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COMMERCE AND MANAGEMENT
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COMMERCE**

**GLOBAL SUPPLY CHAIN MANAGEMENT AND ITS IMPACT ON
COMPETITIVE ADVANTAGE**

Case Study: -Biskria Cement factory-

**Dissertation submitted in partial fulfilment of the requirements for the degree
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Submitted by:

Hali Firdaous

Supervised by:

Yasmina Guechari

Board of the examiners

Yasmina Guechari	Lecturer Class "A"	University of Biskra	Supervisor
Abd Elhak Rais	Professor	University of Biskra	Chairman
Farid Benabid	Professor	University of Biskra	Examiner

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List of abbreviations

CA: Competitive Advantage.

CRM: Customer Relationship Management.

CEO: Chief Executive Office.

BC: Biskria Cement.

B2B: Business to Business.

SC: Supply Chain.

SCM: Supply Chain Management.

SRM: Supplier Relationship Management.

EDI: Electronic Data Interchange.

ERP: Enterprise Resources Planning.

H: Hypothesis.

IQ: Information Quality.

IS: Information Sharing.

POS: Postponement.

Q: Question.

QMS: Quality Management System.

WTO: World Trade Organization.

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Abstract

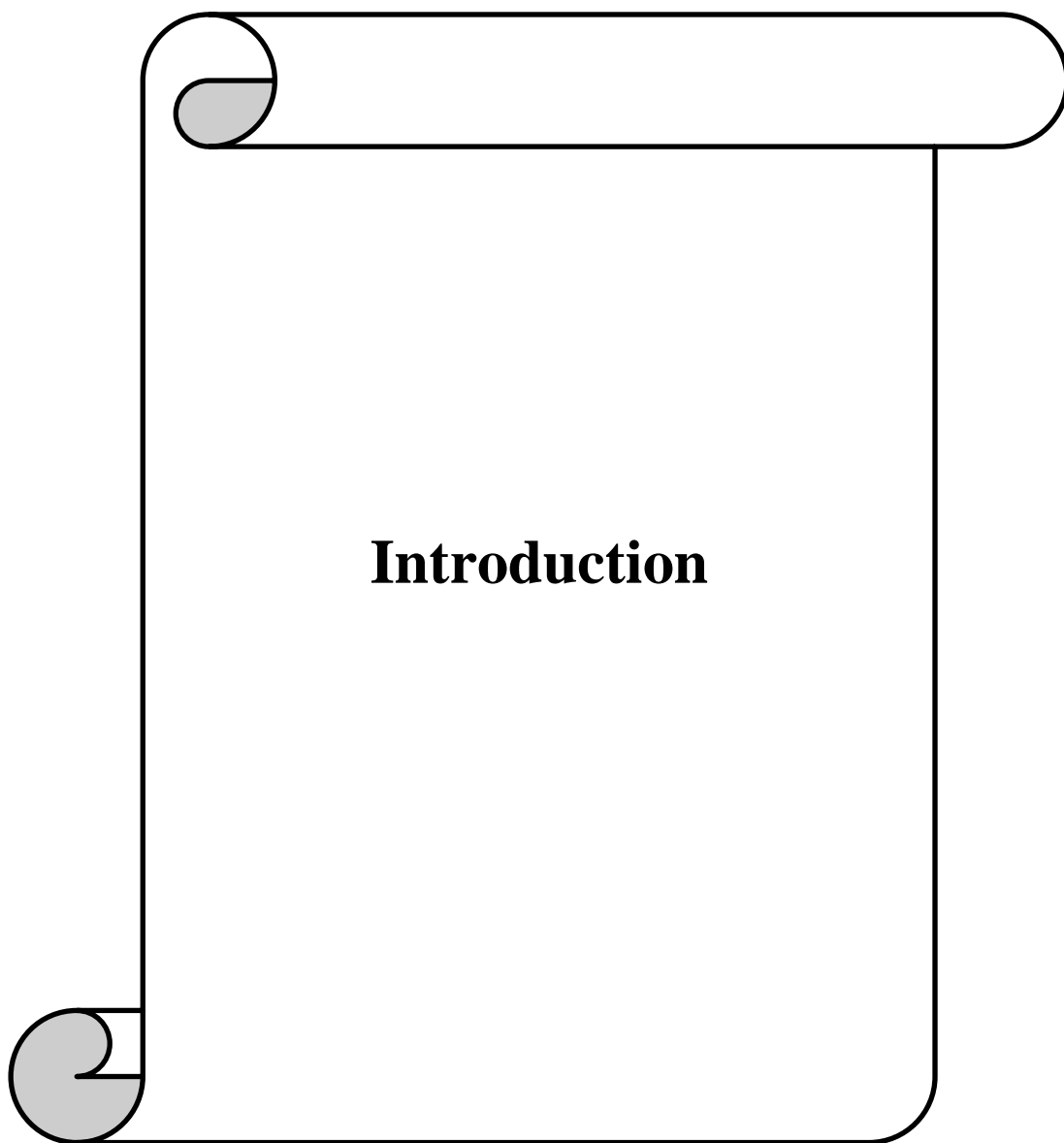
The objective of this study is to explore the impact of global supply chain management on the competitive advantage of the "Biskria Cement" factory. To achieve the objectives, we conducted interviews with marketing manager and supply manager to collect information. The findings of the study show that the company is interested in each of the supply chain management and its four practices (supplier relationship management, customer relationship management, level of information sharing, quality of information sharing) except for postponement. Furthermore, we find a positive relationship between the supply chain management practices and the dimensions of competitive advantage.

Key words: supply chain management (SCM), SCM practices, competitive advantage, and competitive advantage dimensions.

ملخص

الهدف من هذه الدراسة هو اكتشاف تأثير إدارة سلسلة الامداد العالمية على الميزة التنافسية لمصنع "البسكرية للإسمنت". لتحقيق أهداف الدراسة، اجرينا مقابلة مع مدير التسويق و التوريد لجمع المعلومات. تظهر نتائج الدراسة أن الشركة مهتمة بكل من إدارة سلسلة التوريد وممارساتها الأربعة (إدارة علاقات الموردين، إدارة علاقات الزبائن، مستوى مشاركة المعلومات، جودة مشاركة المعلومات) باستثناء التأجيل. وعلاوة على ذلك، نجد علاقة ايجابية بين ممارسات إدارة سلسلة الوريد وأبعاد الميزة التنافسية.

الكلمات المفتاحية: إدارة سلسلة الامداد، ممارسات إدارة سلسلة التوريد، الميزة التنافسية، أبعاد الميزة التنافسية.



Introduction

Introduction:

Today's economic environment is experiencing a highly strong competition among companies, furthermore to recent technological, political and industrial features and developments in the world. All this makes enterprises explore new ways and methods to cope with these developments and maximize their value by improving supply chain management. Through establishing a cooperative relationship with both suppliers and customers in their practices for the sake of providing the best quality of products and services to their existing or potential customers compared to their competitors.

Problem of the study (research question)

How can supply chain management affect on the competitive advantage?

Sub-questions

- Q1.** What's the goal of supply chain management?
- Q2.** What do the practices of SCM represent?
- Q3.** What are the competitive advantage indicators?
- Q4.** What is the reality of the Biskria Cement Factory's interest in supply chain management?
- Q5.** How could be the relation between supply chain management and the competitive advantage?

Hypotheses of the study

- H01.** The main purpose of SCM is to ensure the efficient and effective flow of goods, services, and information from the point of origin to the end customer and create a competitive advantage.
- H02.** The SCM practices represent the relationship management with suppliers and customers, internal supply and sharing information.
- H03.** The competitive advantage indicators divided into financial performance which includes: (profitability, cost) and to non-financial performance which includes: (quality, flexibility, delivery on time, product innovation).
- H04.** The Biskria Cement Factory pays a great attention to the supply chain management.
- H05.** The relation between supply chain management and the competitive advantage could have a positive effect because supply chain management enable the firms to realize competitiveness.

Objectives of the study

Through this study we seek to reach a set of goals:

- Provide theoretical background about supply chain management and the competitive advantage.
- Learning about supply chain management (SCM) practices.

- Study the relation between SCM and the competitive advantage.
- Studying how the competitiveness of Biskria Cement Factory can be achieved within and across the country through using an efficient supply chain management.

Significant of the study

Showing the degree of attention that Algerian firms give to supply chain management.

Help raise awareness among firms about the role of supply chain management in achieving competitive advantage.

Showing the necessity of improving the supply chain management practices, towards realising a competitive advantage of our firm either on national or international markets and get a good position.

Previous studies

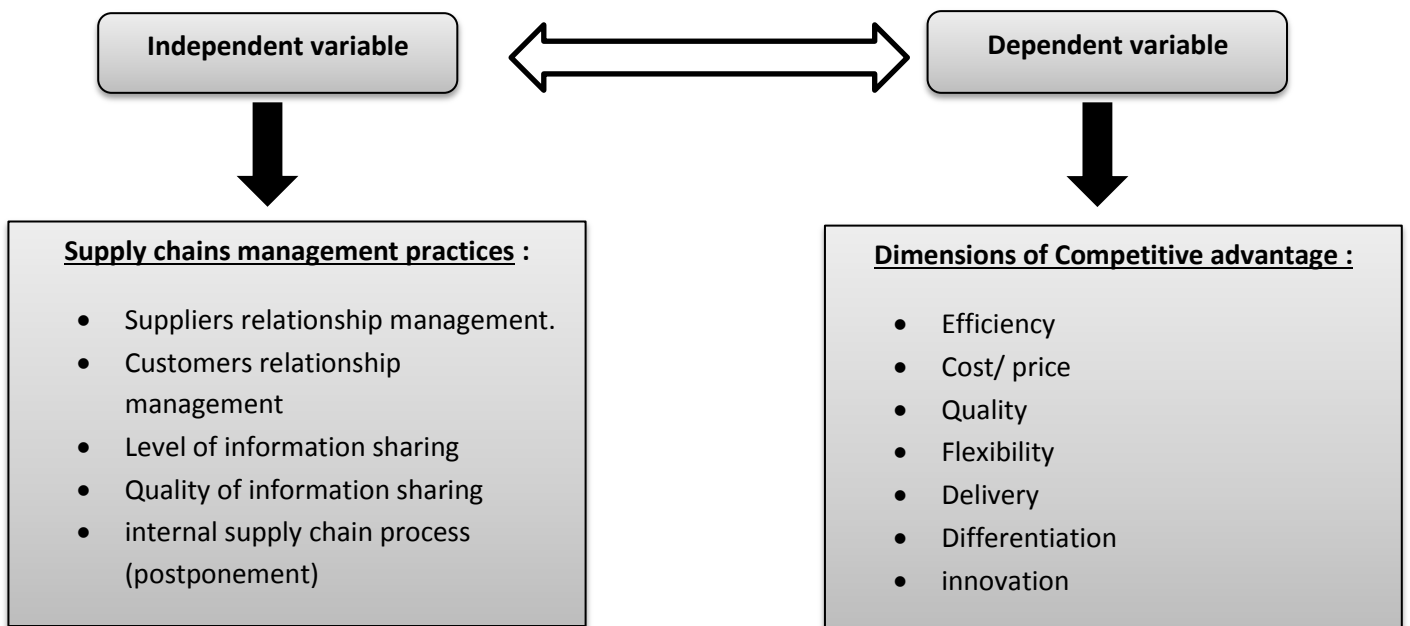
- Article (Abdelhalim , 2020); "Supply Chain Management in Algerian Companies -The Need for Partnerships with Suppliers-". This study addressed the effective role of SCM they used the questionnaire as a tool to analyse the data they obtained using the SPSS program. The study indicated that the relations with suppliers as a key to competitive and shows the adoption of supply chain management as a main lever to better deliver the company product's.
- Article(2020) (عبد القادر و محمد, محمد), "The Impact of Supply Chain Management on the Competitive Advantage of the Economic Enterprise: The Case of SOITEX Division in Tlemcen." This study aims to identify the effect of supply chain management on the competitive advantage of the «SOITEX» company where a questionnaire was distributed to the administrative staff and analysed the data by using the SPSS. The results show that the organization interests in supply chain management practices that is what made it distinguished from its competitors. There is also a positive correlation between the practices of supply chain management and competitive advantage.
- Article (2020) (محمد, محمد, و كريمة, كريمة); "أثر إدارة سلسلة الإمداد على أداء المؤسسات الإنتاجية : دراسة حالة مؤسسة حليب النجاح – مغربية". The objective of this study is to identify the effect of SCM and the performance evaluation and focused on the components of the logistics activity, based on the interview and a questionnaire tools. Therefore, the results showed the components of logistics activity on the enterprise's performance as it is the largest impact of the order management, then the handling activity, then after packaging followed by the storage activity.

