviewed in an unstructured manner under the guidance of a skilled facilitator. Depth interviews are also utilized, involving personal and unstructured interviews with individual respondents conducted by highly trained interviewers. On the other hand, indirect methods involve the use of projective techniques, including word association, sentence completion, picture response, cartoon tests, role-playing, and third-person techniques.

In this research, secondary data analysis is employed, which involves the collection and review of both internal and external secondary data. The previous two chapters, presents the most relevant information obtained from analyzing secondary data related to the research topic.

2.1.1.2 Conclusive Research

Conclusive research is a structured and formal approach to research that involves collecting data from large and representative samples and subjecting it to quantitative analysis (Malhotra, 2010).

The main goal of conclusive research is to test hypotheses and explore relationships between variables (Malhotra, 2010). It can be categorized into descriptive research, which aims to describe phenomena or characteristics of consumers, organizations, or market areas, and causal research, which focuses on examining cause-and-effect relationships.

2.1.1.2.1 Descriptive Research

Descriptive research is used to understand product perceptions, determine the association between variables, and make specific predictions (Malhotra, 2010). It can be further divided into cross-sectional research, where information is collected from a sample at a single point in time, and longitudinal research, which involves studying the same individuals or entities over an extended period.

2.1.1.2.2 Causal Research

Causal research on the other hand, is conducted to investigate the cause-and-effect relationships between variables and understand the nature of their association (Malhotra, 2010). It seeks to identify independent variables that act as causes and dependent variables that are affected by those causes.

2.2 Research Design of the Research

2.2.1 Measurement Scales

The development of the scale was informed by a thorough review of the existing literature on practices of SCM and Dimensions of operational performance.

Table 3.1: Variables of SCMP and SCM Dimensions

Variables	Adopted from	Number of Items
SSP	adopted from Li et al. (2005, 2006)	5
CR	adopted from Li et al. (2005, 2006),	5
IS	adopted from Li et al. (2005, 2006), Beauchamp & Ponder, (2010) ; Dash & Saji, (2008)	4
Cost	Tu et al. (2004).	5
Quality	Tu et al. (2004).	4
Flexibility	Koufteros et al. (1997).	3
Delivery	Casaló et al., (2008).	4

Source: Personal Efforts

2.2.2 Questionnaire Design

The questionnaire that includes the research questions of the study was prepared as one form that is composed of two sections. The first section contains the data sheet where two dichotomous questions one about gender and the other about job position are asked, also there were three single choice questions, one about age category, the other about functional category and the last one about years of experience.

The second phase of the questionnaire contains 31 scale questions divided into 7 sections, in the first section 7_ points Likert scale questions about strategic supplier partnership are posed the first question about quality, the second about striving long term relationship with suppliers, the third about collaboration with suppliers for enhancing products quality, the fourth about performance evaluation of suppliers and the fifth about solving problems collaboration.

The second section encompasses 05 questions of a 7_ points Likert scale that target customer relationship, the first question involves the significance of customers relationship, the second question about customer feedback towards products quality, the third about customer's future expectations, the fourth about customer satisfaction and the fifth about customer complaints.

The third section about information sharing contains 04 questions, the first question about communication with distributors, the second about information flow with distributors, the third about channel effectiveness and the fourth question about future plans sharing.

The fourth section includes 05 questions that measures quality, the first one about customer quality expectation, the second question about defects and non-conformances, the third about customer satisfaction with quality, the fourth one about customer's complaints and the fifth about quality related complaints resolution.

The fifth section treats cost and contains 04 questions, the first about cost reduction, the second about resources utilization for cost reduction, the third question about cost reduction through products design, the fourth question about employees' innovative suggestions for cost reduction and the fifth question about processes treating for cost reduction.

The sixth section highlights delivery, it contains 04 questions, the first about delivery expectations, the second about delivery time, the third about minimizing delivery delays, the third one about time deliveries insurance.

The seventh section about flexibility, it includes 03 questions, the first one about product processes adaptation , the second one about quick responses to environmental changes and the last one about procedures flexibility .

To examine the proposed hypotheses and collect empirical data, a face to face self-administered questionnaire that is composed of 7-points Likert scale type of questions chosen according to the type of the information required.

As mentioned earlier , the content of the questionnaire is separated into eight sections. Starting with the data sheet section that determines whether the respondent belongs or not to the target population .

- Questions from 1 to 5 : strategic supplier partnership
- Questions from 6 to 10 : customer relationship
- Questions from 11 to 14 : information sharing
- Questions from 15 to 19 : Quality
- Questions from 20 to 24 : Cost
- Questions from 25 to 28 : Delivery
- Questions from 29 to 31 : Flexibility

The data collection process of the research was carried out between 24/04/2023 to 24/05/2023. Within this period the respondents were reached within company employees . The questionnaire was answered by making face to face interviews . It was answered by 86 respondents remained for analysis .

2.2.3 Mode of administration

A face to face survey is initiated , where a questionnaire IS designed to include different types of questions based on the specific information needed .

2.2.4 Sampling

Generally, there are two types of sampling, namely, probability sampling techniques and non-probability sampling techniques. In the host company in which training was undertaken, there are 2 levels of employees. That is, managers, and operational managers. There were 43 managers and 186 operational managers. The sample that was adopted is stratified sampling with 2 groups of equal size. One group consists of 43 managers and the other is composed of 43 operational managers.

Section Three: Research Findings

This section presents the research findings obtained through a comprehensive analysis of the collected data. The analysis begins with a descriptive analysis of the variables under study, providing an overview of the key characteristics. Subsequently, a regression analysis is conducted to test the hypotheses formulated in the study.

3.1 Descriptive Statistics

The descriptive analysis of the collected data aims to provide a comprehensive understanding of the socio-demographic characteristics of the respondents within the studied sample. The sample consists of 43 managers and 43 operators from the firm. By examining variables of gender, age, job position, functional category, and years of experience, this analysis seeks to draw a profile of the respondents and summarize the information gathered.

3.1.1 Respondent's Gender

The following table illustrates the distribution of individuals in the study sample according to the gender variable, showing the percentages of males and females out of a total of 86 people:

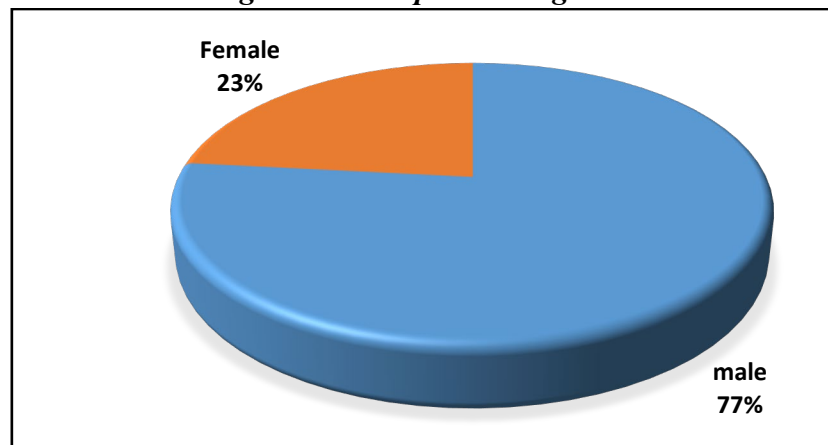
Table 3.1: Distribution of individuals by gender

Gender	Number Of Individuals	Percentage
Male	66	76,7
Female	20	23,3
Total	86	100

Source: personal efforts using excel

The analysis reveals that out of the total 86 individuals in the sample, 66 individuals (76.6%) are male, while 20 individuals (23.3%) are female. This data suggests a significant gender imbalance within the study sample, with a higher representation of males compared to females, and the majority of the organization's workers are males as illustrated in Figure 3.2

Figure 3.2: Respondent's gender



Source: personal efforts using excel

3.1.2 Respondents' Age

The table (3.2), shows the distribution of individuals according to different age groups. It provides the number of individuals and the corresponding percentage within each age category.