The different between our study and the previous studies

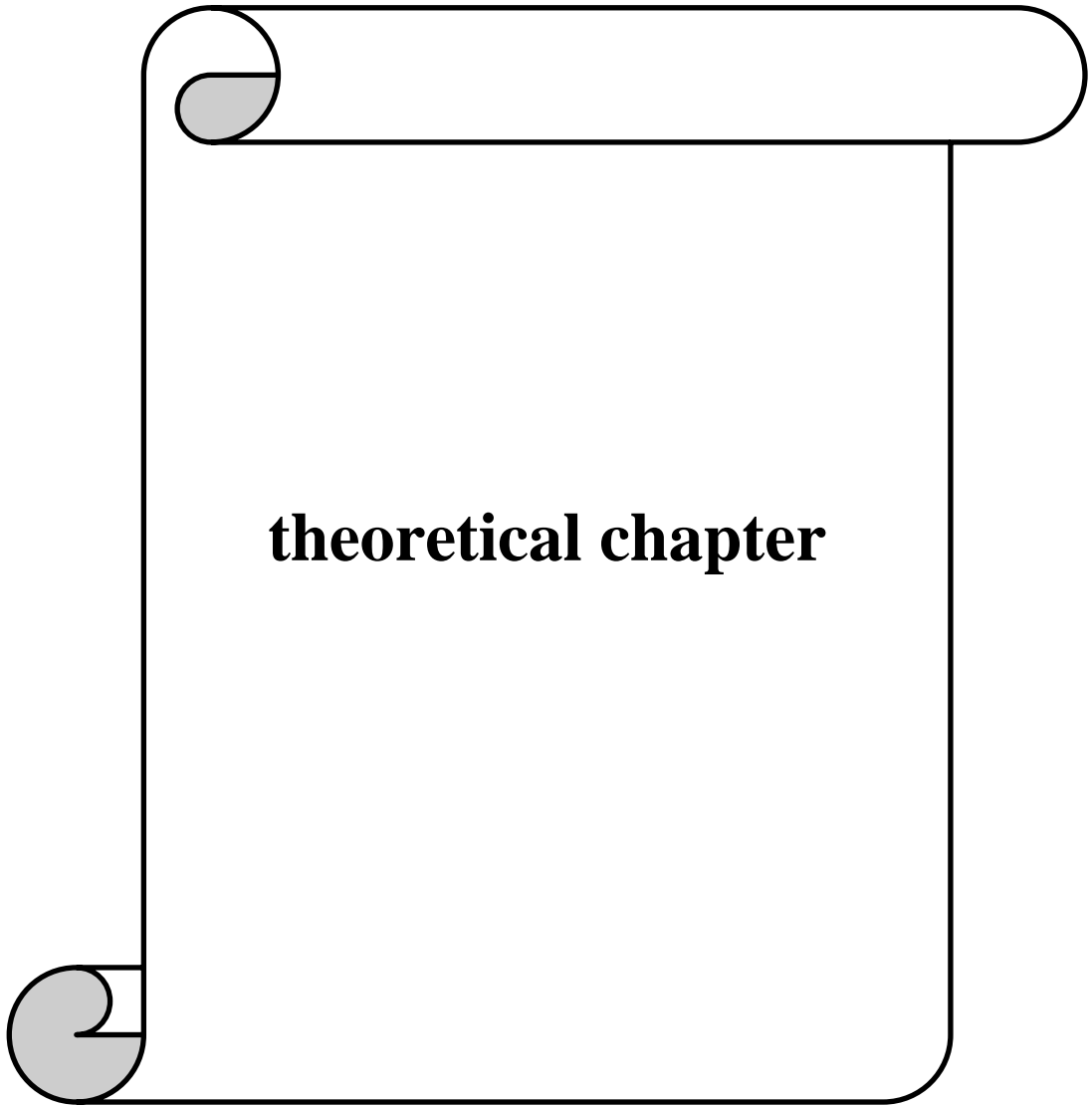
After reviewing a group of previous studies related to the subject of our study, which was conducted in (2020), we reached the following observations: Regarding the variables of the study, we found that most of the previous studies dealt with the supply chains management as an independent variable, but there are (2020، محمد، محمد، و كريمة) and (Abdelhalim , 2020) who differed in the dependent variable so that it was linked to other variables, as for the study of (2020، عبد القادر و محمد) that dealt with the same variables as our topic, we differed in the aforementioned dimensions regarding supply chain management and the competitive advantage. In addition, the current study differs with previous studies in the temporal and spatial framework, as the spatial framework of our study was at the level of Biskria Cement Factory, which differs from previous studies.

Sample of the study

Figure 1: study model



Source: student' elaboration .



theoretical chapter

Chapter 01: Theoretical framework

In the first chapter we will depict the basic concept of supply chain management (SCM) and competitive advantage (CA) as well as the necessary aspect of them, such as the practices of supply chain management and competitive advantage indicators. So that, we will divide this chapter into two parties the first one talk about supply chain management, the second part will be about the competitive advantage and will describe the relation between the two variables (SCM and CA).

Topic 01: Conceptual framework of supply chain management

In this section we will take a closer look on evolution of supply chain and its objectives. Then, we will highlight on the concept of SCM and its practises which are (supplier relationship management “SRM”, customer relationship management “CRM”, level of information sharing, quality of information sharing and postponement).

Part 01: Supply chain

1. The emergence and history of supply chain

During 1950s and 1960s the concept of supply chain management was unknown, and in this period, new product development was slow and counted only in the firm own technology and capacity (Mehmeti, 2016). Moreover, the assets of supply chains appeared and evolved from physical distribution of materials-related problems that were before 1980s. In addition, the concept of a supply chain has been the subject of much debate and research since the 1980s (Pounder, Bovell, & Pilgrim-Worrell, 2013, p. 43). Supply chains were originally defined as encompassing all activities associated with the flow and transformation of goods from raw materials through to end user, as well as the associated information flows.

in 1982, Keith Oliver, a consultant at Booz Allen Hamilton introduced the term “supply chain management” to the public domain in an interview for the Financial Times.

In the mid-1990s, more than a decade later, the term “SCM” gained currency when a flurry of articles and books came out in the subject.

In the late 1990, “SCM” rose to prominence, and operations managers began to use it in their title with increasing regularity. (Berthold, 2019, p. 43)

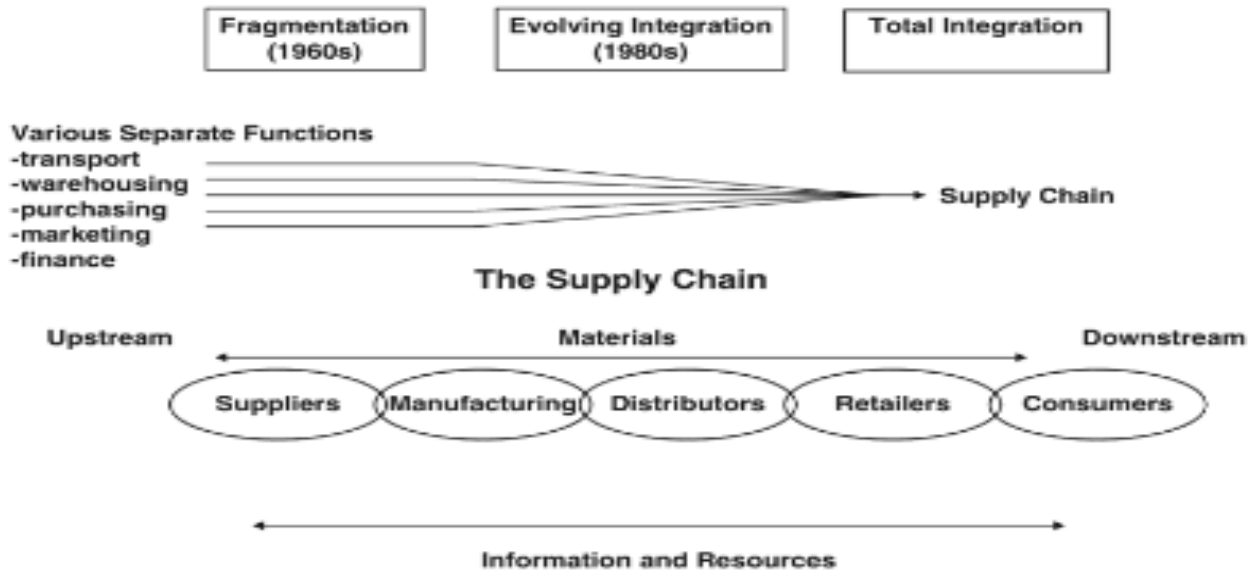
Some authors segmented SCM into three stages (Mehmeti, 2016):

1. Creation era, starts (1980s) when the buyer – supplier understood the benefits that a cooperative relationship offers. In this period, we encounter for the first time the term “supply chain management”.

Chapter 01 : Theoretical Framework

2. Integration era, starts (1990s), the information technology systems (ERP, EDI etc.) are introduced. These systems focus not only in managing the resources of the individual firm but also the resources of the integrated supply chain.
3. Globalisation era starts with the creation of the trade liberalisation policies and the establishment of institution such as World Trade Organization (WTO) and other international institutions that deal with global/ regional trade policies.

Figure 2: the evolution of the integrated supply chain



Source: (Mangan & Lalwani, 2016, p. 11)

2. The definition of supply chain

The term of supply chain is available in all business organization and firms despite the different in produce's chain from firm to another. Also, there is a multitude definition of supply chain we will show it as follow:

- Supply chain is defined as a group of inter-connected participating companies that add value to a stream of transformed inputs from their source of origin to the end products or services that are demanded by the designated end-consumers. (lu, 2011, p. 9)
- A supply chain is referred to as integrated system that synchronizes a series of interrelated business processes in order to: (1) create demand; (2) acquire raw materials and parts; (3) transform these raw materials and parts into finished products; (4) add value to these products; (5) distribute and promote these products to either retailers or customers; (6) facilitate information exchange among various business entities (e.g.; suppliers, manufacturers, distributors, third-party logistics providers, retailers). (min, 2015, p. 2)
- Other author defined the supply chain as: “a network of organizations that are interconnected, through upstream and downstream links, in the different

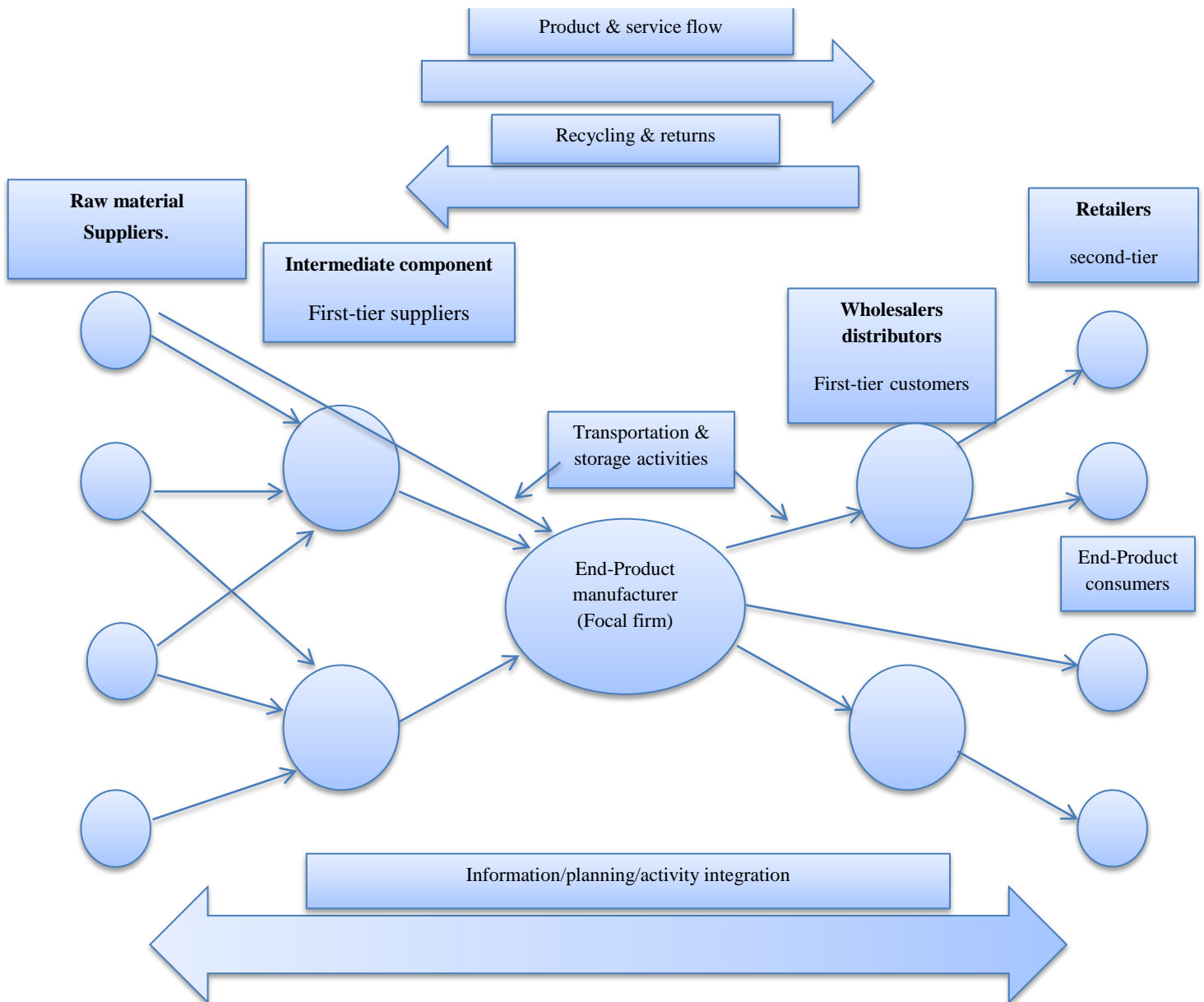
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business processes and activities that produce value in the shape of products and services to clients”. (yang, 2016, p. 19)

- The framework that the organization uses to achieve integration between its various functions, which start from suppliers and end at the final consumer, for the flow of goods and services of the organization and related information for the purpose of efficient management of the organization for its internal operations and maximizing the value of its products and services from its consumers and owners’ point of view. (حسان، 2015، صفحة 41)

To sum up, we can say that supply chain is a set of coherent and integrated units that include: (suppliers, firms, customers, wholesalers, retailers...etc.) who work together to meet customer’s satisfaction and achieve the competitive advantage.

Figure 3: a generic supply chain.



Source: (winser , tan, & leong, 2012, p. 6)

3. the objectives of supply chain

- Improving the quality of products through the use of advanced technology to provide the best value to the customer;
- Achieving contact with customers and attracting them with the aim of acquiring and gaining their satisfaction (عارف برسيم العزاوي، 2019، صفحة 103);
- Obtaining the right product in the right place at the right time and at the lowest cost;
- Meet customer requirements through optimal use of resources, including capacity, inventory and labour allocation (محمد عبد الحميد شعراوي، 2021، الصفحات (67-66);
- Coordinate the flow of products and information between the members of the supply chain;
- The goal is to link the market place and its distribution channels to the procurement and manufacturing operations in such a way that competitive advantage can be achieved and maintained (quayle, 2016, p. 107);
- Reducing the production cycle time as a result of cooperation between the members of the supply chain (أقسام، صفحة 84).

Part 02: Supply chain management

1. The definition of Supply Chain Management

I have taken multiple definitions about SCM from several studies as with supply chain:

- Some researchers said that supply chain management is an integrative philosophy used to manage the total flow through a distribution channel from the supplier to the ultimate user (quayle, 2016, p. 5);
- Supply chain management is an integrating function with primary responsibility for linking major business functions and business processes within and across companies into a cohesive and high-performing business model. It includes all of the logistics management activities, as well as manufacturing operations, and it drives coordination of processes and activities with and across marketing, sales, product design, finance, and information technology (CSCMP supply chain management definitions and glossary, 2022);
- Also, defined SCM as a coordinated set of techniques to plan and execute all steps in the global network used to acquire raw materials from vendors, transform them into finished goods, and deliver both goods and services to customers (winser , tan, & leong, 2012, p. 8);
- Supply chain management may be perceived as part of a strategic approach taking for planning, implementing and controlling the stream of materials, services and information throughout the manufacturing process as raw materials are developed into a finished product and eventually delivered to the end user (supply chain institute, 2020, p. 9);

From the previous definitions we can deduce that the SCM is a planning, executing, and controlling each single business activity towards improving SC performance, added and create value to the end product thus to meet the customer satisfaction.

2. The importance of supply chain management

- Supply chain management has the ability to maximize customer value and sustain a competitive advantage over those who supply similar goods and services;
- In optimizing supply chain management the organization can increase the quality seen by their customers and, in turn, increasing the value that their customers can enjoy when purchasing their product (supply chain institute, 2020, p. 9);
- A moderate SCM success means lower purchasing and inventory carrying costs (winser, tan, & leong, 2012, p. 9);
- Implementing supply chain management helps to respond effectively to market uncertainty requirements;
- Provide knowledge through the diversity of methods, processes, technologies and systems that can be used in supply chain management, which helps to improve the performance of supply chain (البتانوي، صفحة 229).

3. The objectives of supply chain management

The main objective of SCM is to reshape the supply chain to maximize an operator's competitive advantage over others (lau, k.y.gn, & acevedo alarid, 2019, p. 10) which means that the SCM is an essential tool for companies to gain a competitive advantage over their rivals. By optimizing their supply chain, companies can reduce their costs, improve their speed to market, increase their responsiveness to customer needs, and differentiate themselves from their competitors. However, many studies mentioned that multi-objectives of supply chain management varies according to the form of cooperation between its members (سلطان رحيله، 2020، صفحة 48) to long-term and short-term objectives, the long-term objectives would include: creating value to customers, increase profits, improve efficiency of production operations and increase market share. On the other hand, short term objectives would generally include: improve productivity, reduce cycle time and reduce inventory (m.al-abdallah, b.abdallah, & bany hamdan, 2014, p. 193).

4. The principles of supply chain management

(anderson, britt, & favre, no date) (debbi & lachache, 2022) (p.murray, coopers, & laybrand, 1997), Those three references mentioned the same principles which are in the following:

- Segment customers based on the service needs of distinct groups and adapt the supply chain to serve these segments profitably;

- Customize the logistics network to the service requirements and profitability of customer segments. Thus, a multi-level logistics system evolves, instead of “one-size-fits-all” logistics;
- Listen to the market signals and align demand planning accordingly across the supply chain, ensuring consistent forecasts and optimal resources allocation;
- Differentiate products closer to the customer and speed conversation across the supply chain: Utilize standardized platforms in the earliest stages and delay customizing the products until the last stages of supply chain. Thus, small changes in customer preferences or changes in demand projections for individual products have little impact on operations;
- Strategically manage the sources of supply to reduce the total cost owning materials and services: this principle depends upon the successful utilization of information technology in order to coordinate activities with suppliers;
- Develop supply chain-wide technology strategy that supports multiple levels of decision making and gives a clear view of the flow of products, services and information: without such a strategy, it becomes unlikely that members of the supply chain can adequately integrate their information technology systems;
- Adapt channel-spanning performance measures to gauge collective success in reaching the end user effectively and efficiently: this principle incorporates the concepts of benchmarking and continuous improvement mentioned earlier.

5. The elements of supply chain management

Supply chain management (SCM) involves the management of numerous interrelated activities and components that are necessary for the delivery of goods or services to the end customers. Which includes the elements described in the following:

- **Planning** : processes need to be planned carefully if they are to be efficient. This usually requires recording activities, stages and decisions in a form which is communicable to all. A clearly defined process reduces the scope for error, and provides the basis of an analysis into possible improvements that might be made (quayle, 2016, p. 102).
- **Sourcing** : sourcing stocked (readily available), make-to-order (produced upon demand) and engineer-to-order (designed and produced to meet specific requirements) products including scheduling deliveries, receiving, verifying, and transferring products, authorizing supplier payments, identifying and selecting suppliers, assessing supplier performance, managing incoming inventory and supplier agreements (winser , tan, & leong, 2012, p. 500).
- **Information** : it provides and integrates all relevant data which are necessary for the control and fulfilment of the previously planned transportation tasks as well as data which is needed for the tasks following the factual transportation fulfilment (Stadtler, Kilger, & Meyr, 2015, p. 231) .There are two types of information flow: (Swaminathan, Smith , & Sadeh, 1998, p. 622)

Directly accessible: refers to the instantaneous propagation of information. For example, this could be information on inventory levels, capacity allocations, machine breakdowns, etc... , at other production elements or the routes to be taken by other transportation elements.

Periodic: information updates sent by different production and transportation elements to indicate changes in business strategy, price increase, introduction of new services or features in the products, etc...

- **Inventory:** inventory is an idle asset, in various forms, held for current and future use (sale or distribution). Because an idle asset represents an underutilized resource, inventory can end up being a financial burden for the company. Despite the risks associated with inventory, many companies want to keep inventory to meet anticipated customer demand and not lose sales opportunities (min, 2015, p. 128). So that, to avoid those risky situation, the companies have to effectively tracking, managing inventory with the help of new technologies which the latter enables managers implement the best decisions in having the right quantities and products at the right time and meanwhile minimise total carrying cost.

- **Production:** production is one of the most important components of supply chain refers to the process of transforming raw material into finished goods that meet customer demand. For the process of production to start, it is essential that proper planning and supply inventory are well maintained.

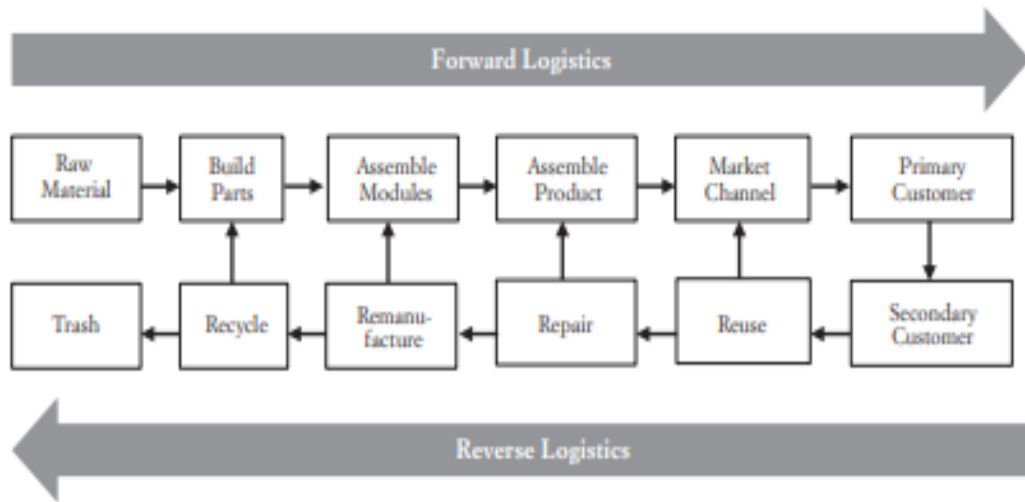
The production of goods is followed by testing, packaging and the final preparation for delivery of the finished product. (supply chain management (SCM) - concept and components, 2022)

- **Logistics:** logistics is that part of supply chain management that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point-of- origin and the point-of-consumption in order to meet customers' requirement (Lambert, 2008, p. 4). This means that logistics involve multiple activities such as transportation (air, ocean or even land transportation), warehousing, etc...

- **Return of goods:** or we can name it either as reverse logistics or reverse supply chain, which defines as the planning and controlling of the processes of moving goods from the point of consumption back to the point of origin for repair, reclamation, recycling, or disposal. reverse logistics can occur not only as customers are returning products that were purchased but also as retailers or distributors return products that failed to sell or were defective (certified supply chain professional, 2018, pp. 449-500)

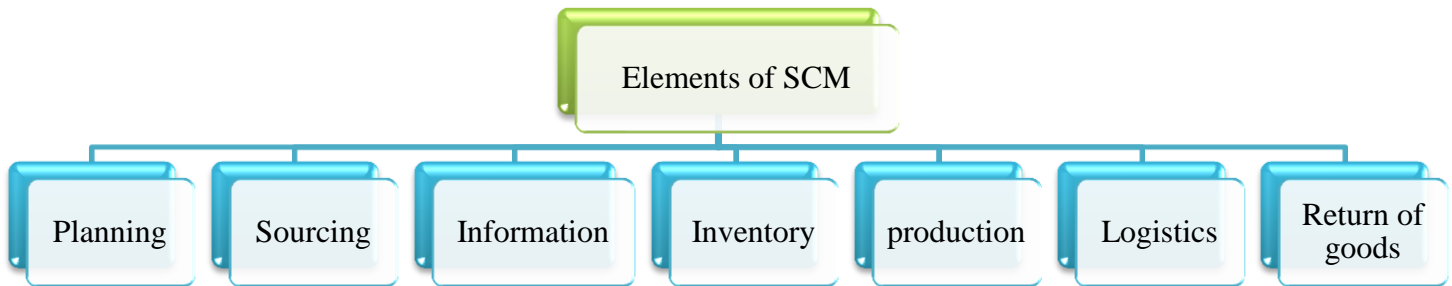
Chapter 01 : Theoretical Framework

Figure 4 : Forward & Reverse Logistics



Source : (Hult, Closs, & Frayer, 2014, p. 137)

Figure 5: Elements of Supply chain management.



Source: prepared by student.

The figure 5 summarises the seven elements of the supply chain management we touched on above.

6. The supply chain management practices

Any organization seeks to improve its organizational performance and achieve a competitive advantage through the successful application of supply chain management practices. So that it gains strength and a good competitive position, whether in the local or international market.

SCM practices are defined as the set of activities undertaken by an organization to promote effective management of its supply chain (gharakhani, mavi, & hamidi,

2012, p. 5940). And others defined it as "an entrance to improve competitive performance through the integration of the internal functions of the facility and linking them with the external operations of suppliers, customers and other members of the supply chain" (البتانوني، صفحة 234). And a literature indicated that SCM practices are an entry point for involving suppliers in decision-making and encouraging the exchange of information and searching for new ways to integrate the activities of suppliers, in addition to that it includes developing relationships with customers through feedback to customers to integrate customer activities and deliver orders directly to the customer (أحمد الكيكي، 2020، صفحة 7).

There are many studies that differed in aspects of supply chain management practices, whether four, five or even six. So that, they differ according to the purpose of the study.

This study showed that the five constructs cover upstream (strategic supplier partnership) and downstream (customer relationship) sides of supply chain, information sharing of a supply chain (level of information sharing and quality of information sharing), and internal supply chain process (postponement). (gunawardana & wedage, 2020)

A. Supplier relationship management (SRM)

SRM is a methodology to structure and support relationships with suppliers that will assist in:

- Reducing procurement and inventory costs;
- Supporting a customer-centric business that delivers product/ service customization and quality in the desired time frame ;
- Continuously improving supply processes.

Supplier relationship management helps in developing and maintaining relationships with suppliers to meet the general goal of ensuring mutual profitability while also meeting marketplace needs (certified supply chain professional, 2018, pp. 382-383). The effective incorporation of suppliers into the supply is a major factor for plants to maintain their competitiveness. In addition, performance improvement and competitive advantage can be achieved by cooperative relations with suppliers, which include: trust, supporting suppliers to improve their processes, information sharing, supplier involvement in new products development, and long-term relationships (m.al-abdallah, b.abdallah , & bany hamdan, 2014, p. 193).

B. Customer relationship management (CRM)

CRM defined as a marketing philosophy based on putting the customer first. The collection and analysis of information designed for sales and marketing decision support (as contrasted to enterprise resources planning information) to understand and support existing and potential customer needs. It includes account management,

catalogue and order entry, payment processing, credits and adjustments, and other functions. (certified supply chain professional, 2018, p. 345). Customer relationship focused towards knowing about customers to generate products or services for the satisfaction of customer, which in turn improve buyer-supplier relations. For the supply chain partners who are in regular touch with each other and share the information on a regular basis as a single entity. (kumar & kushawaha, 2018, p. 88). Furthermore, Customer relations are the main elements or component of supply chain practices in the industry, and the reason is the role of the customer in improving the performance of the efficient supply chain. (علي الرفيعي، صفحة 57)

C. Level of information sharing

Information sharing refers to the level or extent to which critical and proprietary information is shared, or communicated, with partners of supply chain, particularly in regards to information about the market, product, or customer (alhamad, 2021, p. 47). Even more, information exchange refers to the possibility of accessing private data between partners and thus helping them to monitor the progress of orders and products as they pass through the various processes in the supply chain. (أحمد الكيكي، 2020، صفحة 10)

Some point out that increasing the rate of sharing information and exchanging skills and people with competencies between the parties of supply chain contributes to improving the efficiency and quality of operations. In terms of its impact on performance, several studies have indicated that increasing the degree of information sharing and coordination between the parties to the supply chain leads to a reduction in transaction costs and improves the facility's ability to cope with environmental changes, which supports the competitive position and is reflected in the enterprise's performance (سلطان رحيله، 2020، صفحة 53)

D. Quality of information sharing

The information being shared must be of high quality. Sharing information within the supply chain depends on what information is shared, how it is shared and shared with whom (Osmanovic, 2018, p. 660). information quality describes the extent to which there is accuracy, timeliness, satisfaction, and credibility in regards to the exchange information (alhamad, 2021, p. 48). Divergent interests, opportunistic behaviour, and asymmetry information affect the quality of information, as distorted information creates a large burden in the supply chain, which contributes to higher costs. (عبد الله يعقوب و حسين عباس، 2019، صفحة 575)

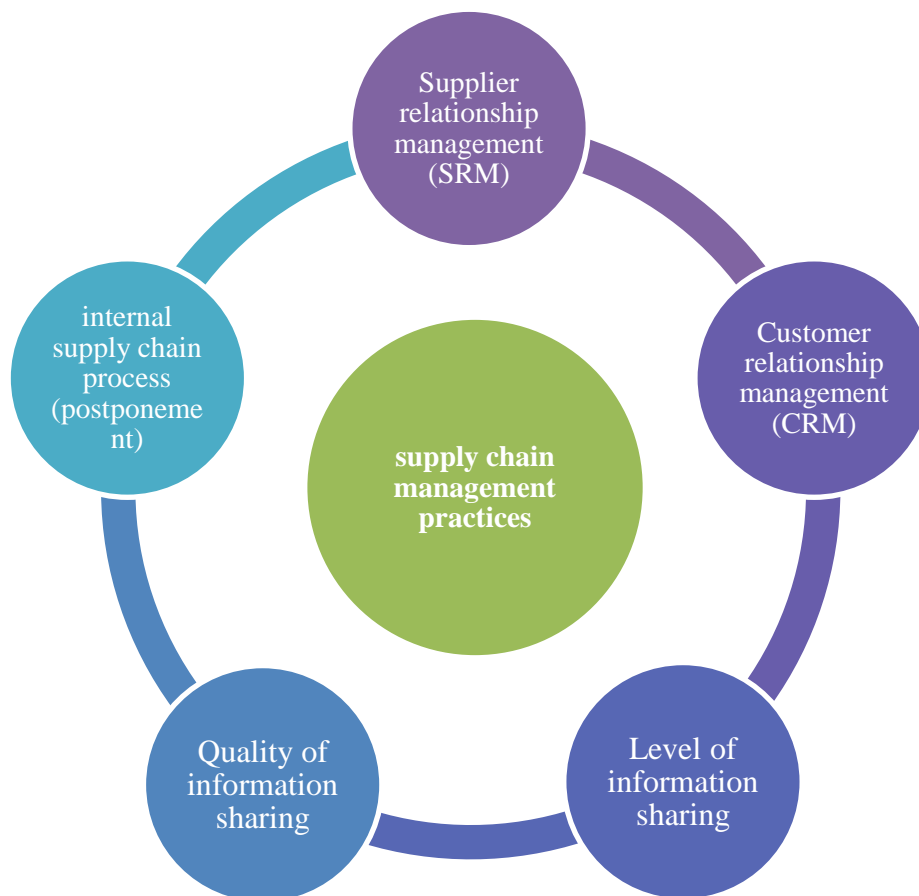
E. Internal supply chain process (postponement)

Postponement is defined as the practice of moving forward one or more operations or activities (making, sourcing and delivering) to a much later point in the supply chain (Wijetunge , 2016, p. 9) Postponement brings several benefits to companies. It enables companies to control the risks related to product diversity and uncertain demand,

Chapter 01 : Theoretical Framework

increases flexibility, enables companies to keep their options open before the availability of sufficient information, reduces SC costs by keeping undifferentiated inventories, reduces levels of inventory, improves forecasting effectiveness, facilitates mass customization, and reduces production cycle times (abdallah, obeidat, & ossama aqqad, 2014, pp. 16-15). In general, the adopting of postponement may be appropriate in the following conditions: innovative products, products with the monetary density, high specialization and wide range, markets characterized by long delivery time, low delivery frequency and high demand uncertainty, and manufacturing or logistic systems with small economics of scales and no need for special knowledge (Bratic, 2011, p. 4).