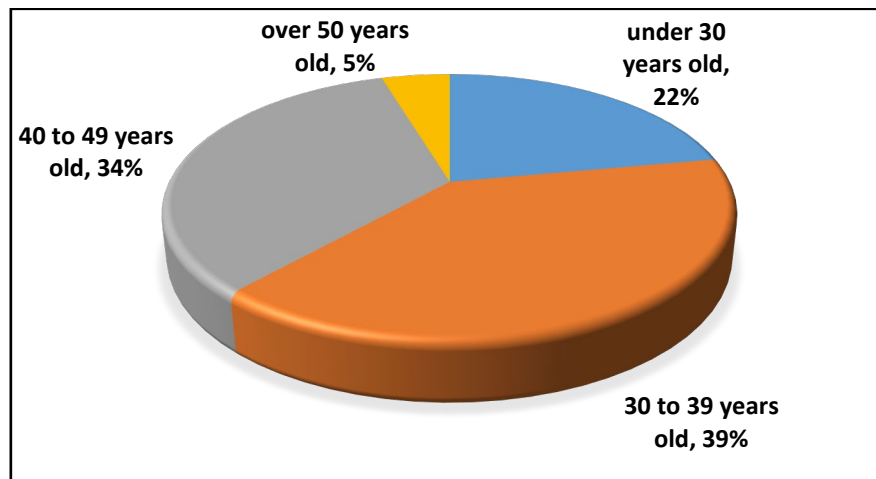
Table 3.2: Distribution of Individuals in the Study Sample by age

Age	Number of individuals	Percentage
under 30 years old	19	22,1
30 to 39 years old	34	39,5
40 to 49 years old	29	33,7
over 50 years old	4	4,7
Total	86	100

Source: personal efforts using excel

The table shows that among the total sample of 86 respondents, the majority fall into the age range of 30 to 39 years old, comprising 39.5% of the sample. The next largest group is the 40 to 49 years old category, which accounts for 33.7% of the respondents. The under 30 years old category represents 22.1% of the sample, while the over 50 years old category has the smallest proportion with 4.7% of the respondents as illustrated in Figure 3.3

Figure 3.3: Respondent's age



Source: personal efforts using excel

3.1.3 Distribution of Individuals in the Study Sample by Job Position

The provided table presents an analysis of the job position distribution among individuals.

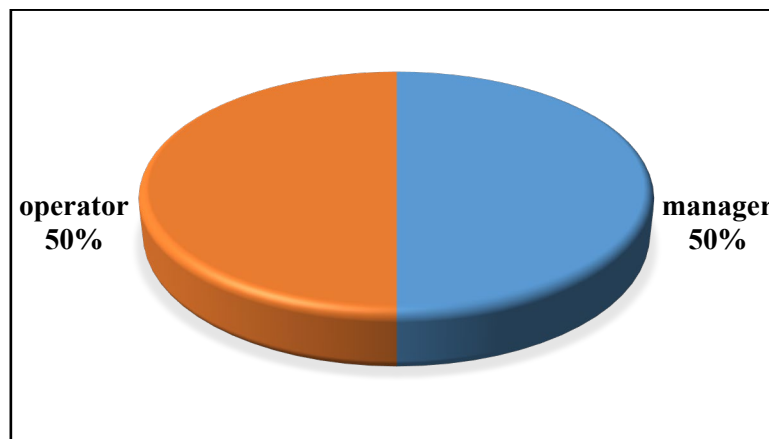
Table 3.3: Distribution of individuals by job position

Job position	Number of individuals	Percentage
Manager	43	50
Operator	43	50
Total	86	100

Source: personal efforts using excel

The findings reveal an equal representation of managers and operators, with each category accounting for 50% of the total sample.

This balanced distribution was a deliberate choice made by the researcher to conduct a comparative study between strategy execution and strategy formulation. The aim was to examine and compare their perspectives, experiences, and practices in strategy execution and formulation. However, upon analyzing the data, it was found that there was no statistically significant difference between the two groups. This unexpected result suggests a remarkable level of harmony or similarity in the approaches of managers and operators towards strategy execution and formulation. The findings indicate that both groups share a common understanding and demonstrate similar implementation practices when it comes to strategies. This highlights the coherence and alignment within the organization, regardless of job position or hierarchical level, in achieving strategic goals and objectives. The figure 3.4 illustrate that.

Figure 3.4: Respondent's job position

Source: personal efforts using excel

3.1.4 Distribution of individuals by functional category

The table (3.4), presents the distribution of individuals across different functional categories.

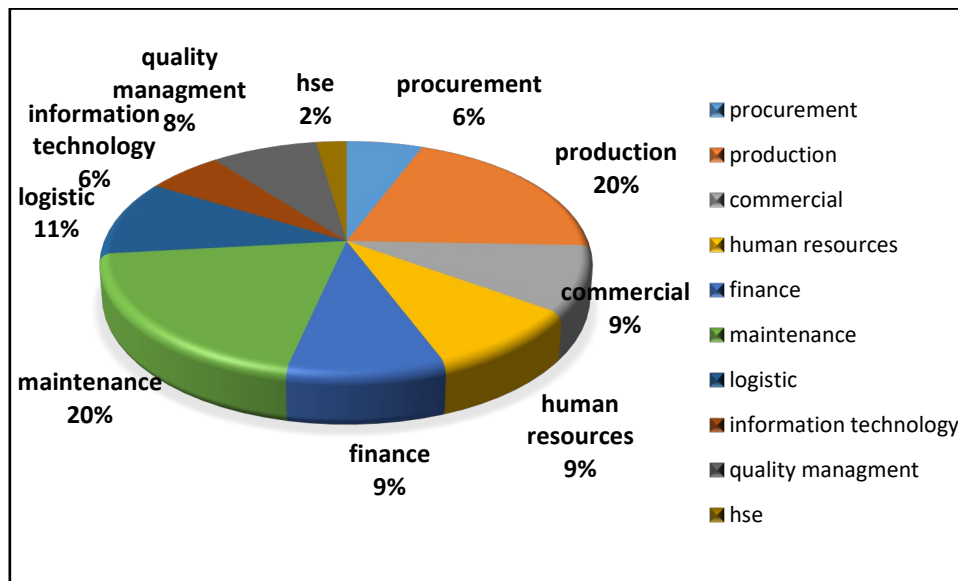
Table 3.4: Distribution of individuals by functional category

Functional Category	Number Of Individuals	Percentage
Procurement	5	5,8
Production	17	19,8
Commercial	8	9,3
Human Resources	8	9,3
Finance	8	9,3
Maintenance	17	19,8
Logistic	9	10,5
Information Technology	5	5,8
Quality Managment	7	8,1
Hse	2	2,3
Total	86	100

Source: personal efforts using excel

By analysing the data, several key observations can be made. The largest functional category is "production," comprising 17 individuals and representing 19.8% of the total population. This suggests that production is a significant area of focus within the organization, reflecting its importance in driving operations and output. The categories of "maintenance" and "logistics" both have a substantial number of individuals, with 17 and 9 respectively. Together, they make up a combined total of 30.3% of the population. This highlights the critical role played by these functions in supporting the smooth functioning of operations and ensuring efficient supply chain management. The functional categories of "commercial," "human resources," and "finance" each have an equal number of individuals, with 8 in each category, accounting for 9.3% of the total population. This balanced representation indicates a deliberate allocation of resources and attention to these areas, recognizing their significance in driving business growth and supporting organizational needs. Other functional categories, including "procurement," "information technology," and "quality management," have a moderate representation with 5 to 7 individuals, ranging from 5.8% to 8.1% of the total population. While these categories may have a smaller proportion, they still play crucial roles in areas such as sourcing, technology infrastructure, and quality assurance. The functional categories of "HSE" (Health, Safety, and Environment) and "human resources" have the lowest representation, with 2 individuals each, accounting for 2.3% of the total population. Although small in number, these categories are responsible for crucial aspects of employee well-being, safety, and organizational compliance. As illustrated in the figure (3.5).

Figure 3.5: Distribution of individuals by functional category



Source: personal efforts using excel

3.1.5 Distribution of Individuals in the Study Sample by Years of Experience

The provided table (3.4) presents an analysis of the job position distribution among individuals.

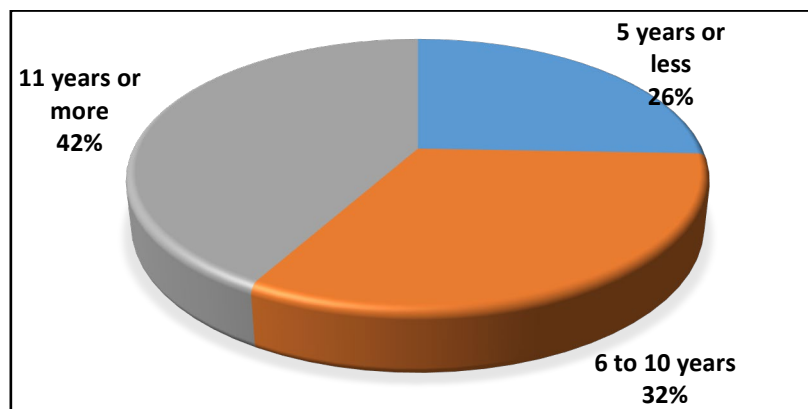
Table 3.4: Respondent’s years of experience

Years Of Experience	Number Of Individuals	Percentage
5 Years Or Less	22	25,6
6 To 10 Years	28	32,6
11 Years Or More	36	41,9
Total	86	100

Source: personal efforts using excel

The table 3.4 shows that the majority of respondents (41.9%) have 11 years or more of experience, followed by those with 6 to 10 years of experience (30.2%). A smaller proportion of respondents (25.6%) have 5 years or less of experience. Additionally, there are a few individuals with 6 or 7 years of experience, each accounting for 1.2% of the total sample. Overall, the respondent in the study have varying levels of experience, with a significant portion having extensive experience in their respective fields. That what the bellow figure (3.6) illustrated.

Figure 3.6: Respondent's years of experience



Source: personal efforts using excel

3.2 Hypotheses Tests

After presenting the descriptive analysis of the questionnaire, a more in-depth analysis is necessary to test the research hypotheses, a multiple linear regression analysis was performed. The predictors in each regression model consist of the means of the items on their respective scales.

3.2.1 Test of the First Hypothesis

To test the first hypothesis, which hypothesizes that supply chain management practices including (Strategic supplier partnership, customer relationship, and information sharing) influence product quality. To test this hypothesis, a multiple regression analysis is conducted.

3.2.1.1 Screening Data for Regression

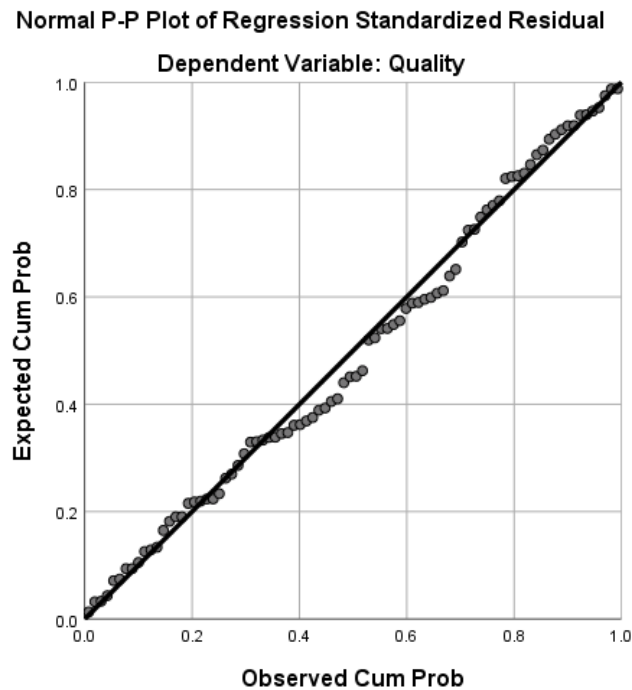
There exist a set of preliminary assumptions that must be approved before conducting a multiple regression analysis. Thus, we will verify at first that the data collected are suitable for regression analysis.

3.2.1.1.1 Sample Size

In our study, the number of independent variables (predictors or explanatory variables) included in the regression analysis for each hypothesis is three. According to general guidelines, a minimum sample size of forty-five respondents is recommended for regression analysis with three predictors. In our case, we had a sample size of 86 respondents, which exceeds the minimum requirement. Therefore, the sample size is considered adequate for conducting regression analysis and testing all the hypotheses.

3.2.1.1.2 Normality of Residuals

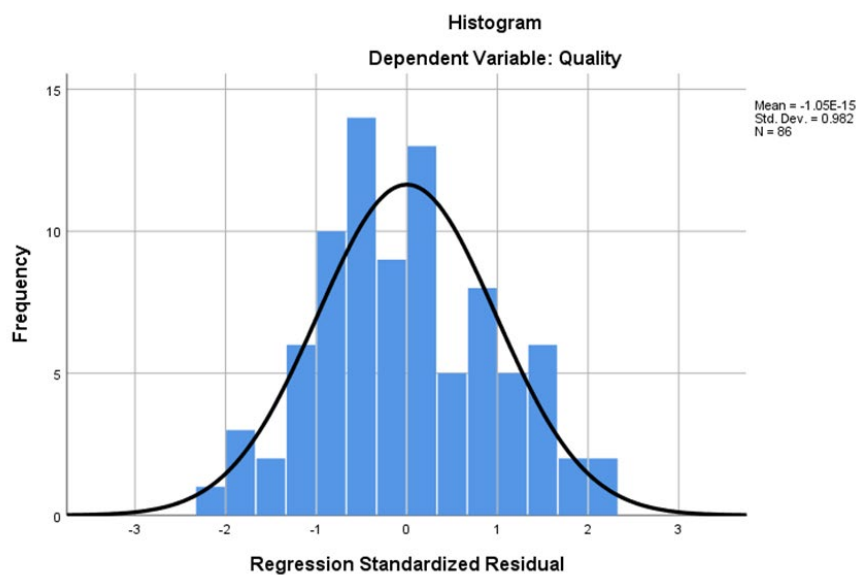
Figure 3.6: Normal P.P Plot



Source: personal efforts using SPSS 25

The above figure (3.6), above shows that the residuals are aligned diagonally. Thus, the distribution of residuals follows the normal distribution.

Figure 3.7: Regression Standardized Residual's Histogram



Source: personal efforts using SPSS 25

Figure (3.7) below illustrates the histogram of standardized residuals, which is used to test the normality assumption. The standardized residuals should fall within the range of -3 to +3 for the assumption of normal distribution to hold. Based on the histogram, it is evident that all standardized residuals are within this interval, indicating that the residuals are normally distributed.

3.2.1.1.3 Outliers

The extreme values that can be identified through the Mahalanobis distance which is determined by the value of chi-square in which the number of independent variables is the degree of freedom and using 0.001 as level of significance. All of Mahalanobis values must be lower than the chi-square (number of independent variables, 0.001) value. Thus, more simply, outliers can be detected by comparing Mahalanobis values obtained by SPSS to the chi-square critical value.

In our case, all Mahalanobis distance values are below than chi-square (3, 0.001) = 16.27, which means the absence of outliers.

3.2.1.1.4 Multicollinearity

Table 3.5: correlation matrix

Correlations

	Quality	Strategic Supplier Partnership	Customer Relations	Information Sharing
Quality	1.000	.448	.458	.395
Strategic Supplier Partnership	.448	1.000	.694	.554
Customer Relations	.458	.694	1.000	.621
Information Sharing	.395	.554	.621	1.000

Source: personal efforts using SPSS 25

Based on this correlation table, there is no correlation value that exceeds 0.9 or 90%. Therefore, there is no multicollinearity among the independent variables (Strategic Supplier Partnership, Customer Relations, and Information Sharing) in the regression model.