Figure 6: five constructs of supply chain management practices.



source: prepared by the student

Topic 02: the competitive advantage and its relation with SCM

In this section, we aim to elucidate the concept of competitive advantage and expose its importance in the firms. In addition we will discuss the relation between SCM and competitive advantage.

Part 01: The competitive advantage

1. The definition of the competitive advantage

There are a various definitions in different references talk about competitive advantage in this following:

- According to Porter (1985) "competitive advantage grows fundamentally out of value a firm is able to create for its buyers that exceeds the firm's cost of creating it. Value is what buyers are willing to pay, and superior value stems from offering lower prices than competitors for equivalent benefits. (Fattouche & Hedjazi , 2019, p. 730)
- Competitive advantage is the extent to which an organization is able to create a defensible position over its competitors. It comprises capabilities that allow an organization to differentiate itself from its competitors and is an outcome of critical management decisions. (Saber, Reza Brahimi, & Allameh Haery, 2014, p. 79)
- Another study defined competitive advantage (CA) as: the company's ability to produce goods at low prices and unique ones by considering several aspects known to customers. (Kodrat & Sutanto, 2020, p. 1043).
- Two researchers showed on their book that:"a firm has a competitive advantage when it can create more economic value¹ than rival firms". (B.Barney & S.Hasterly, 2019, p. 30)

I conclude from the previous definitions that competitiveness is not just in reducing either products and services cost's, rather it must have a highly quality, differentiated and unique products.

2. The importance of competitive advantage

From years ago and till now, competitiveness is a necessary for the people and the firms too. Where its importance lies in the following:

- Achieving a market share and a distinguished position in the market in light of intense competition;
- It represents a criterion for identifying distinguished and successful organization with new models that are difficult to imitate; (Chitheer, 2022, p. 62)
- The Competitive advantage (CA) is a powerful weapon that the organization adopts to face the challenges of competing organizations, that's: the firm develops its ability to meet the needs of the customer in the future by creating

¹ Economic value is simply the difference between what customers are willing to pay for a firm's products or services and the total cost of producing these product or services.

techniques and production skills that enable it to adapt to rapidly changing opportunities;

- Most modern organizations depend on technology to achieve CA in order to survive and continue. Because of the constant updates on technology, failure to keep up puts the organization in a real confrontation of failure; (مروان، 2011، صفحة 68)
- Shifting from covering the local market to covering global markets. (محمد عبد الحميد شعراوي، 2021، صفحة 64)

Accordingly, the competitive advantage must be reviewed permanently so as not to lose its value to the customer.

3. Sources of competitive advantage

An organization that wants to build a perfect competitive advantage resorts to diversifying and distinguishing its sources, which gains strength points unlike its competitors, as it can be divided into external and internal as follows:

- a. External sources:** they are all the sources formed from the external environment, so that this environment includes a group of factors, whether political, economic, technological and demographic, which affect the organization in a negative and positive direction (51، حفيان، 2015، صفحة).
- b. Internal sources:** it includes the resources that the organization possesses and the activities and skills that it performs. Resources include all capital assets and human assets that represent organizational knowledge, skills and assets. The distinction of the organization by having human resources with advanced educational qualifications or having a large capital compared to others makes it distinguished from competitors, and the most important thing is how the organization manages the use of these resources (143، حسين، 2015، صفحة).

4. Dimensions of competitive advantage

By looking at the studies of researchers the most common dimensions are (efficiency, cost, quality, differentiation, flexibility, delivery, innovation) and which are defined in the following:

- A. Efficiency dimension:** efficiency is embodied in the optimal utilization of available resources, and is measured by the inputs used to produce specific outputs, as the institution is a tool for converting inputs into outputs. (مجاني و. (مكاوي، 2018، صفحة 24) the higher the company's efficiency rate, the lower the required costs to produce specific outputs and thus reduce the cost of the company's production structure, and to improve superior efficiency is required broad organization-wide commitment and ability to achieve close collaboration between different functions. (Nakano, 2020, p. 39)

- B. Cost dimension:** the ability of an organization to compete against major competitors based on low cost/ price (Thatte, 2007, p. 45). Which leads to an increase in consumer demand for it, provided that this does not affect the quality of products. The company can reduce costs through the efficient use of available production capacity as well as the continuous improvement of product quality and innovation in product design and process technology, as this is an important basis for reducing costs as well as assisting managers in supporting and assigning the company's strategy to be a leader in the cost field (Al-Hawamdeh, 2019, p. 90)
- C. Quality dimension:** the quality is the extent to which an organization is capable of offering product quality and performance that creates higher value for customers (Ferry, Kevin, & Rodney, 2007) the customer defines quality and, in turn, that quality creates customer satisfaction that leads to an improved competitive position (Fattouche & Hedjazi , 2019, p. 730)
Quality can be achieved through three dimensions: (Massoudi, 2018, p. 26)
- The quality of the conformity is the consistency of predefined design and defect free product.
 - Quality design, the suitability of design specifications to customer's requirements.
 - Quality of service refers to the services that the customer expects after purchasing the product such as maintenance and assurance which leads to increased product value.
- D. Delivery dimension:** in light of the increasing importance of delivery time to the customer, this dimension has become competitive and a form of distinction for the institution, as the definition of delivery time to the customer is the time taken for a commodity (good) until it is delivered or for a service until it is performed (عبد القادر و محمد، 2020، صفحة 627). Furthermore, most organizations are committed to speedy delivery and response to the customer's request due to his willingness to pay higher costs regardless of the level of quality and in return for obtaining his need in a timely manner. (خلفي، 2018، صفحة 145)
- E. Innovation dimension:** innovation is the ability of an organization to introduce new products and features in the market place (Thatte, 2007, p. 45). Moreover, (Wen-Cheng, Chien-Hung, & Ying-Chien, 2011, p. 101) as they mentioned that innovation includes both product / service and process innovations. Product innovations are products that are perceived to be new by either the producer or the customer; the latter includes both end-users and distributors. Process innovation refers to new processes which either reduce the cost of production or enable the production of new products
That's why the innovation has a huge importance and the enterprises have to support new ideas, experiments and try to preserve it as long as they can.
- F. Flexibility dimension:** flexibility means the company's ability to change operations to other methods and this may mean a change in the performance of operations as well as a change in the way and time the operations are

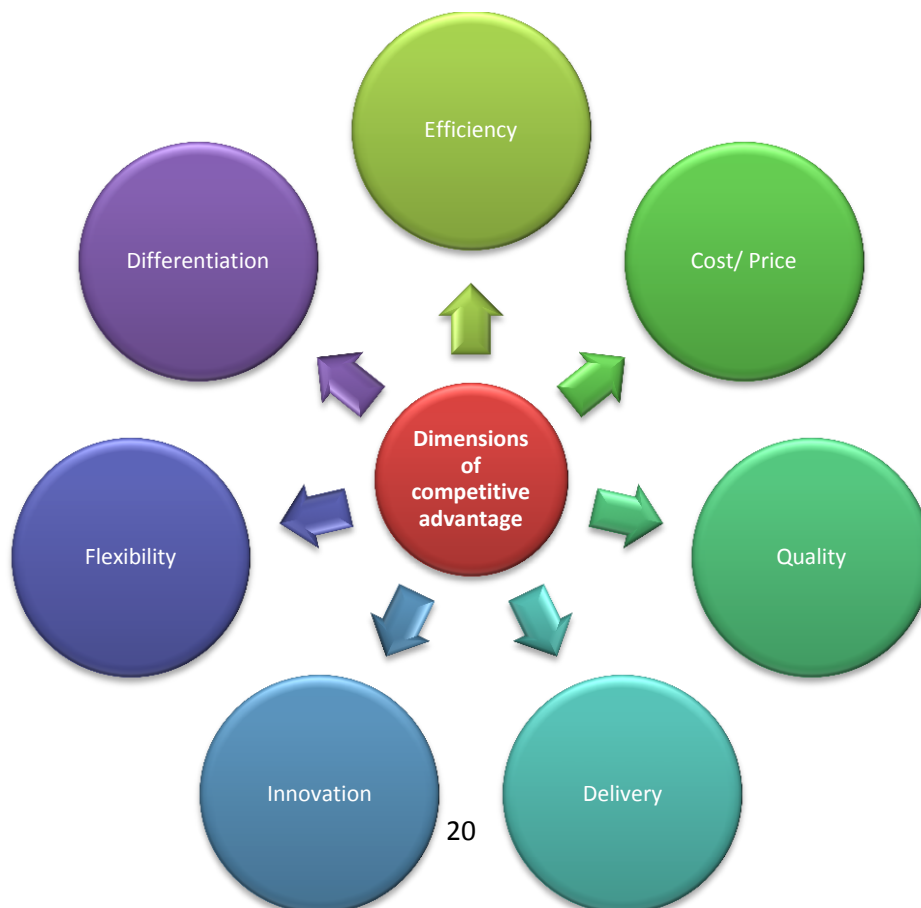
performed (Al-Hawamdeh, 2019, p. 90). the flexibility has four dimensions: (Ferry, Kevin, & Rodney, 2007, pp. 7-8)

- Customer service flexibility, this refers to the ability to provide the special customer requests or inquiries;
- Order flexibility, that means the ability to adjust order size, volume or composition during logistics operation;
- Location flexibility, that refers the ability to service customers from alternative wholesaler locations or supermarket outlets;
- Delivery flexibility, the ability to provide delivery times for customers.

G. Differentiation dimension: differentiation can achieve competitive advantage by offering a good or service that competitors cannot easily imitate or produce a copy of, and distinction allows the organization to charge a price higher than the prices of its competitors (حلموس، 2017، صفحة 194). Thus, the firms that succeed in a differentiation strategy often have the following internal strengths: (Wen-Cheng, Chien-Hung, & Ying-Chien, 2011, pp. 102-103)

- Access to leading scientific research;
- Highly skilled and creative product development team;
- Strong sales team with the ability to successfully communicate the perceived strengths of the product;
- Corporate reputation for quality and innovation.

Figure 7: the seven dimensions of competitive advantage.



Source: prepared by the student.

5. Indicators of measuring Competitive advantage

- A. Profitability:** profitability, which refers to the ability to make profit during a certain operating period for a company (Hu & Liu, 2016, p. 1). Furthermore, it is represented by the profits obtained by the shareholders in the organization (Chitheer, 2022, p. 63). Thus, a company can achieve higher profitability than its competitors by offering either an (almost) identical product or service at a lower price (cost leadership) or a differentiated product from its competitors in such a way that customers are willing to pay a price premium for it (differentiation advantage). (Benaboud & Abdelmajid, 2022, p. 780)
- B. Market share:** it is the most important indicator used to compare between the organization and its competitors, this measure gives an indication of the organization's position in the market, and the movement of consumers between the organization's goods and those of competitors. Therefore, the decline in market share indicates that there is a problem that the organization's management must solve. Competitive advantage can be measured based on this indicator using three methods:
- **Total market share:** It is calculated by dividing the organization's total sales by the total sales in the market.
 - **Relative market share:** The market share of the organization is calculated by dividing its total sales by the sales of the largest competitors in the market.
 - **The market share served:** It is calculated by dividing the total sales of the served market, i.e. the market on which the organization focuses its activities. (خلفي، 2018، صفحة 172).
- C. Productivity:** productivity is a measure of how efficiently an organization converts inputs into outputs (Sanders & Dan Reid, 20019, p. 37). In addition, productivity expresses how to maximize the use of existing resources in producing goods and services. It is also a source that can provide a competitive advantage and long-term survival of a company (Widyanty, Daito, Riyanto, & Nusraningrum, 2020, p. 2023)

Part 02: Relationship between variables

In today's business landscape, Supply chain management plays a crucial role in determining a company's success or failure, where customer expectations are increasing even with the competition. So that, we will see in the following how the relation between the two variables is going, after that we will have a closer look on the relation between each individual practice from supply chain practices with the competitive advantage.

1. The relation between SCM and the competitive advantage

Supply chain management is an important competitiveness for companies in providing fast service with high product variety and low cost so that companies can survive in the increasingly fierce competition (Palandeng,

Kingdangen, Tumbel, & Massie, 2018, p. 1784). Moreover, SCM focuses on how companies utilize their suppliers' processes, technology and capability to enhance competitive advantage (Bratic, 2011, p. 2)

2. The relation between Supply Chain Management Practices and CA

Supply chain management practices such as: supplier relationship management, customer relationship management, information sharing and internal process have a relationship in creating a company's competitive advantage. In addition, the linkage of SCM practices and competitive advantage has a positive affect which can also be proven through the results of many studies such (Thatte, 2007) who conducted a literature study on competitive advantage of a firm through supply chain responsiveness and SCM practices and indicated that the SCM practices of a firm is positively related to competitive advantage of a firm. Similarly, a study of (Poenhad, Laoprawatchai, Thongrawd, & Jermisittiparsert, 2019) of mediating role of competitive advantage on the relationship of supply chain management and organizational performance on the food industry of Thailand mentioned that SCM practices have a positive impact of the competitive advantage.