3.2.1.1.5 Independence of Residuals (Autocorrelation)

Table 3.6: Model Summary

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.503 ^a	.253	.226	.58283	1.802

Source: Personal effort using SPSS

Independence of residuals is examined using Durbin-Watson (DW) test. Each DW value has two critical values: DL (LOWER) and DU (UPPER). If the calculated value is lower than DL residual are not independent, if calculated value is higher than DU residuals are independent, and if the calculated value from SPSS is between DU and DL then the result is inconclusive. Based on the model summary table, Durbin-Watson value =1.802, which is greater than the maximum critical value (DL1.575/ DU 1.721).

Overall, all the assumptions necessary for regression analysis are accepted. Therefore we can move into the interpretation of the model.

3.2.1.2 Model Evaluation

Based on the previous table (3.6), and the Adjusted R square value, the model explains 22.6% of the variation of the dependent variable, which means, 22.6% of the variation in the dependent variable (Quality) can be explained by the independent variables (Strategic Supplier Partnership, Customer Relations, and Information Sharing) included in the model.

3.2.1.2.1 Model Usefulness

Table 3.7: ANOVA

		ANOVA				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.454	3	3.151	9.277	.000 ^b
	Residual	27.854	82	.340		
	Total	37.308	85			

Source: Personal effort using SPSS

This model is statistically significant for alpha 5%, Fisher value is equal to 9.277 and greater than $F(3, 82, 5\%) = 2.69$.

Even though the model is statistically significant, Nestlé Waters Algeria cannot base its decisions on this model, car the model usefulness requires a Fisher value greater four times than the critical value.

3.2.1.2.2 Parameters Evaluation

Table 3.8 : Parametric evaluation

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.989	.614		3.242	.002		
Strategic Supplier Partnership	.208	.129	.219	1.611	.111	.494	2.026
Customer Relations	.223	.145	.221	1.531	.130	.438	2.283
Information Sharing	.112	.102	.137	1.101	.274	.586	1.708

Source: Personal effort using SPSS

Based on the coefficients provided, none of the independent variables namely, strategic supplier partnership, customer relationship, and information sharing, show statistically significant effects on the dependent variable (Quality).

Since all the coefficients are positive, it suggests that these independent variables have a positive influence on Quality. Means that an increase in Strategic Supplier Partnership, Customer Relations, or Information Sharing is associated with an increase in Quality.

Although the coefficients suggest a positive relationship between these variables and quality, the lack of statistical significance ($p > 0.05$) indicates that these relationships could be due to random chance rather than true effects.

In conclusion, based on the comprehensive analysis of the regression model and the provided results, it can be stated that the hypothesis proposing a significant influence of supply chain management practices on product quality in Nestlé Waters Algeria is not supported by the data. Therefore the first hypothesis is rejected.

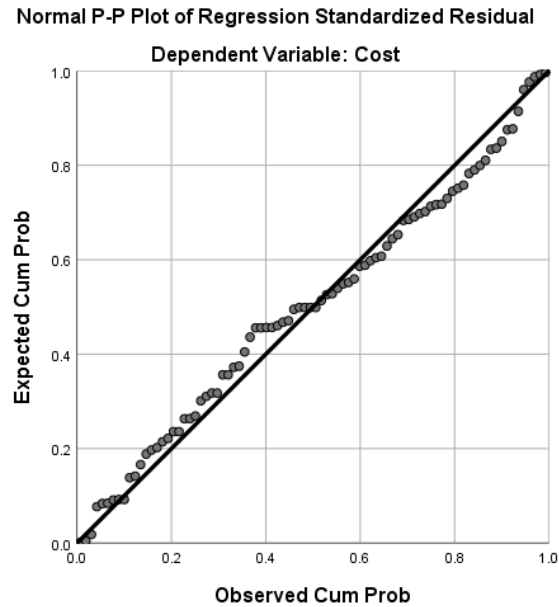
3.2.2 Test of the Second Hypothesis

The second hypothesis stipulates that Nestlé Water is a widely consumes product, it is hypothesized that SCMP, influence cost. Like the first hypothesis, this hypothesis will be tested through multiple regression analysis

3.2.2.1 Screening Data for Regression

3.2.2.1.1 Normality of Residuals

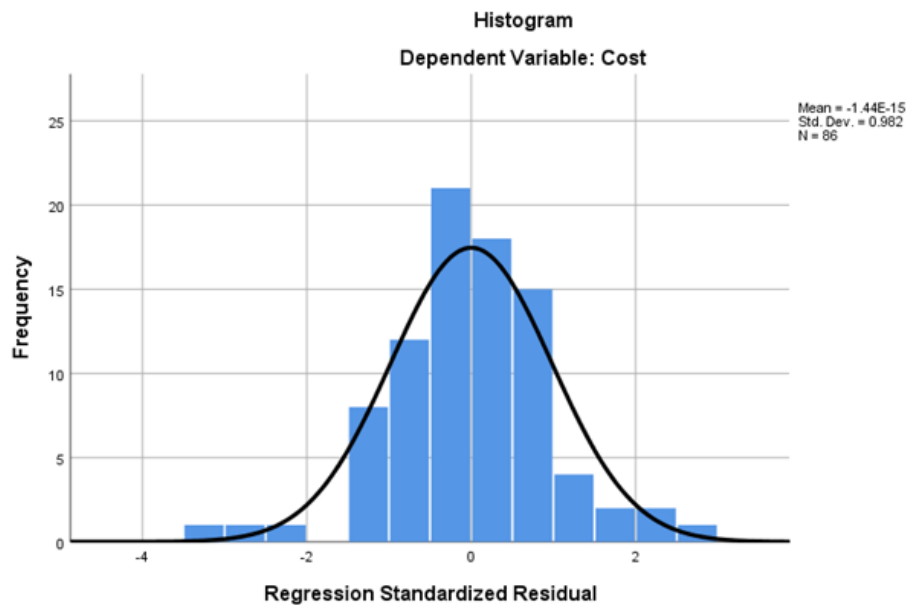
Figure (3.8): Figure 3.6: Normal P.P Plot



Source: Personal effort using SPSS 25

In the figure (3.8), it is observed that the residuals are aligned diagonally, which means that the distribution of residuals follows the normal distribution

Figure (3.9): Regression Standardized Residual's Histogram



Personal efforts using SPSS 25

3.2.2.1.2 Outliers

All Mahalanobis distance values calculated using SPSS are lower than the chi-square critical value at $(3, 0.001) = 16.27$. In simpler terms, there is no evidence of outliers.

3.2.2.1 Multicollinearity

Table 3.9: Correlations
Correlations

	Cost	Strategic Supplier Partnership	Customer Relations	Information Sharing
Cost	1.000	.599	.571	.590
Strategic Supplier Partnership	.599	1.000	.694	.554
Customer Relations	.571	.694	1.000	.621
Information Sharing	.590	.554	.621	1.000

Based on the provided correlation table, none of the correlation coefficients between the independent variables (Strategic Supplier Partnership, Customer Relations, and Information Sharing) exceed 0.9 or 90%. This indicates that there is no strong linear relationship or multicollinearity among the independent variables in the regression model.

3.2.2.1.3 Independence of residuals (Autocorrelation)

Table 3.10 : Model Summary

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.682 ^a	.465	.446	.47339	2.138

Source: Personal efforts using SPSS 25

Based on the information provided in the model summary table, the Durbin-Watson statistic is calculated to be 2.138. Comparing this value to the maximum critical values of 1.575 (DL) and 1.721 (DU), we find that the Durbin-Watson value is greater than both of these critical values.

3.2.2.2 Model evaluation

Based on the previous table (3.10) and the Adjusted R square value, the model explains 44.6% of the variation of the dependent variable, which means, 44.6% of the variation in the dependent

variable (Cost) can be explained by the independent variables (Strategic Supplier Partnership, Customer Relations, and Information Sharing) included in the model.

3.2.2.2.1 Model usefulness

Table 3.11 : ANOVA

Model		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.988	3	5.329	23.781	.000 ^b
	Residual	18.376	82	.224		
	Total	34.363	85			

Source: Personal efforts using SPSS 25

This model is statistically significant for an alpha 5%, Fisher value is equal to 23.781 and greater than $F(3, 82, 5\%) = 2.64$. The usefulness of the model typically requires a Fisher value that is at least four times greater than the critical value, which is indeed the case in our study. Therefore, Nestlé Waters Algeria can make informed decisions based on this model.

3.2.2.2.2 Parameters evaluation

Table 3.12: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.882	.498		3.777	.000		
Strategic Supplier Partnership	.288	.105	.316	2.747	.007	.494	2.026
Customer Relations	.149	.118	.154	1.260	.211	.438	2.283
Information Sharing	.250	.083	.319	3.025	.003	.586	1.708

Source: Personal efforts using SPSS 25

The coefficients indicate the effects of the independent variables. Strategic Supplier Partnership has a statistically significant positive effect, as an increase in Strategic Supplier Partnership is associated with an increase in Cost. Information Sharing also has a statistically significant positive effect, and an increase in it leads to an enhancement in Cost. However, Customer Relations does not show a statistically significant effect on Cost, as the coefficient is not significant at the conventional significance level. Therefore, the findings suggest that Strategic Supplier Partnership and Information Sharing are important factors influencing the Cost, while Customer Relations may not have a significant impact, however it has positive influence on cost.

In conclusion Nestlé Water is a widely consumes product, it is hypothesized that SCMP, influence cost. Therefore the second hypotheses is rejected.

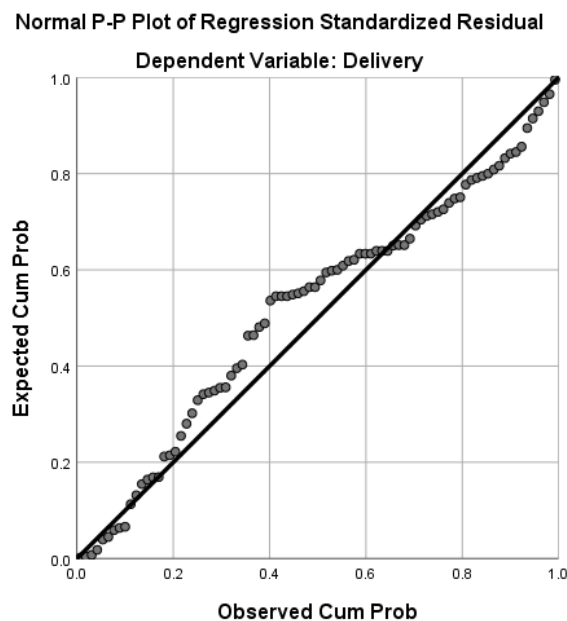
3.2.3 Test of the third hypothesis

To test the third hypothesis which stated that Due to the wide consumption of Nestlé Water's product, it is believed that SCMP influence delivery. A regression analysis will be carried out to test the third hypothesis.

3.2.3.1 Screening Data for Regression

3.2.3.1.1 Normality of residuals

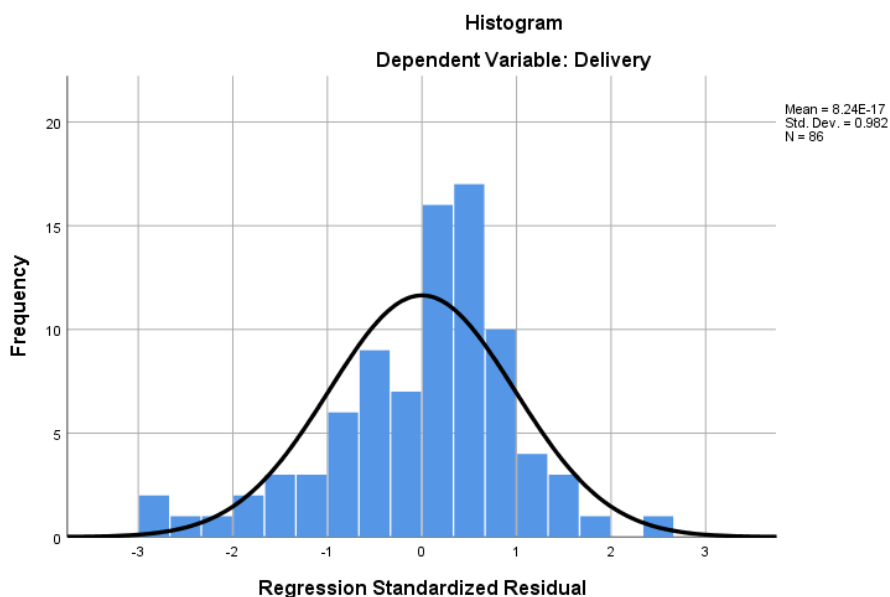
Figure 3.9: Normal P.P Plot



Source: personal efforts using SPSS 25

Figure 3.9 above shows that the residuals are aligned diagonally. Thus, the distribution of residuals follows the normal distribution.

Figure 3.10: Histogram



Source: personal efforts using SPSS 25

3.2.3.1.2 Outliers

All Mahalanobis distance values calculated using SPSS are lower than the chi-square critical value at (3, 0.001) = 16.27. This indicates that there is no evidence of outliers.

3.2.3.1.3 Multicollinearity

Table 3.13: Correlations

Correlations				
	Delivery	Strategic Supplier Partnership	Customer Relations	Information Sharing
Delivery	1.000	.507	.546	.398
Strategic Supplier Partnership	.507	1.000	.694	.554
Customer Relations	.546	.694	1.000	.621
Information Sharing	.398	.554	.621	1.000

Source: personal efforts using SPSS 25

Based on the correlation table presented, none of the correlation coefficients between the independent variables (Strategic Supplier Partnership, Customer Relations, and Information Sharing) exceed 0.9 or 90%. This suggests that there is no significant multicollinearity among these independent variables in the model.

3.2.3.1.4 Independence of residuals (Autocorrelation)

Table 3. 14 : Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.576 ^a	.331	.307	.56162	2.124

Source: personal efforts using SPSS 25

The Durbin-Watson value is 2.124, which is higher than the maximum critical values of 1.575 (DL) and 1.721 (DU). It suggests that there is no autocorrelation present in the data.

3.2.3.2 Model evaluation

Based on the previous table (3.14) and the Adjusted R square value, the model explains 30.7 % of the variation of the dependent variable, which means, 30.7 % of the variation in the dependent variable (Delivery) can be explained by the independent variables (Strategic Supplier Partnership, Customer Relations, and Information Sharing) included in the model.

3.2.3.2.1 Model usefulness

Table 3.15: ANOVA

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.823	3	4.274	13.552	.000 ^b
	Residual	25.864	82	.315		
	Total	38.687	85			

Source: personal efforts using SPSS 25

By comparing the Fisher value (F-value) of 13.552 to the critical value of F (3, 82, 5%) = 2.64, it is evident that the model is statistically significant. And since the statistical significance of the model it is crucial for Nestlé Waters Algeria to evaluate its practical utility and relevance.

3.2.3.2.2 Parameteres evaluation

Table 3.16: Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	2.018	.591		3.413	.001		
Strategic Supplier Partnership	.228	.124	.235	1.831	.071	.494	2.026
Customer Relations	.362	.140	.353	2.584	.012	.438	2.283
Information Sharing	.041	.098	.049	.415	.679	.586	1.708

Source: personal efforts using SPSS 25

The coefficients indicate the effects of the independent variables, Customer Relations has a statistically significant positive effect, as a one-unit increase in Customer Relations is associated with a 0.362 unit increase in Delivery. On the other hand, Strategic Supplier Partnership and Information Sharing do not show statistically significant effects on Delivery in this model, as their coefficients are not significant at the conventional significance level. While each of them have positive impact on delivery. Therefore, the findings suggest that Customer Relations is an important factor influencing Delivery.

To conclude the wide consumption of Nestlé Water’s product, it is believed that SCMP influence delivery, which it is the third hypotheses rejected.