A. Supplier relationship management and competitive advantage

The closer the relationship between the company and the suppliers and the exchange information (level and the quality of information sharing) running smoothly, it will increase the company's competitiveness (Kodrat & Sutanto, 2020, p. 1043). Even, solving problems jointly with suppliers and conducting continuous improvement programs by a firm that include its key suppliers, are the two predominant 'strategic supplier partnership' practices that increase the overall competitive advantage of a firm (Thatte, 2007, p. 217)

B. Customer relationship management and competitive advantage

Firms' practices of periodically evaluating the importance of their relationship with their customers, facilitating customers' ability to seek assistance from them, and frequently interacting with customers to set reliability, responsiveness, and other standards for the firm, are the most important 'customer relationship' practices that positively influence the overall competitive advantage for a firm (Thatte, 2007, p. 217). Moreover, the close customer relationship allow product differentiation from competitors, help sustain customer satisfaction and loyalty, and elevated the value provide to customer (Sukati, Abdul Hamid, Baharum, Hon Tat, & Said , 2011, p. 4)

C. Level of information sharing and competitive advantage

In order to make the supply chain competitive, a necessary first step is to acquire a clear understanding of supply chain concepts and be willing to openly share information with supply chain partners (Sukati, Abdul Hamid, Baharum, Hon Tat, & Said , 2011, p. 4). Thus, make the level of

information sharing in organization can impact on innovation which could be this dimension a key of competitive advantage as it allows developing new services, products or even processes that can differentiate them from rivals. In addition, rapid and effective information sharing impact on both delivery speed and flexibility which enables realizing quicker responses to market changes or customer demands.

D. Quality of information sharing and competitive advantage

Contribute positively customer satisfaction and partnership quality (Li, Ragu-Nathan, Ragu-Nathan, & Subba Reo, 2006, p. 111). Firms need to consider their information as a strategic resource and they have to ascertain that it is communicated with the minimum of delay and distortion (Mzoughi, Bahri, & Ghachem, 2014, p. 28)

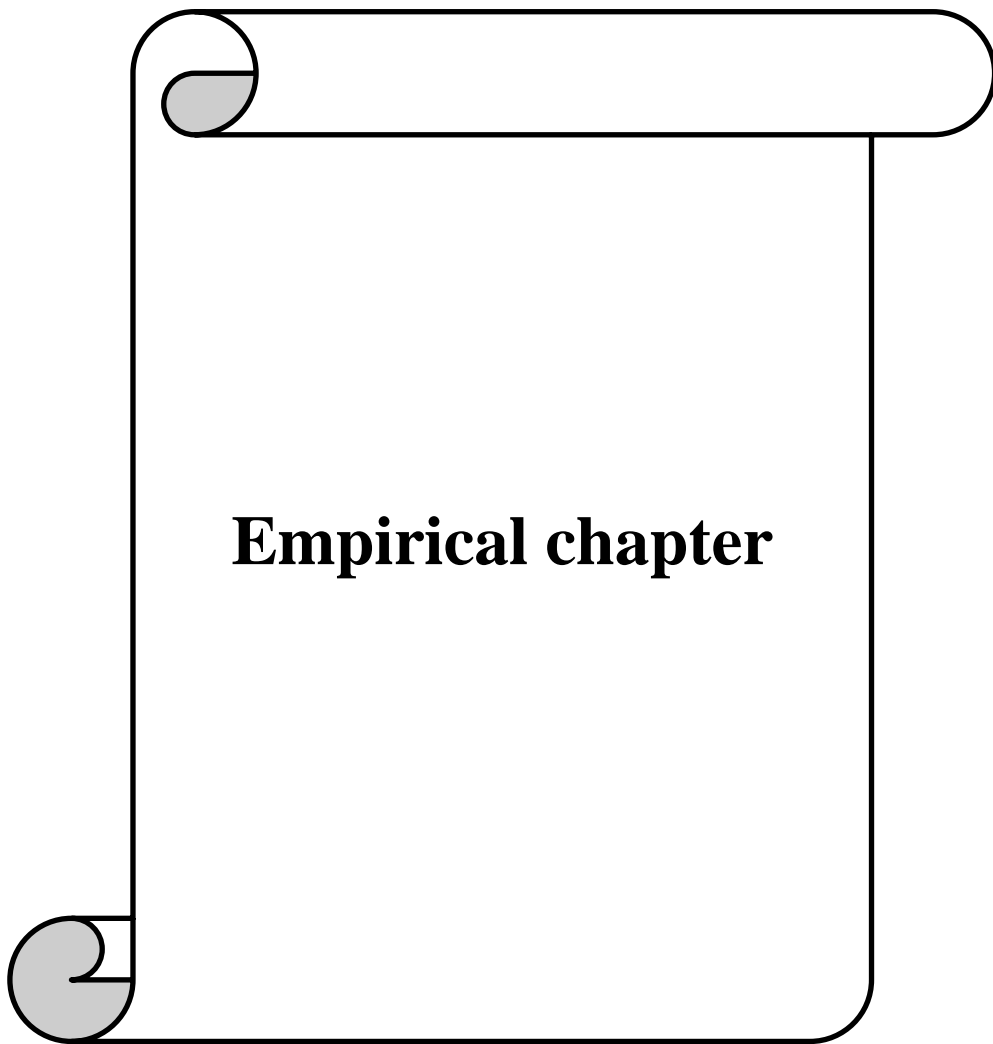
E. Internal process and competitive advantage

Internal process (postponement) strategy not only increases the flexibility in the supply chain but also balances global efficiency and customer responsiveness (Li, Ragu-Nathan, Ragu-Nathan, & Subba Reo, 2006, p. 111). Postponement allows an organization to be flexible in developing different versions of the products in order to meet changing customer needs, and to differentiate a product or to modify a demand function (Bratic, 2011, p. 4).

Well-designed internal processes can provide a competitive advantage by enabling organizations to operate more efficiently, adapt to changing circumstances, innovate faster, deliver superior products or services.

Conclusion:

We can say that this chapter has allowed us to have a clear and quite detailed idea of the whole research process that will follow. Beginning with a presentation of supply chain management as a group of integrated practices and activities that must each company focus on it to maintain its position in the market beyond the strong competition among companies. In addition, the companies have to provide the best products quality and services to maintain their customers and enhance their market share, by adopting best practices that allow overcoming their rivals.



Empirical chapter

Chapter 02 : Emperical Framework

Introduction:

After addressing in the first chapter, the theoretical side of the study variables, the practices of supply chain management and the dimensions of competitive advantage. In this chapter, we will focus on the methodology of the field study and its application to the case of “BISKRIA CIMENT” enterprise, this company is recognized as one of the prominent leaders in its field of activity in Algeria, making it an ideal choice for our research due to its relevance to our topic. The chapter is structured into three main sections:

- The first topic: a general overview of the institution
- The second topic: the methodological and analytical framework for the applied study
- The third topic: presenting the results of the study and testing hypotheses

Chapter 02: Empirical Framework

Topic 01: Exploratory study of the factory

Since the enterprise seeks to attract a large number of customers and achieve a competitive advantage. So that, we will discuss the definition of the enterprise, its establishment, in addition to the components of its organizational structure.

Part 01: introducing “THE BISKRIA CEMENT” factory and its organizational structure

1. Identification card of the factory

The cement company “BISKRIA CEMENT” is a company by share, private under Algerian law that was created in January 2009 and works started in 2013. Its share capital estimated by 4,284,000,000 DA and the main vocation of the company is the production and marketing of cements. It is composed of a single entity located at the company’s headquarters. Its shareholders are all Algerian private economic operators. Covering an area of 100 hectares. The cement plant is 18Km northeast of the capital of the state of BISKRA, from which it bears its name, 5 Km south of the municipality of BRANIS. It draw its main raw materials from the mount of M’hor deposit for limestone, located about 2 Km away and Etaref for clay, located 15 Km away.

Furthermore, it includes more than 1400 direct and indirect job positions. In addition to that, “BISKRIA CEMENT” products comply with the international standard that defines the requirements of the quality management system. (Biskriya Ciment, 2021)

CE MARK

ISO 9001 -2015 the ISO standard is used to demonstrate the ability to consistently provide products and services that meet customer and regulatory requirements.

2. Production capacity of the factory

Biskria Cement is the largest plant in Algeria with three lines with a total capacity of 5.000.000 tons/ year divided into:

02 million for the line number 01;

02 million for the line number 02;

01 million for the line number 02.

In addition to that, there is a cement storage space of more than 40,000T.

Other activities:

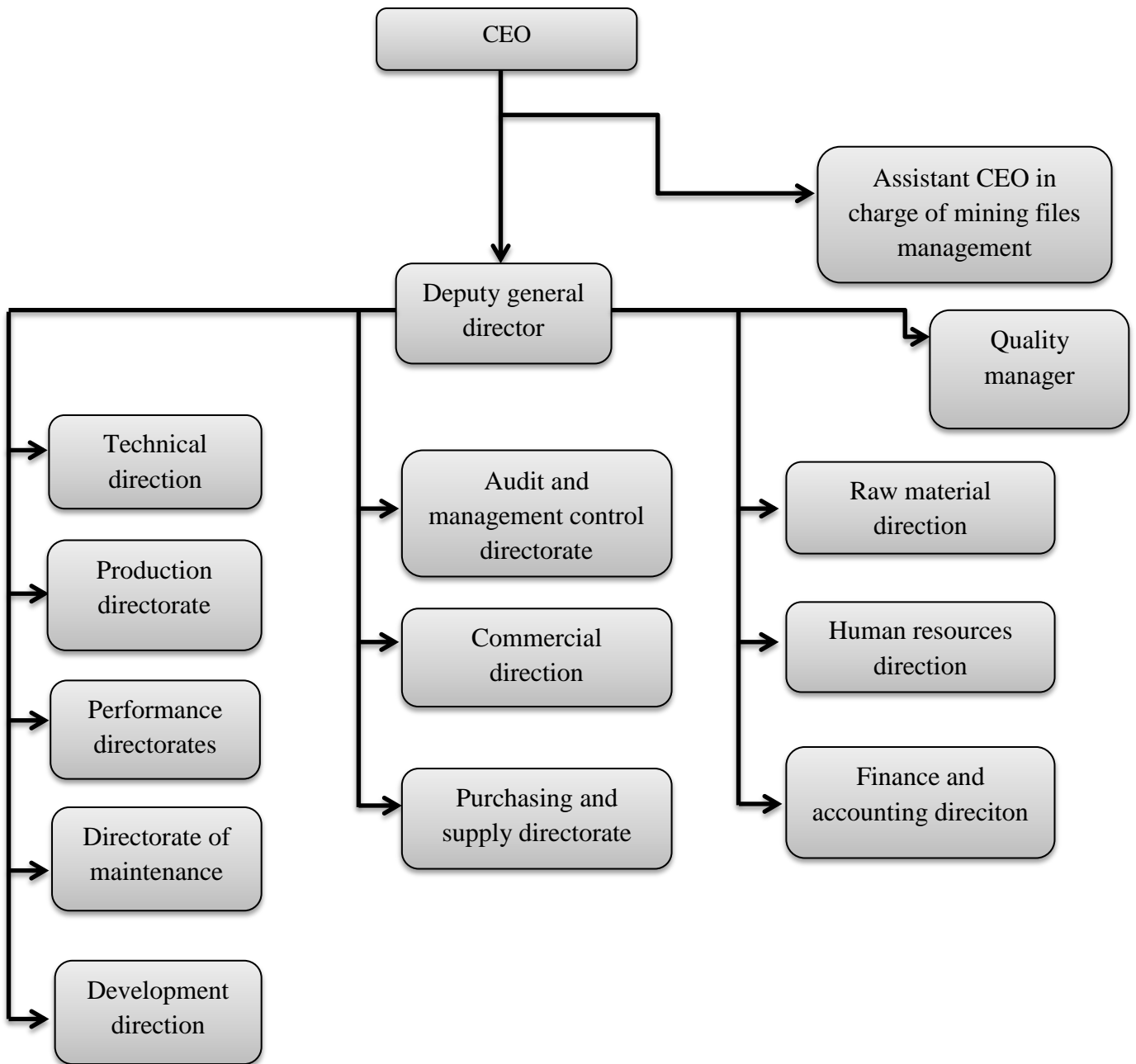
In addition to the main activity, which is the production of cement, the company carries out other activities, including:

Chapter 02 : Emperical Framework

- Maintenance and repair of quarry machinery and public works;
- Maintenance and repair of production equipment, through the mechanical and electrical maintenance workshop and the boiler industry;
- Sewage water treatment;
- Handling equipment rental.

3. Organizational structure of the factory

Figure 8: Biskria Cement organism



Source: prepared by the student based on a document obtained from the company

Chapter 02 : Emperical Framework

Part 02: a presentation of the factory's various products, its customers and its most prominent competitors

1. Products of the factory

This table determines the six products of the Biskria Cement. Which are in conformity with the international standard that defines the requirements of the quality management system.

Table 1: list of finished products.

products	Product data sheet	Application areas
	<p>CEM I 42.5R PORTLAND CEMENT Compliant with Algerian Standard (NA442-2013)</p>	<p>Cement for all high strength construction works at a young age, it is also recommended for concrete products which require rapid hardening, concreting in sliding formwork especially in wintertime, concrete resistant to frost in the presence of de-icing salts, bridge decks, pumped concrete and sprayed concrete.</p>
	<p>CEM II/A-L 42.5 R PORTLAND CEMENT WITH TYPE II ADDITIONS Compliant with Algerian Standard (NA442-2013)</p>	<p>A cement for all infrastructure and superstructure construction works engineering structures, requiring high initial resistance, it is also recommended for large construction and reinforced or not concrete, sprayed concrete pumped and concrete for waterproofing, concrete article and industrial prefabrication, concreting in cold or hot weather and concrete sails.</p>
	<p>CEM II/B-L 32.5R PORTLAND CEMENT WITH LIMESTONE Compliant with Algerian Standard (NA442-2013)</p>	<p>Cement allows carrying out all your house building phases and all masonry work, it is also recommended for benched concrete, concrete type C12/15, masonry mortars, soil stabilization, road bases treated with cement and pavements.</p>
	<p>CEM I 42.5N SR3 LH SULFATE RESISTANT AT LOW HYDRATION HEAT Compliant with Algerian Standard (NA442- 2013)</p>	<p>A cement requires high resistant to aggressive environments and working at the sea, it is recommended for concrete reinforces in aggressive environment, massive civil engineering structure, highway concrete, sewage treatment plant concrete and salt-impregnated soils concrete.</p>
	<p>CEM I 52.5 R (WHITE CEMENT) PORTLAND CEMENT Compliant with Algerian Standard NA 442-2013 and European EN 197-1</p>	<ul style="list-style-type: none"> • High compressive strength at early age and long term; • It uses for manufacturing and production of tow-layer slabs and single layer; • It uses for exposed structural concrete; • Ideal for mortars and cement-based adhesive.