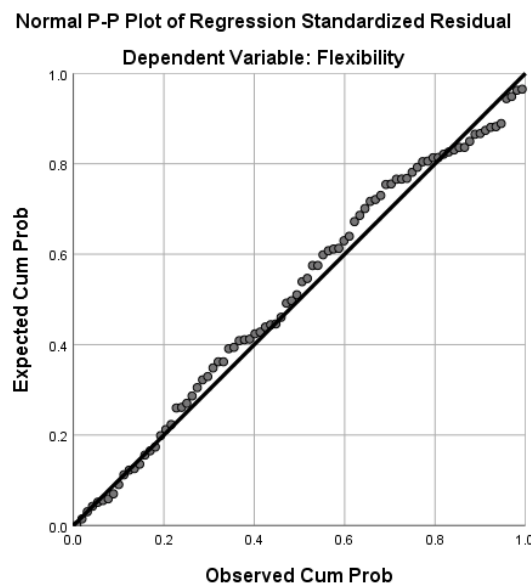
3.2.4 Test of the Fourth Hypothesis

To test the fourth hypothesis, which stipulates that Due to its size and product category, SCMP do not influence flexibility.. A multiple regression analysis was conducted this hypothesis.

3.2.4.1 Screening Data for Regression

3.2.4.1.1 Normality of residuals

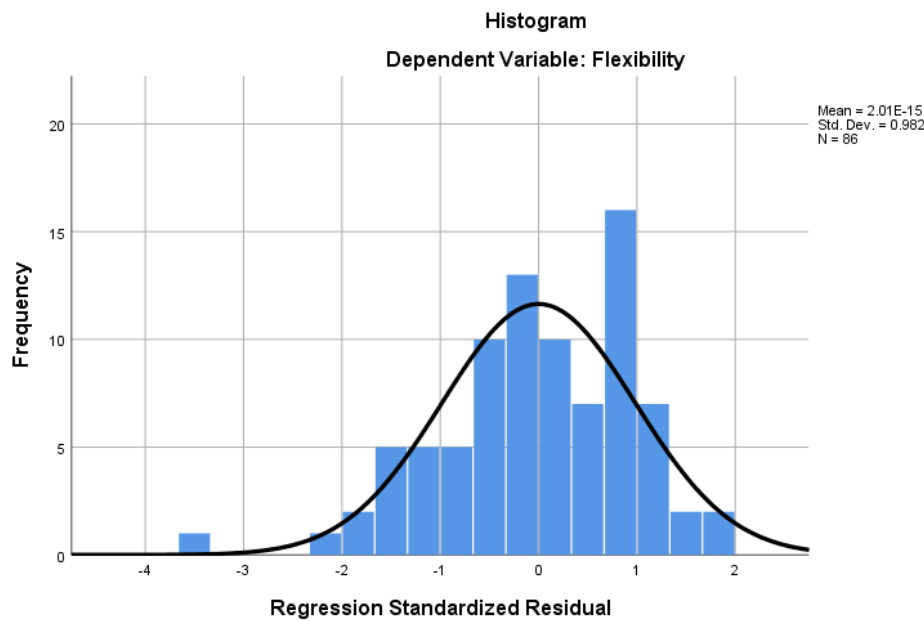
Figure 3. 10: Normal P-P



Source: personal efforts using SPSS 25

Figure (3.10) above shows that the residuals are aligned diagonally. Thus, the distribution of residuals follows the normal distribution.

Figure 3.11: Histogram



Source: personal efforts using SPSS 25

3.2.4.1.2 Outliers

All Mahalanobis distance values calculated using SPSS are lower than the chi-square critical value at (3, 0.001) = 16.27. This indicate that there is no outliers.

3.2.4.1.3 Multicollinearity

Table 3. 17: Correlations

Correlations				
	Flexibility	Strategic Supplier Partnership	Customer Relations	Information Sharing
Flexibility	1.000	.433	.424	.299
Strategic Supplier Partnership	.433	1.000	.694	.554
Customer Relations	.424	.694	1.000	.621
Information Sharing	.299	.554	.621	1.000

Source: personal efforts using SPSS 25

The correlation table (3.17), provided reveals that none of the correlation coefficients between the independent variables (Strategic Supplier Partnership, Customer Relations, and Information Sharing) surpass 0.9 or 90%. This implies that there is no substantial multicollinearity among these variables in the regression model.

3.2.4.1.4 Independence of residuals (Autocorrelation)

Table 3. 18: Model Summary

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.465 ^a	.217	.188	.73008	1.941

Source: personal efforts using SPSS 25

The model summary table (3.18), shows that the Durbin-Watson statistic has a value of 1.941. By comparing this value to the maximum critical values of 1.575 (DL) and 1.721 (DU), we find that the Durbin-Watson value is greater than both of these critical values. Therefore, the absence of autocorrelation.

3.2.4.2 Model evaluation

Based on the previous table (3.18), and the Adjusted R square value, the model explains 18.8% of the variation of the dependent variable, which means, 18.8 % of the variation in the dependent variable (Flexibility) can be explained by the independent variables (Strategic Supplier Partnership, Customer Relations, and Information Sharing) included in the model.

3.2.4.2.1 Model usefulness

Table 3.19 : ANOVA

ANOVA ^a					
	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	12.080	3	4.027	7.554	.000 ^b
Residual	43.708	82	.533		
Total	55.787	85			

Source: personal efforts using SPSS 25

According to the analysis conducted, the model is statistically significant at a significance level of 5%. This conclusion is based on the comparison of the Fisher value of 7.554 to the critical value of $F(3, 82, 5\%) = 2.64$.

3.2.4.2.2 Parameteres evaluation

Table 3.20 : Coefficients

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.	Collinearity Statistics
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	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.441	.769		1.875	.064		
Strategic Supplier Partnership	.309	.162	.266	1.910	.060	.494	2.026
Customer Relations	.290	.182	.236	1.596	.114	.438	2.283
Information Sharing	.006	.127	.006	.045	.964	.586	1.708

Source: personal efforts using SPSS 25

Based on the coefficient analysis, none of the independent variables (Strategic Supplier Partnership, Customer Relations, and Information Sharing) exhibit statistically significant effects on the dependent variables (Flexibility) at the conventional significance level. All three independent variables have positive coefficients. This suggests that an increase in any of these variables is associated with an increase in the dependent variable (Flexibility).

In recapitulate, based on the analysis, the fourth hypothesis, which suggests that supply chain management practices including SSP, CR, and IS, do not influence the flexibility of Nestlé Waters Algeria is accepted.

Conclusion

In the first section of this chapter , a general overview of NESTLE Waters, in the second section , the research methodology was established , highlighting research design , questionnaire design ,sampling design and preliminary plan for data analysis . In the last section of the chapter , data analysis methods , study results and a discussion of the findings have been established , the study aimed to test four hypotheses and the results were the following :

The research findings suggest that supply chain management practices collectively, specifically strategic supplier partnership, customer relationship, and information sharing, do not have a significant influence on the product quality of Nestlé Waters. Similarly, the study found no significant influence of supply chain management practices on cost or the delivery process, despite the wide consumption of Nestlé Waters products. However, it was confirmed that the size and product category of Nestlé Waters do not significantly impact the influence of supply chain management practices on flexibility.

General Conclusion

This research aimed to investigate the extent to which supply chain practices contribute to the operational performance of Nestlé Waters Algeria. The main research question, "To what extent do supply chain practices contribute to the Operational Performance of Nestlé Waters Algeria?", was divided into several sub-research questions, each focusing on a specific aspect of operational performance. The corresponding hypotheses were formulated to test the relationships between supply chain practices and the dimensions of operational performance.

The main research question was supported by the following sub-research questions:

- Do supply chain practices influence the product quality of Nestlé Waters Algeria?
- Do the supply chain management practices impact the cost of Nestlé Waters Algeria?
- Do supply chain management practices influence the delivery process of Nestlé Waters products?
- Is the flexibility of Nestlé Waters impacted by its practices of supply chain management?

This research was divided into two major parts, theoretical and empirical. The theoretical included two chapters as follows:

The first chapter of this dissertation, entitled "Supply Chain Management (SCM): General Overview," provides a comprehensive understanding of SCM through three sections. In the first section, the introduction covers the main concepts of SCM, its historical background, and the stages and flows involved in its implementation. The second section focuses on the functions and decision levels within SCM, shedding light on the various aspects and roles within the supply chain. Lastly, the third section delves into the practices and performance of SCM, exploring how SCM can contribute to enhancing operational effectiveness.

The second chapter, titled "Operational Performance and Its Dimensions," examines the concept of operational performance from different angles. The first section clarifies the concept of performance, its definition, and its evolution over time. The second section outlines the definitions and dimensions of operational performance, providing a comprehensive framework to assess performance in the operational context. Lastly, the third section explores the relationship between Supply Chain Management practices (SCMP) and operational performance, focusing on key elements such as strategic supplier partnership, customer relationship, and information sharing.

Moving on to the third chapter, titled "The Empirical Research," the focus shifts to conducting a case study based on the main research question. The chapter is divided into three sections. The first section provides a general overview of Nestlé Waters Algeria Company, offering insights into its operations and context. The second section discusses the research methodology, outlining the research design employed in the study. Lastly, the third section presents the findings of the quantitative research, offering empirical evidence and analysis related to the relationship between SCMP practices and operational performance.

The research methodology presented the research design and the data collection process. And finally moving to the data analysis that allowed the researcher to answer the research questions.

This study was conducted based on the following hypotheses:

- Hypothesis 1: Supply chain management practices, namely strategic supplier partnership, customer relationship, and information sharing, influence the product quality of the firm.
- Hypothesis 2: Due to the wide consumption of Nestlé Waters product, it is hypothesized that supply chain management practices influence cost.
- Hypothesis 3: Due to the wide consumption of Nestlé Waters product, it is believed that supply chain management practices influence the delivery process.
- Hypothesis 4: Due to its size and product category, supply chain management practices do not influence flexibility.

By conducted to test the formulated hypotheses regression analysis, the study was able to determine the extent to which supply chain practices influenced product quality, cost, delivery process, and flexibility.

Through a comprehensive analysis of the collected data, the research findings were able to provide insights into these research questions and hypotheses. The regression analysis conducted supported hypothesis 4, confirming that supply chain management practices did not significantly influence the flexibility of Nestlé Waters Algeria. However, hypotheses 1, 2, and 3 were rejected, indicating that supply chain practices did not have a significant impact on product quality, cost, and delivery process.

At this stage, the sub-questions of this research can be answered as the following:

- Supply chain practices do not influence the product quality of Nestlé Waters Algeria
- Supply chain management practices do not impact the cost of Nestlé Waters Algeria

- Supply chain management practices do not influence the delivery process of Nestlé Waters products
- The flexibility of Nestlé Waters is not impacted by its practices of supply chain management

1. Recommendations

Based on the research conducted in this study, several recommendations can be made to enhance the supply chain practices and operational performance of Nestlé Waters Algeria, or any other company operating in a similar context. These recommendations are derived from the findings and aim to optimize supply chain management practices and improve overall performance:

- **Enhance strategic supplier partnerships:** Foster stronger collaborations with key suppliers to improve the quality and reliability of the supply chain. This can be achieved through long-term contracts, joint development initiatives, and mutual sharing of information and resources.
- **Strengthen customer relationships:** Develop a customer-centric approach by understanding customer needs and preferences. This can be accomplished through regular communication, feedback mechanisms, and customized solutions. Building strong customer relationships can lead to improved customer satisfaction and loyalty.
- **Foster information sharing:** Promote a culture of information sharing across the supply chain, including suppliers, customers, and internal departments. Utilize advanced technologies and systems to facilitate real-time information exchange, transparency, and visibility throughout the supply chain.
- **Implement performance measurement systems:** Establish comprehensive performance measurement systems that track key performance indicators (KPIs) related to product quality, cost, delivery process, and flexibility. Regularly monitor and analyze these metrics to identify areas for improvement and make informed decisions.
- **Continuous improvement initiatives:** Encourage a culture of continuous improvement by adopting lean principles, Six Sigma methodologies, or other relevant approaches. Regularly evaluate and streamline processes to eliminate waste, reduce costs, and enhance overall operational efficiency.
- **Invest in training and development:** Provide training programs and workshops for employees to enhance their skills and knowledge in supply chain management practices.

This will ensure a competent workforce capable of implementing best practices and driving continuous improvement.

- Foster collaboration across departments: Encourage cross-functional collaboration and communication within the organization. Break down silos and promote collaboration between different departments, such as procurement, production, logistics, and marketing, to achieve better coordination and alignment of supply chain activities.
- These findings contribute to the understanding of the specific dimensions of operational performance influenced by supply chain practices. They also highlight the need for further investigation and potential areas of improvement in Nestlé Waters Algeria's supply chain management practices to enhance operational performance.

2. Future Research Directions

- This study primarily relied on quantitative analysis to investigate the relationship between supply chain practices and operational performance. Future research can complement this by incorporating qualitative methods such as interviews, surveys, and case studies to gain a more nuanced understanding of the underlying mechanisms and contextual factors influencing the relationship.
- Conducting similar studies in different industries can provide valuable insights into how supply chain practices impact operational performance in specific contexts. Comparing findings across industries can reveal industry-specific factors and dynamics that influence the relationship.
- This research focused on a specific point in time and examined the current relationship between supply chain practices and operational performance. Future research can adopt a longitudinal approach, tracking the changes in supply chain practices and operational performance over time. This would allow for a deeper understanding of the long-term effects and dynamics of supply chain practices.

3. Research Limitations

It is important to note that the research methodology employed in this study had its limitations. The study focused solely on Nestlé Waters Algeria, limiting the generalizability of the findings to other companies or industries. Additionally, the data collection process may have inherent biases or limitations, which should be considered when interpreting the results.

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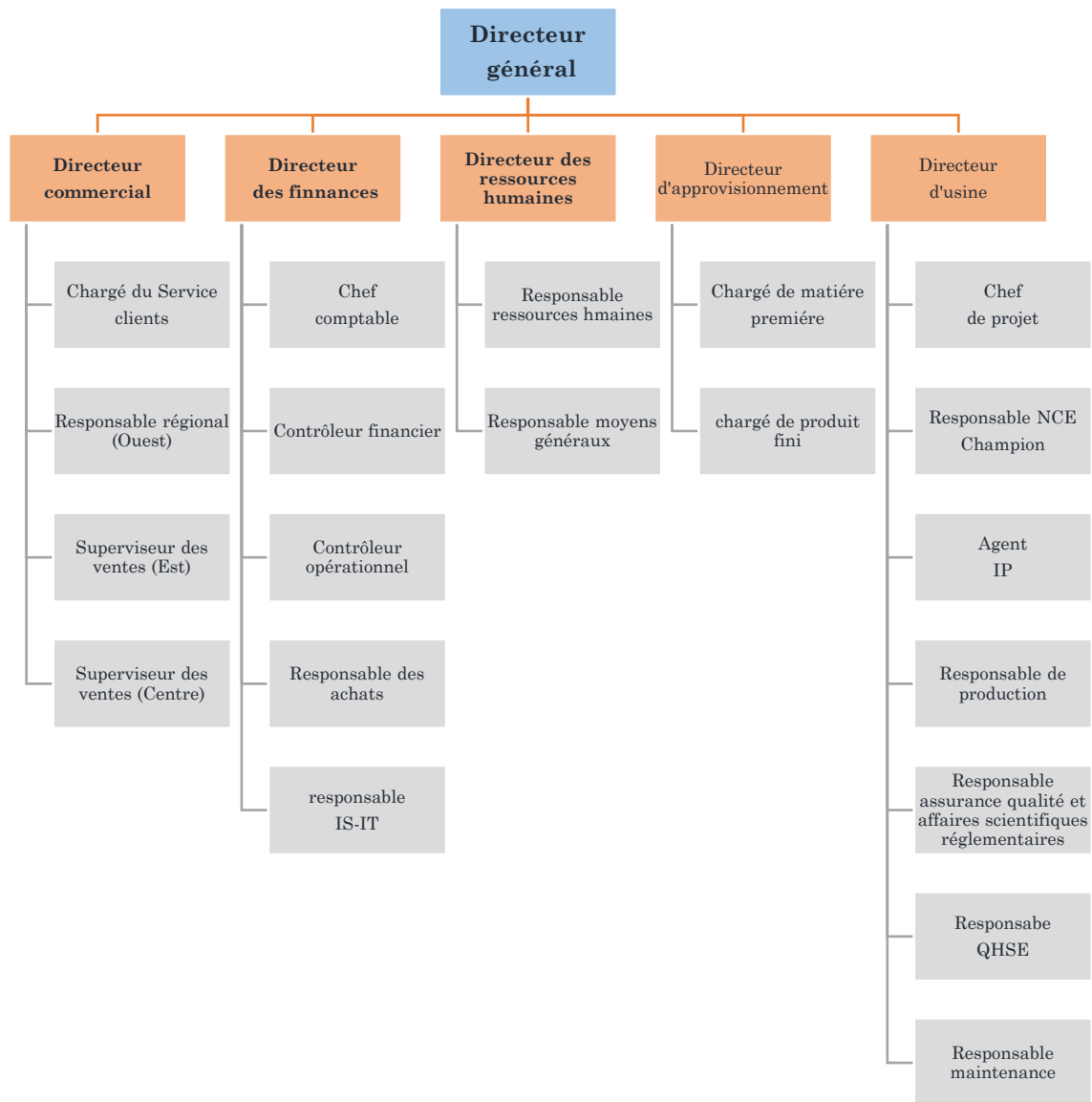
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Appendixes