Chapter 02 : Emperical Framework



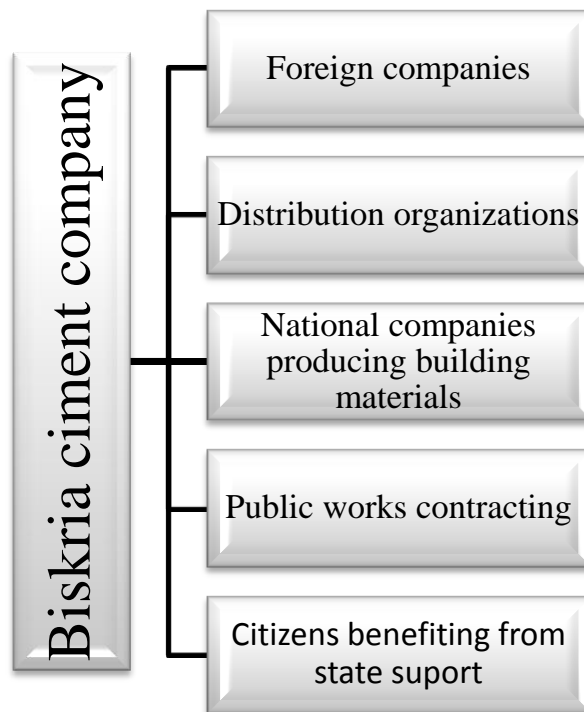
CEM II/B-L 42.5 N
(WHITE CEMENT)
PORTLAND
CEMENT WITH
LIMESTONE
Compliant with
Algerian NA 442-
2013 and European
EN 197-1 standard

- Decorative floors, flooring and tiles;
- Architectural concrete panels, cement glue, plasters, grouts, paints, repair products;
- Road safety barriers, curbs.

Source: (Biskriya Ciment, 2021)

2. The most important customers of the factory

Figure 9: Most important customers of the factory.



Source: prepared by the student based on information from the factory.

3. The most prominent competitors in the national market

Table 2: competitors in the national market.

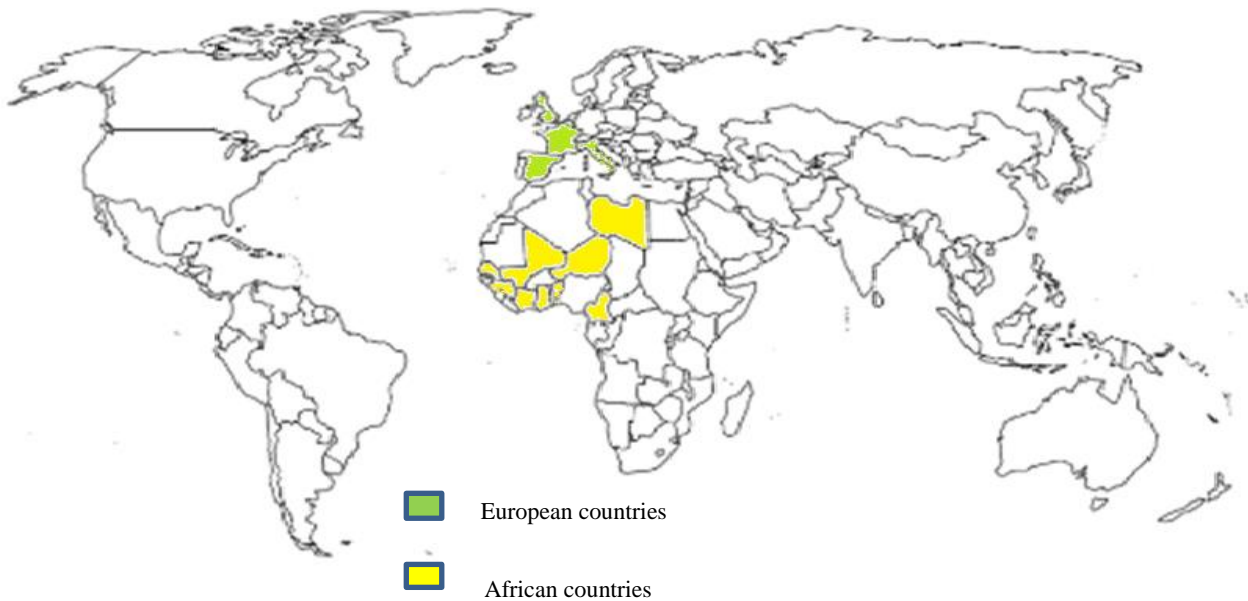
Name of the company	The headquarters of the company	Nature of ownership	Capacity production
Cement industrial group – GICA -	Municipality of Miftah, Blida province	A public company owned by the Algerian state	13 million tons annually across all its branches
Cement Algerian company – ACC -	Municipality of Ain Touta, Batna province	Franco-Swiss partnership	09 million tons annually across all its branches
CILAS	Municipality of Akaz, Mascara province	A partnership between the Lavarge Holcim complex and the Soakeri Brothers complex	2.7 million tons annually

Source: prepared by the student based on the information available on the websites.

4. The exportation

Since the “**Biskria Cement**” factory has a large production capacity, it conducts exports to many African and European countries, such as: European countries (Belgium, United Kingdom, France, Spain, and Italy), and African countries (Libya, Niger, Cameroon, Togo, Ghana, Ivory Coast, Guinea, Senegal, and Mali).

Figure 10: countries to which it is exported.



Source: prepared by the student

The cement company chose to take a very clear direction in quality through its products, in order to provide high-performance cement products to its customers and consumers, and the results of this policy began to appear as soon as the Algerian domestic market stagnated, as the company's business made the difference by continuing to capture growth points in a noticeable way.

Topic 02: the methodological and analytical framework for the applied study

In this section, we will discuss the methodology applied in conducting the research, by addressing the sources of the study, the methodology of the study, in addition to the community and tools of the study.

Part 01: sources of study data collection, limits, methodology of study

1. Sources of study data collection

Research relies on a set of sources that enables to know more about the study, and these sources are as follows:

- The primary sources: are the data and information that the research collected about the company where he did his study based on a group of tools, including the interview, which is among the most accurate tools in the field of scientific research.
- The secondary sources: are the books, websites, theses, articles and any reference related to the subject of the study either direct or indirect.

2. Methodology and limits of the study

In order to answer the problem and the proposed hypotheses, we followed the analytical descriptive methodology in presenting the data and testing research hypotheses that aim to find out the impact of supply chain management on the competitive advantage of "Biskria Cement" factory.

This study also has spatial and temporal limits represented in the following:

Temporal limits: we conduct this study in May 2023.

Spatial limits: we made a field visit to the "Biskria Cement" factory in the state of Biskra for an interview.

3. study data collection tools

We adopted the interview as a tool for the study, where a set of questions as shown in the appendix n° 2 related to the study variables were asked to both the marketing manager and the purchasing manager after the questions were prepared carefully and objectively, and it was reviewed by the honourable professor.

Part 02: presentation and analysis of the interview topics

1. Presentation of the interview topic about supply chain management practices and competitive advantage

About supplier's relationship management

- How do you select your suppliers? And what are the criteria you adopt in selecting your suppliers.
 - We select our suppliers through a selection grid, then an evaluation grid where points are taken out for each resources (there are those who provide services and those who supply sensory products) in addition, each supplier has two bodies which are evaluation grid and scoring grid to choose the supplier.
 - The criteria we adopt in selecting our suppliers are firstly quality, price than extension of time.
- Do you consider quality as number one criterion in selecting suppliers?
 - Yes, sure we consider quality as number one criterion in selecting suppliers because based on quality, suppliers are selected and the efficiency of the production chain is improved.
- Are they from inside or outside the country?
 - They are from inside and outside the country.
- If you deal with suppliers from outside the country, are they selected from different countries?
 - Yes, we deal with suppliers from outside the country and they are selected from different countries based on the criterion of productive efficiency.
- How does your company balance the need for cost savings with the need for quality and reliability in its relationships with suppliers?
 - Our company balance the need for cost savings with the need for quality and reliability in its relationships with suppliers through:
Direct negotiation and contracts, both of them have a common center of gravity, which is that cost-saving should not be needed to overcome quality and vice versa.
- How do you solve problems with your suppliers?
 - We try resolving problems with our providers before it happens, that means we set prevision of the risks we might face in the contract. If the suppliers don't respect what was written into the deal they will give us compensation. Moreover, there is a Quality Management System (QMS) which control the quality if they find a problem, they will send to the procurement team and inspect the conformity sheet in order to know who is the responsible supplier, the causes of the problem...etc.
- Do you include your key suppliers in your planning and goal-setting activities?
 - Yes, for example there is company of "craft paper" for packaging that requests an annual program because the raw materials are requested from abroad, so is also request a periodic updates of what they produced, what they consumed and what is to come.

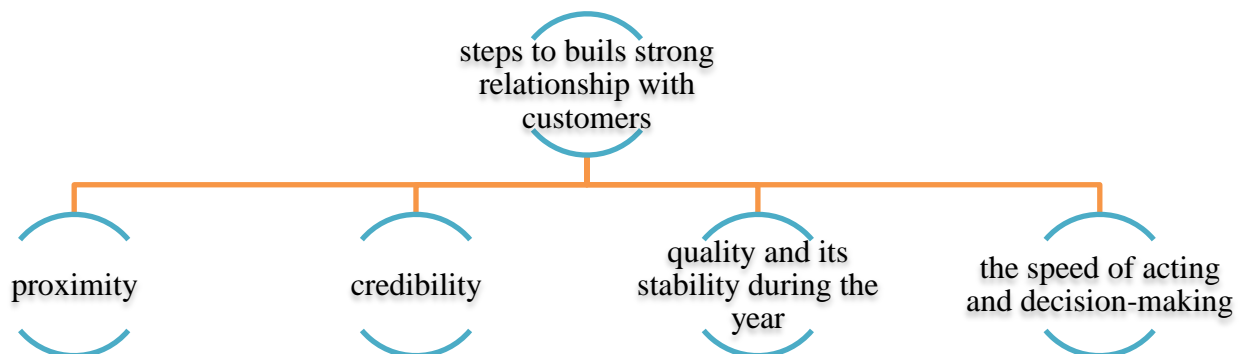
Chapter 02 : Emperical Framework

- Do you involve your key suppliers in new product development processes?
 - Yes, because planning and setting goals is related to the development of new products and because it is considered part of the integrated supply chain.

About Customers relationship management

- Since you export your products abroad, who are those countries?
 - Those countries are from both African continent and European continent such as: Libya, Niger, Cameroon, Togo, Ghana, Ivory Coast, Guinea, Senegal, Mali, Belgium, United Kingdom, France, Spain, and Italy.
- How do you handle customer complaints with products quality?
 - There is a procedure for managing customer complaints, standing by itself, continuing and participating in the process L3, which is the marketing of clinker and cement and they are held accountable for it annually periodically in the audit, where audit experts come from outside the enterprise who monitor if the customer's complaint that came to them on the specified date entered the processing staged or not, closed or not or if they made decision in production.
- What steps do you take to build strong relationships with your customers?
 - There are four steps which are:
 - Proximity:** it is that been physically close to the clients, and listen to them.
 - Credibility;**
 - Quality and its stability during the year:** the client B2B must ensure that he took a product stable during the year and helps him in his production chain.
 - Those three steps above are related to the inside of the enterprise but the fourth point is related to the outside environment which is “**the speed of acting and decision-making**” towards competitors, the legal environment and the legal administrative because they are considered as participating parties in decision-making and changing it, where there are changes, we must adapt to them. Those steps build the trust in the customer.

Figure 11: four steps to build strong relationship with customers



Source: student' elaboration

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- How do you evaluate the importance of your relationship with your customers?
 - It is life or death which means it is ultra-high important and the proof is that we consider customer satisfaction to be the first in the quality policy.
- How do you interact with your customers to set reliability, responsiveness, and other standards for your company?
 - We interact with our customers to set reliability, responsiveness and other standards for our company through: doing meeting workshops (meetings outside the framework of work), using social media like (LinkedIn, Facebook...etc.), communicate with the president and director general when needed and take into account their needs.
- How often do you measure, evaluate customer satisfaction and determine your customers' expectations?
 - During these years (2020-2021-2022), we made customer satisfaction survey once a year, but this year one will be in June and the other in December and the second measurement will be daily by phone.
- Do you facilitate customers' ability to seek assistance from your company? And how do you facilitate it?
 - Yes, for example if there is payment issues or other issues we contact them directly, listening to them and giving them the solutions if the problem deserve.

About level and quality of information sharing

- Do you inform your trading partners in advance of changing needs?
 - Of course, we inform our trading partners in advance of changing needs moreover, sometimes we face some cases where we receive an order we have to act quickly and do some change in the product.
- Do your trading partners (share proprietary information with you/ keep you fully informed about issues that affect your business/ share business knowledge of core business processes with you)?
 - Yes, they do.
- How does your company balance the need for transparency and openness with the need to protect sensitive information?
 - When anyone asks us about company's sensitive information we avoid the answering, just if the part whose asking play an important role in our company, and it has the right to take this information such as: the banks, Ministry of Commerce, ALGEX...etc.
- Do you both of you and your trading partners (exchange information that helps establishment of business planning / keep each other informed about events or changes that may affect the other partners)? And how do you find this collaboration?
 - Yes, we do. Even we found this cooperation is mutually beneficial.
- How does information exchange between your company and your trading partners going on is it timely, accurate, complete, adequate or even reliable?

- With flexibility, according to the character of the party, the information and its nature are what make us determine how it is done.
- Is the level and quality of information shared by the company highly efficient?
- Yes, the level and quality of information shared by the company is highly efficient especially with suppliers.

About postponement (POS)

- Do you delay ordering of raw materials from suppliers until customer orders have actually been received? And do you find it that much helpful for your production process?
- No, we don't and if there is a postponement it won't be helpful for our production process.
- Do you delay final products assembly activities and some form of value-addition to the product until customer orders have actually been received? If yes, what's the role of inventory here?
- No, we don't delay because production continues for 7/7 days and 365 days without interruption, as well distribution and sale, as there are other pre-production and distribution activities that may affect production, such as a technical failure.
- How does postponement help your company reduce costs and improve efficiency?
- In my opinion, the postponement has no sense in our company, and it doesn't help company in reducing costs or improving efficiency
- How do you balance the benefits of postponement with the need to maintain fast delivery times and respond to customer demands?
- Since we don't use postponement, I can't answer this question.

About efficiency

- Which one from the following do you use it to measure SC efficiency in your company and why?
 - ✓ Cost analysis;
 - ✓ Customer satisfaction;
 - ✓ Inventory turnover.
- We depend on the three of them, as we answered on the previous questions that we measure customer satisfaction and how we do it. Regarding inventory turnover, today there is a solid inventory in the strategic inventory only. But the materials that can be provided upon request we don't keep them in stock.
- Does your company do regular meetings with suppliers to improve SC efficiency?
- No, there is no regularity; it can be said more than an almost permanent regularity. There are cases where we transfer our expectations monthly or annually.