Appendix 1: Organizational Chart



Source: Internal Document of the Company

Appendix 2: The questionnaire

Section one: Demographic information

For the following questions, please check the appropriate response.

1. Gender

- Male
- Female

2. Age Category

- Under 30 years old
- 30 to 39 years old
- 40 to 49 years old
- Over 50 years old

3. Job position

- manager
- operational manager

4. Functional Category

- Procurement
- Production
- Commercial
- Human resources
- Finance
- IT
- HES
- Quality management
- Maintenance
- logistics

5. Years of Experience

- 5 years or less
- 6 to 10 years
- 11 years or more

Section one: supply chain management practices (SCMP)

1. Strategic supplier partnership

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
We conduct regular performance evaluations of our suppliers.					
We provide feedback for improvement to our suppliers.					

We have established long-term relationships with our key suppliers based on trust and mutual benefit.					
Our suppliers demonstrate a high level of responsiveness and flexibility in meeting our changing demands.					
Quality is our number one criterion in selecting suppliers.					

2. Customer relationship

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
We periodically assess the significance of our relationship with our customers.					
We track customer feedback regarding the quality of our products and services.					
We consistently identify and understand our customers' future expectations.					
We frequently engage and interact with our customers.					
We continuously strive to ensure customer satisfaction and evaluate it.					

3. Level of information sharing with distributors

	Strongly disagree	disagree	Neutral	Agree	Strongly agree
We actively communicate with our distributors to inform them in advance of any changing needs or requirements.					
Our distributors consistently keep us fully informed about any issues or developments that have an impact on our business.					
Our distributors willingly share proprietary information with us, fostering a collaborative and transparent relationship.					
We have established effective channels for exchanging information with our distributors, enabling us to establish comprehensive business planning.					

Section two: Operational performance

1. Quality

	Strongly disagree	disagree	Neutral	Agree	Strongly agree
Our products quality meet customer expectations.					
Defects or non-conformances are rarely identified during production.					
Our customers are satisfied with the quality of our products/services.					
We do not receive customers' complaints.					
We offer quality products to our customers.					

2. Cost

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
We have an efficient management control structure.					
We consistently find ways to reduce production costs without compromising quality.					
We regularly analyze and optimize our supply chain to minimize costs.					
We utilize our resources in a prudent manner to reduce costs.					

3. Delivery

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Our organization consistently meets Distributors delivery expectations.					
The delivery lead time for distributors' orders is short.					
Our organization manages lead times to ensure timely deliveries.					
Our organization actively works to minimize delivery delays and optimize logistics.					

4. Flexibility

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Our company is able to quickly adapt its production processes to accommodate changes in distributors' demands.					
Our company can efficiently reconfigure its production lines or operations to accommodate new product requirements.					
Our company has established collaborative relationships with suppliers to ensure timely and flexible delivery of materials or components.					

Abstract

This research study aimed to assess the impact of supply chain practices on the operational performance of Nestlé Waters Algeria. The research questions focused on product quality, cost, delivery process, and flexibility, while corresponding hypotheses were formulated to test the relationships between supply chain practices namely strategic supplier partnership (SSP), customer relationship, (CR) , and level of information sharing (IS), and these dimensions of operational performance. The study consisted of theoretical and empirical parts, covering topics such as supply chain management and operational performance dimensions. A case study approach was adopted, and quantitative data analysis, including regression analysis, was conducted to examine the hypotheses. The data collection instrument used was a questionnaire which was administrated to a total sample of 43 manager, and 43 operator from the firm. The research findings indicated that supply chain management practices did not significantly influence product quality, cost, and delivery process, while also revealing that they had no significant impact on the flexibility of Nestlé Waters Algeria.

Key words: *Supply chain management, operational performance, supply chain management practices.*

ملخص

هدفت هذه الدراسة البحثية إلى تقييم تأثير ممارسات سلسلة التوريد على الأداء التشغيلي لشركة نستله ووترز الجزائر. ركزت الأسئلة البحثية على جودة المنتج والتكلفة وعملية التسليم والمرونة، في حين تم تصيغ فرضيات متوافقة لاختبار العلاقات بين ممارسات سلسلة التوريد، بما في ذلك شراكة المورد الاستراتيجي، وعلاقة العملاء، ومشاركة المعلومات، وهذه الأبعاد للأداء التشغيلي. تكونت الدراسة من جزئين نظري وتطبيقي، يغطيان موضوعات مثل إدارة سلسلة التوريد وأبعاد الأداء التشغيلي. تبنت الدراسة منهج دراسة الحالة، وتم إجراء تحليل كمي للبيانات، بما في ذلك تحليل الانحدار، لفحص الفرضيات. استخدمت أداة جمع البيانات استبيان تم توزيعه على عينة إجمالية من 43 مديرًا و 43 موظف إداري من الشركة. أشارت نتائج الدراسة إلى أن ممارسات إدارة سلسلة التوريد لم تؤثر بشكل كبير على جودة المنتج والتكلفة وعملية التسليم، مما يكشف أيضًا عدم وجود تأثير كبير على المرونة لشركة نستله ووترز الجزائر.

الكلمات المفتاحية: *إدارة سلسلة التوريد، الأداء التشغيلي، ممارسات إدارة سلسلة التوريد.*

Résumé

Cette étude de recherche visait à évaluer l'impact des pratiques de la chaîne d'approvisionnement sur la performance opérationnelle de Nestlé Waters Algérie. Les questions de recherche se sont concentrées sur la qualité du produit, le coût, le processus de livraison et la flexibilité, tandis que des hypothèses correspondantes ont été formulées pour tester les relations entre les pratiques de la chaîne d'approvisionnement, notamment le partenariat stratégique avec les fournisseurs (PSE), la relation avec les clients (RC) et le niveau de partage des informations (PI), et ces dimensions de la performance opérationnelle. L'étude était composée de parties théoriques et empiriques, couvrant des sujets tels que la gestion de la chaîne d'approvisionnement et les dimensions de la performance opérationnelle. Une approche d'étude de cas a été adoptée, et une analyse de données quantitative, y compris une analyse de régression, a été réalisée pour examiner les hypothèses. L'instrument de collecte de données utilisé était un questionnaire administré à un échantillon total de 43 managers et 43 opérateurs de l'entreprise. Les résultats de la recherche ont indiqué que les pratiques de gestion de la chaîne d'approvisionnement n'influençaient pas de manière significative la qualité du produit, le coût et le processus de livraison, tout en révélant qu'elles n'avaient pas d'impact significatif sur la flexibilité de Nestlé Waters Algérie.

Mots-clés : *Gestion de la chaîne d'approvisionnement, performance opérationnelle, pratiques de gestion de la chaîne d'approvisionnement*