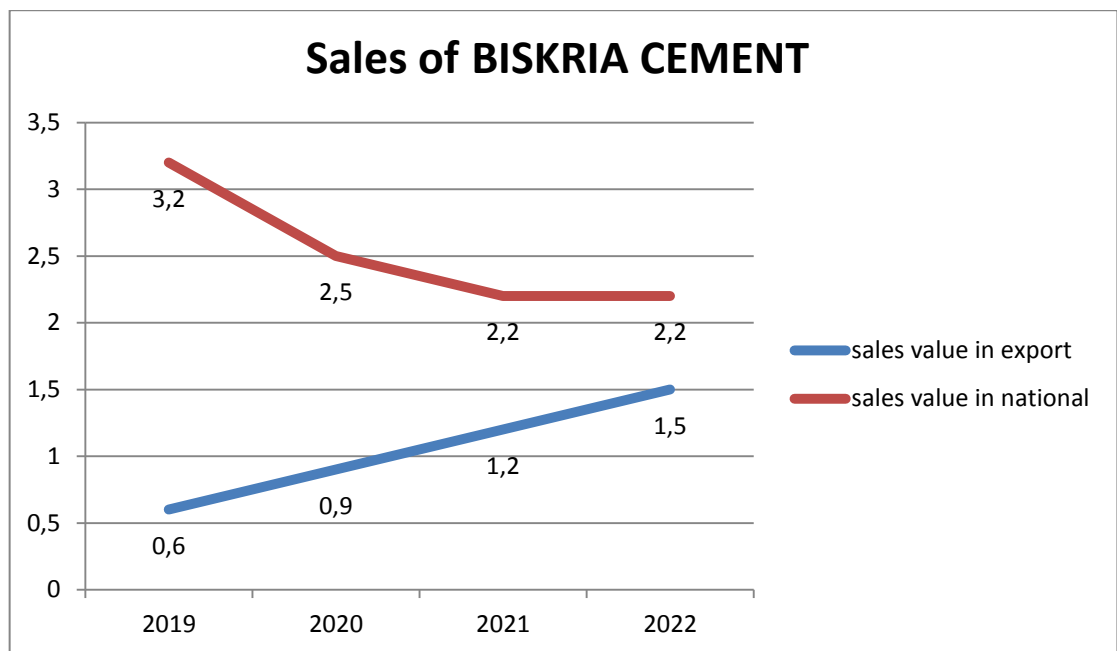
Chapter 02 : Emperical Framework

- How much do you evaluate the use of sharing of data and information with suppliers to improve SC efficiency in your company?
 - Great, because sharing of data and information with suppliers helps us in improving and develop products.

About cost and sale

- How does the company manage and control its costs?
 - Since we are in the production chain, if the furnace stops for a day or two, the cost price per piece or per ton explodes. Where our factory has two furnaces of the largest production capacities, it is in our interest that they work daily when it is projected on cost and sales, we call it cost dominance. That is, production is so large that the costs decrease relative to production (achieving profits at the lowest costs).
- How does the company determine pricing for its products? Are the company able to offer prices as low or lower than its competitors?
 - We rely on cost dominance, as we try to reduce costs as much as possible. However, when we compare our prices with competitors, our prices are considered the highest in Algeria.
- How does the company handle unexpected changes in costs or revenue?
 - The company handle unexpected changes in costs or revenue by one of these three things: reducing the stock, increase the prices or increase the production.
- Can you describe the sales and revenue growth of the factory over the past few years?

Figure 12: sales of Biskria Cement factory



Source: prepared by the student based on the obtained information from the company

2019: Sale 3, 2 million tons in the national.

Sale 600 thousand tons in the export.

2020: Sale 2, 5 million tons in the national.

Sale 900 thousand tons in the export.

2021: Sale 2, 2 million tons in the national.

Sale 1, 2 million tons in the export.

2022: Sale 2.2 million tons in the national a little less the year before.

Sale 1.5 million tons in the export.

The problem is in the year 2023, if they continue in the local market at the same trend, so that will make the sales reach 3, 8 million tons, and the production capacity in grey cement is 4 million tons, which makes us take a decision if we stop exporting abroad or reduce them in the local mark

- What are the factors that contribute the factory's sales growth?
 - The factors that contribute the factory's sales are the good and appropriate consistency between price, product, distribution and advertising.
- How does the company balance short-term profitability versus long-term growth?
 - We rely more on medium and long term profitability, because Short-term profitability does not exist so that the value of short-term profitability in making strategic decisions of the general directorate, commercial decisions, finance decisions or raw materials decisions has little effect. This is what makes us look after two or three years to where we want short-term profitability and long-term growth to reach that. So, we study and evaluate them when we make a decision.
- How do you forecast demand for your products?
 - The demand for the company's products is increasing.
- How do you measure the profitability of the factory?
 - The method of measurement is framed in every organization through sales and costs and there is an entire body responsible for that.

About logistics

- How do you manage the transportation of goods?
 - We manage the transportation of goods:
 - In the national:** by choosing the clients who have a storage place and trucks for transport goods, in this case the company does not assume responsibility for transportation. Or, if the clients are B2B and they don't have transportation here the company assume responsibility for transportation.
 - In the export:** it depends if the products exported by land here the company refuses to sponsor the transportation, as the transportation is not the responsibility

of the company. If the products exported by sea here the land transport to the port it is the responsibility of the company.

- Are there some companies that you rely on for transportation? And how do you ensure that your transportation is efficient?
 - Yes, there are some companies we rely on for transportation. And we make sure of the efficiency of the transportation by going through two stages, the first is the selection grid and the second is the evaluation grid.
- How do you deal with the challenges that you may face it?
 - Permanent follow-up to find solutions to potential problems.
- How does your company manage inventory levels to ensure that you have enough stock to meet demand while minimizing excess inventory and associated costs?
 - There is a directorate that assists the company and responsible for managing the inventory through an ERP software. Where each product has minimum and maximum stock.
At the maximum stock the company stops purchasing, at the minimum stock the company launches purchasing.
- Do you deliver the kind of products needed and customer order on time?
 - Yes, but in some cases we face problems let us delay in delivery.
- Is your delivery dependable?
 - Of course, our delivery is dependable.

About technology and innovation

- How do you keep up with the latest trends and development in the field?
 - We keep up with the latest trends and development in the field by attending national and international exhibition, seminar, magazines where there is an international magazine specializing in cement, participants in it periodically sending us an issue containing new topics.
- What types of technology are used in your factory, and do they achieve an optimal efficiency and productivity?
 - Types of technology are used in our factory: is software like Enterprises Resources Planning (ERP), Quality Management System (QMS), modern machines that achieve efficiency and productivity, which we impose on the company responsible for processing the factory. And yes, it achieves an optimal efficiency and productivity.
- Do you use new technology to facilitate managing and tracking products in the warehouses?
 - No, we don't because it depends on the requirements of the factory, where our factory does not require modern technologies to manage and track inventory, such as the warehouses system, because we have 7 products and the (ERP) is sufficient and fulfilled in management.
- How does your company utilize technology to improve supply chain efficiency?
 - a. Transportation management system (TMS)
 - b. Enterprise resources planning (ERP)

- c. Radio frequency identification (RFID)
- d. Warehouses management system (WMS)
- Our company utilize ERP, where this system connects between departments and we found it helpful in improving efficiency. In addition to that, we use application which gives every customer who uses it the time he must to load his commodity, this application is similar to the Radio Frequency Identification (RFID) but the drivers may have problem let them been late for the time set
- Do you use electronic commerce that helps to record orders and order state?
Yes, we use electronic commerce and it is represented in an electronic application that we give it to every customer who comes to us, where we give them the access to enter this application.
- What new technology solutions are you considering adopting in the future?
➤ We plan to establish a three-way relationship between the company, the bank and the customer. By the judgement that the payment is in advance the customer requests the bank electronically to transfer the amount of money agreed to the account of the institution, and when the system gives him approval, the customer completes the process of requesting the product.
- Do you provide customized products to your customers?
➤ Yes, but just the semi-manufactured like clinker.
- Do you alter your product offering to meet client needs and respond well to customer demand for new features?
➤ No, because the product is regulated and there is no innovation or modification. But in the commercial policy we are always in search of continuous improvement.
- Could your organization ability respond to the needs and desires of customers and provide fast services with high flexibility?
➤ Yes, our organization could respond to the needs and desires of customers and provide fast services with high flexibility.

About quality and differentiation

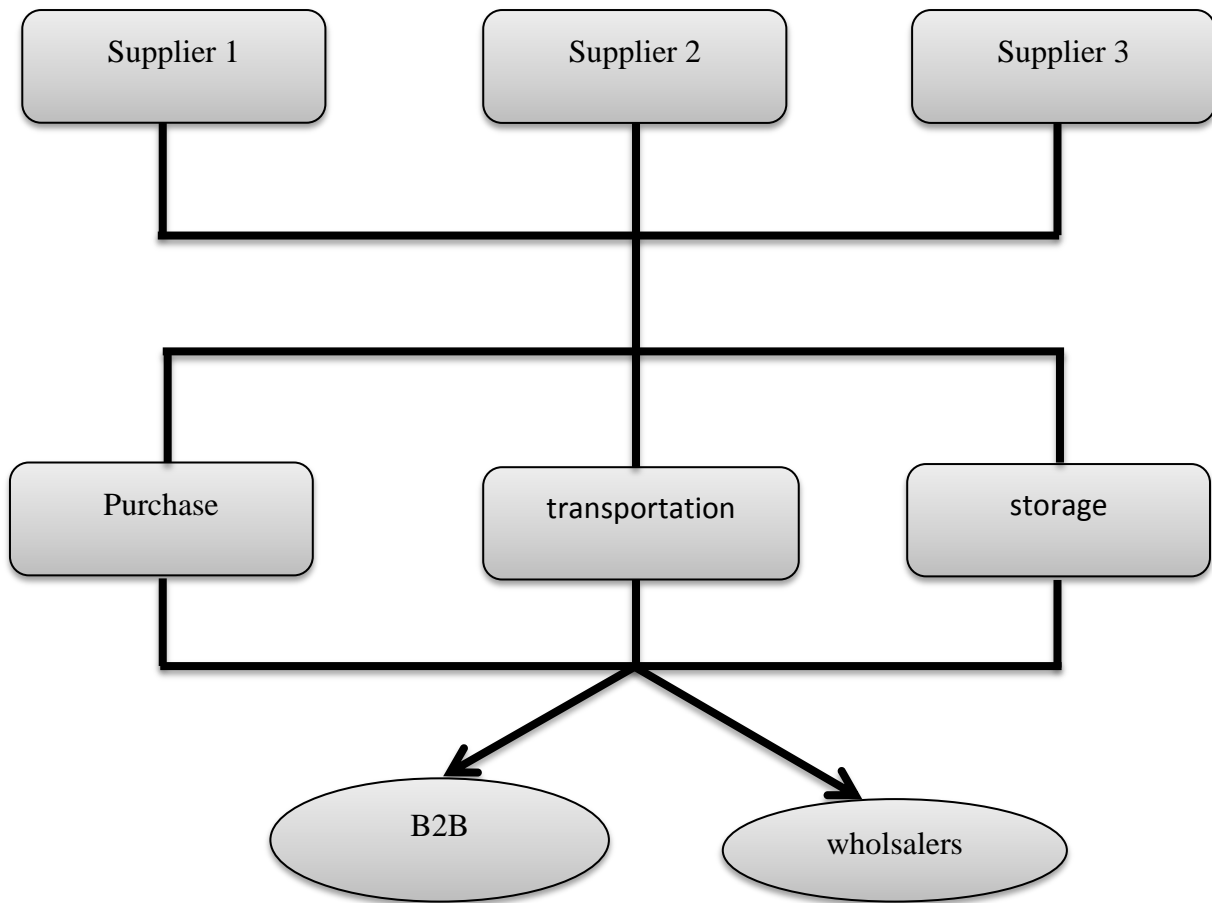
- Are your company able to compete based on quality?
➤ Yes, our company is able to compete based quality on because differentiation is based on quality and it's stability during the year.
- How does the company handle situations where a product does not meet the expected quality standards?
➤ We do not deny that there is no problem (that's we resort to an escape policy), but rather we try to treat and improving it.
- Do you offer products that are highly reliable and very durable?
➤ Yes, the evidence is that when you look at the website, you will find certificates of CEM that are product certificates, not a policy. The first condition for obtaining the certificate is the stability of quality at a certain level throughout the year, meaning that our products are reliable and lasts for a longer period.

- Does your company have the ability to stand out?
 - Yes of course, our company have the ability to stand out.
- How does the company differentiate its products or services from those of its competitors?
 - The company differentiate its products based on quality and its stability during the year as we said in the previous question. While it always strives to differentiate its services by building a strong relationship with both suppliers and customers.
- How do you measure the success of your supply chain management practices?
 - a. Reduction lead times;
 - b. Improvement customer satisfaction;
 - c. Increase in profit margins;
 - d. Reduction in inventory levels.
 - We measure the success of our supply chain management practices by the improvement customer satisfaction
- How does your company plan to improve supply chain management practices in the future?
 - Our company plan to improve supply chain management practices in the future by integrating everything that is strategic, for example an investment in the packaging factory, and it became affiliated with the cement factory, and this idea came after we faced a problem of shortage of packaging bags.

2. Structure of the Biskria cement factory supply chain management

From the interview that took place in the factory with both the marketing manager and the supply manager, we came to the establishment's supply chain, which turned out to be multi-party because it relied on more than one supplier to purchase its raw materials, as shown in the figure:

Figure 13: Biskria cement supply chain



Source: prepared by the student.

Topic 03: discussion the results of the study and testing hypotheses

Part 01: presenting the results of the study

In this part we will discuss and present the answers of the interview, take a look of the relationships between variables of the study in “**Biskria Cement**” factory based on the answers obtained.

1. Competiveness of “Biskria Cement” factory

Since the Biskria Corporation has recently entered the field of cement industry, it is certain that it will face, like other institutions competitiveness with other companies in the same field at the national or international countries and whether they were government-affiliated or private companies such as GICA, CILAS, and ACC. Although it entered this field in 2016, its prices are high in the market compared to its competitors, but it was able to achieve a good competitive position. This is due to its possession of high quality products that conform to international standards of total quality (ISO 9001-2015), quality stability certificates CE MARK, in addition to efficient management and certified delivery.

What distinguished the company is its experience in foreign markets, due to its exports operations to both African and European countries. Since it is considered the enterprise that has the largest production capacity in the cement industry, which made it meet the requirements of the local and foreign market.

2. Supply chain management of “Biskria Cement” factory and competitive advantage

Through the information that was taken from the personal interview in the institution, it became clear that the institution is interested in managing supply chains, on which it relies to achieve competitive advantage, starting with the selection of suppliers that it seeks to deal with by focusing on quality in their selection and as the main element in achieving competitive advantage, then on price and delivery. Moving to the efficient and flexible exchange and sharing of information in internal or external operations. Down to important element in the organization’s supply chain, which is the customer through whom the success of supply chain management is measured (by achieving customer satisfaction). In addition, it relied on modern technology in managing its supply chains, such as Enterprise Resources Planning (ERP) and Quality Management System (QMS), the first to facilitate the exchange and sharing of information between the various departments of the institution, and the second to ensure the quality of its products and their conformity with quality standards. All this to provide products and services that satisfy customers’ requirements, which is the primary goal of the organization.

The company’s supply chain management also contributes to reducing production costs, by utilizing production capacity at low costs.

In the end it can be said that the supply chain management is a strategy to create competitive advantage especially in entering global market.

3. factory’s SCM practices and their relationship to the CA **a. Suppliers relationship management and CA**

The corporation deals with suppliers from outside and inside the country, where they are selected based on high quality and lowest costs, which contribute to achieving competitive advantage through negotiation with suppliers. And although it chooses them carefully, it has previously faced a problem with the suppliers of the cement beg, where sometimes there is a problem of scarcity or it’s not of the same quality required and agreed upon before in the contract for example: the begs torn when used. Since, they found that the SRM is a major component that impact on competitive advantage thus makes the firm integrating suppliers as a strategic partner for the BC Cement factory.

In addition, we find that the company deliberately holds monthly, annually, and sometimes daily meetings with its suppliers to share information and expectations that benefit in improving the efficiency of supply chain

management. With its reliance flexibility in sharing its information, that is according to the supplier and the extent of his need for the information. So what can be concluded from the above that SRM affects on quality, price, and delivery. And it impacts on competitive advantage positively.

b. Customers relationship management and CA

The company's main goal is continuity, but what it adopts in its commercial policy is achieving customer satisfaction and building a strong relationship with its customers through four steps (proximity, credibility, quality and its stability during the year, speed of decision-making) that build trust.

The institution also facilitates the ability of customers to reach them, especially if it is with regard to complaints about the quality of products, so there is a specialized department to solve these issues.

Moreover, it provides flexible services to its customers, but it does not modify its products at the request of customer, because cement products follow standards that cannot be violated.

After observing the reality of the establishment's activity, it became clear that it pays great attention to its customers and cares about their opinions and complaints, which can be taken as an opportunity, not a threat, in order to improve the quality of the product and increase productivity to achieve profits. It also seeks to achieve customer satisfaction by providing flexible and highly efficient services with quality assurance, which affects on the competitive advantage of the company positively.

c. Level and quality of information sharing and CA

The organization relies on the involvement of its business partners, especially the main suppliers, and informs them a year in advance of the changing events in production, for example. Also, the status of the party, the information and its nature is what determines the method of exchange, so they rely in the institution on flexibility in exchanging information .Even more, we can say from what we observed that the information sharing has a mutual benefit for both the suppliers and manufacturer and the efficient information technology application that the company relies, improved information sharing between them and customers.

In addition it engage its trading partners in sharing information that helps build business planning From this it is clear that the level and quality of information shared by the institution is highly efficient. Therefore, we consider both the level and quality of the information involved to have a positive impact on achieving the competitive advantage in the Biskria Cement factory.

d. Postponement and CA

From the above answers that we get from the interview, it turns out that the institution does not pay any attention to postponement, whether in ordering raw materials from suppliers or delaying the assembly of products until the actual receipt the customer's requests, and it does not help them reduce costs, but rather disrupts the production process, so it has no role in achieving the competitive advantage of the institution because it uses inventory to store raw

materials and final products, because it has a large storage area. So it can be said that the postponement negatively affects on the competitiveness of the institution.

Part 02: testing the hypotheses

In this part we will see if those hypothesis are correct or not and is it consistent with the applied study or not.

H01. The main purpose of SCM is to ensure the efficient and effective flow of goods, services, and information from the point of origin to the end customer and create a competitive advantage.

Hypothesis H01 is significant correct. SCM encompasses the coordination of various activities and it is planning, executing, controlling each single business activity towards create competitive advantage.

H02. The SCM practices represent the relationship management with suppliers and customers, internal supply and sharing information.

Hypothesis H02 is significant correct. As well, it can be considered almost true as we dealt in the theory. In addition, SCM encompass those practices to optimize supply chain operations and competitive advantage.

H03. The competitive advantage indicators divided into financial performance which includes: (profitability, cost) and to non-financial performance which includes: (quality, flexibility, delivery on time, product innovation).

Hypothesis H03 is not very correct. Because in the theoretical part we have a look about indicators and dimensions of the competitive advantage and we observed that the indicators are profitability, productivity and market share. But the dimensions we can divided into financial performance which involves (cost) and non-financial which involves (efficiency, delivery, flexibility, differentiate, quality and innovation)

H04. The Biskria Cement Factory pays a great attention to the supply chain management.

Hypothesis H04 is significant correct. Because according to the answers we received in the personal interview, we found that SCM helps the factory in enhancing production planning, reducing costs, improve quality, achieve customer satisfaction and optimize their supply chain network.

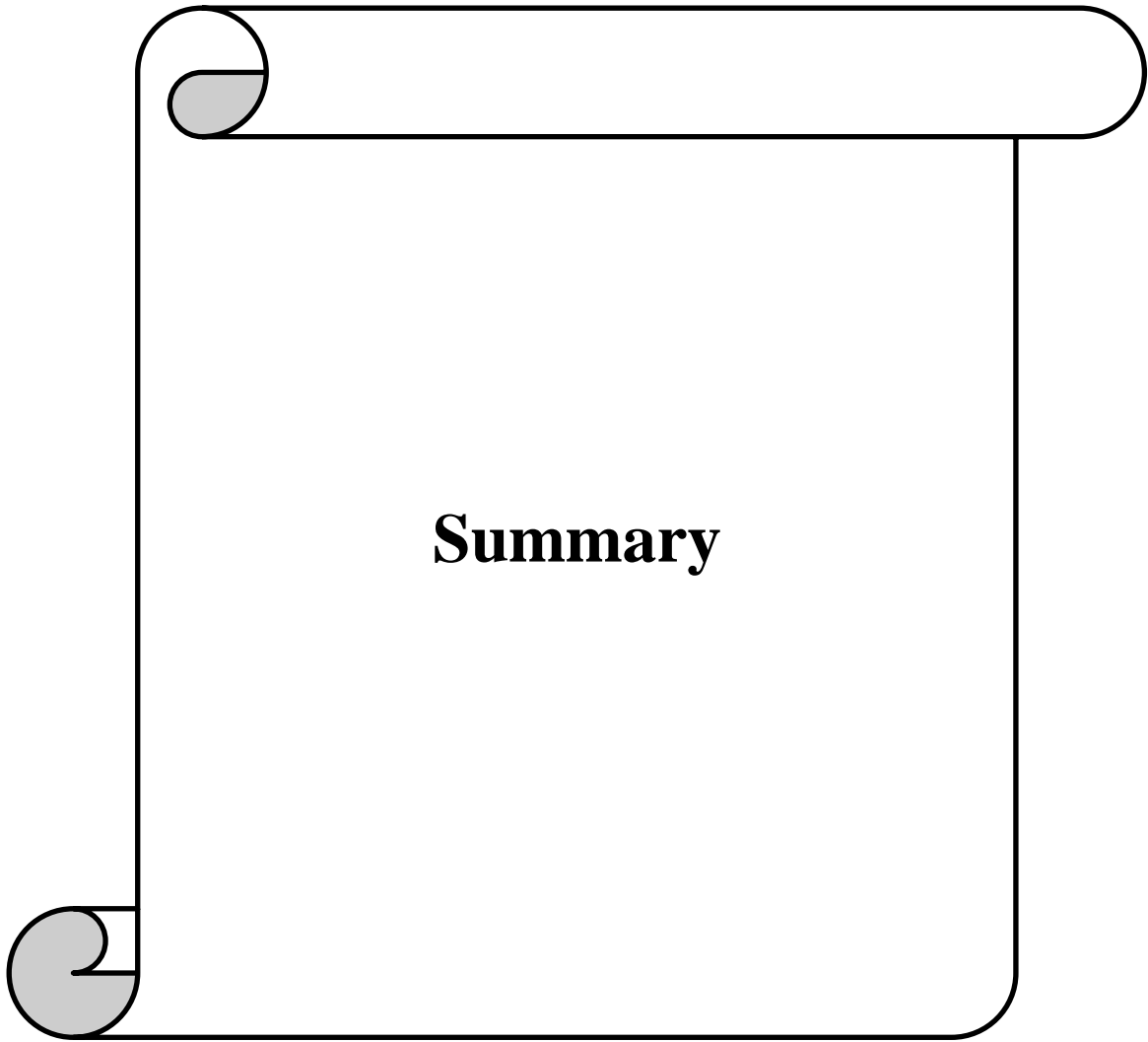
H05. The relation between supply chain management and the competitive advantage could have a positive effect because supply chain management enable the firms to realize competitiveness.

Hypothesis H05 is significant correct. Because if the company implemented an efficient supply chain management by providing fast delivery, high products quality and flexible in its dealings so that makes the company continue with existing of competitions. The linkage of supply chain management with competitive advantage has been proved through the results of the interview in the Biskria Cement.

Conclusion:

In this chapter, we tried to drop what we dealt with in the theoretical chapter on the field study that was in the Biskria Cement factory in Biskra.

What we concluded from this study is that the Biskria Cement corporation shows great interest in managing supply chains, which gives it a competitive advantage in the local and international market, in a midst full of competitors, in addition to its use of modern technologies that facilitate the transfer of information between factory departments and quality management mechanisms in order to achieve customer satisfaction.



Summary

Summary:

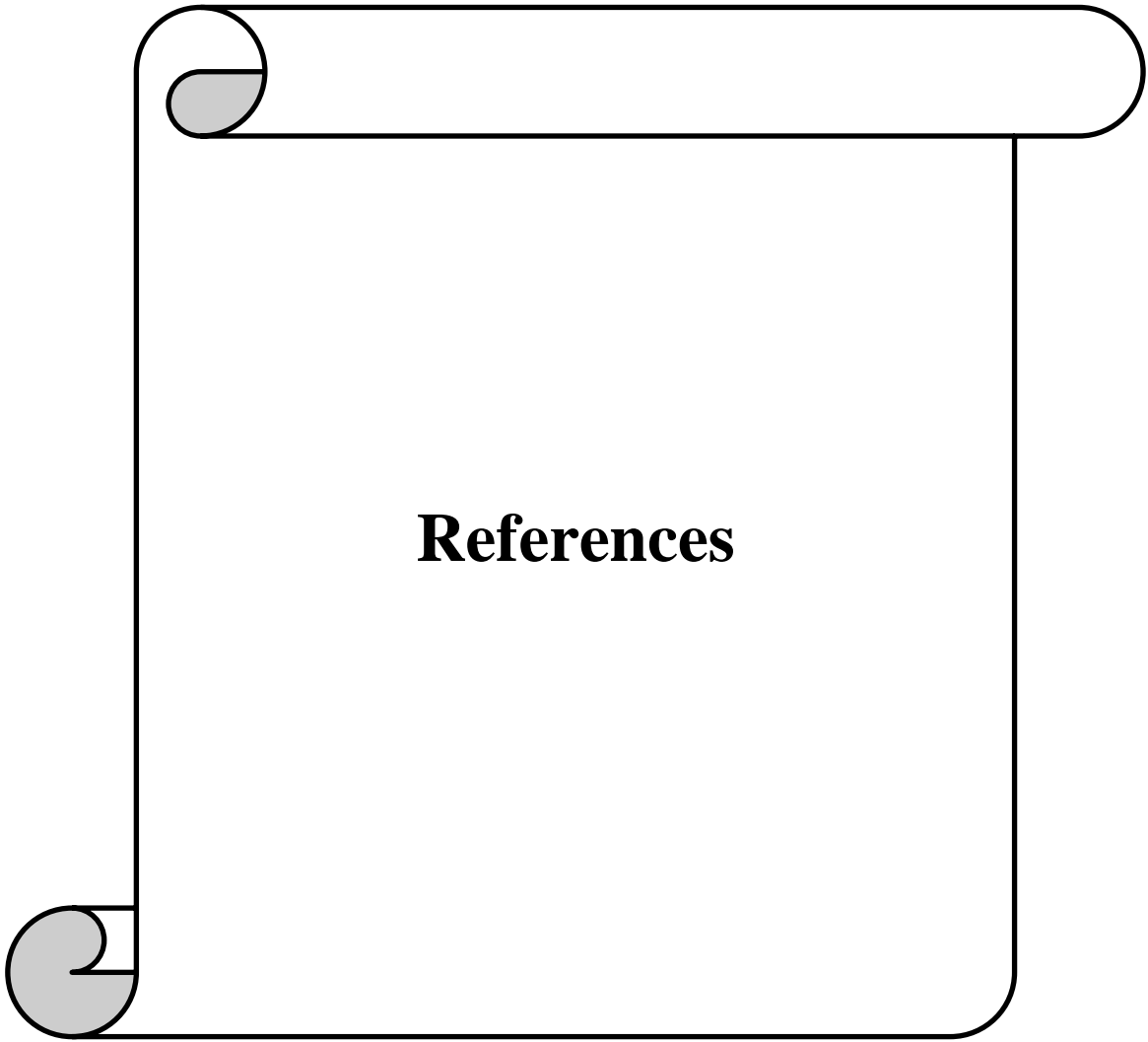
Customer play an important role in the market, all the companies seeks to achieve customer's satisfaction. In order to achieve it, the institution must have efficient and flexible supply chains starting with selecting suppliers and providing high quality products in the quantities required to achieve competitive advantage.

In this study we explore the relationship between Supply Chain Management and Competitive Advantage, using "Biskria Cement" factory as a study case. To do this we interviewed the Marketing and Supply manager. We analyse the answers and we reached the following results:

- Supply chain is a set of coherent and integrated units that include: (suppliers, firms, customers, wholesalers, retailers...etc.) who work together to achieve competitive advantage;
- Efficient implementation of supply chain management contributes to achieving economics of scale and good competitive position in the market by providing the organization with the product at the right time in the required quantities and at the appropriate cost;
- Supply chain management helps the organization increase productivity, profits, and increase and improve customer satisfaction;
- Competitiveness is not just in reducing either products and services cost's, rather it must have a highly quality, differentiated and unique products;
- The competitive advantage must be reviewed permanently so as not to lose its value to the customer;
- Through the field study, which was in the form of an interview, it was found that the " Biskria Cement" factory shows great interest in supply chain management to improve its position and achieve a competitive advantage;
- It works to provide its product in a timely manner with the required quality;
- It does not depend on delay in its internal operations;
- It cares about its customers as it takes into account considering the needs of their interested parties and related to them an effort to constantly satisfy them.

Study prospects :

- The impact of electronic supply chain management in achieving competitive advantage;
- Supply chain management and its role in achieving profits;
- Examining the integration of industrial technology in supply chains and its influence in competitive advantage.



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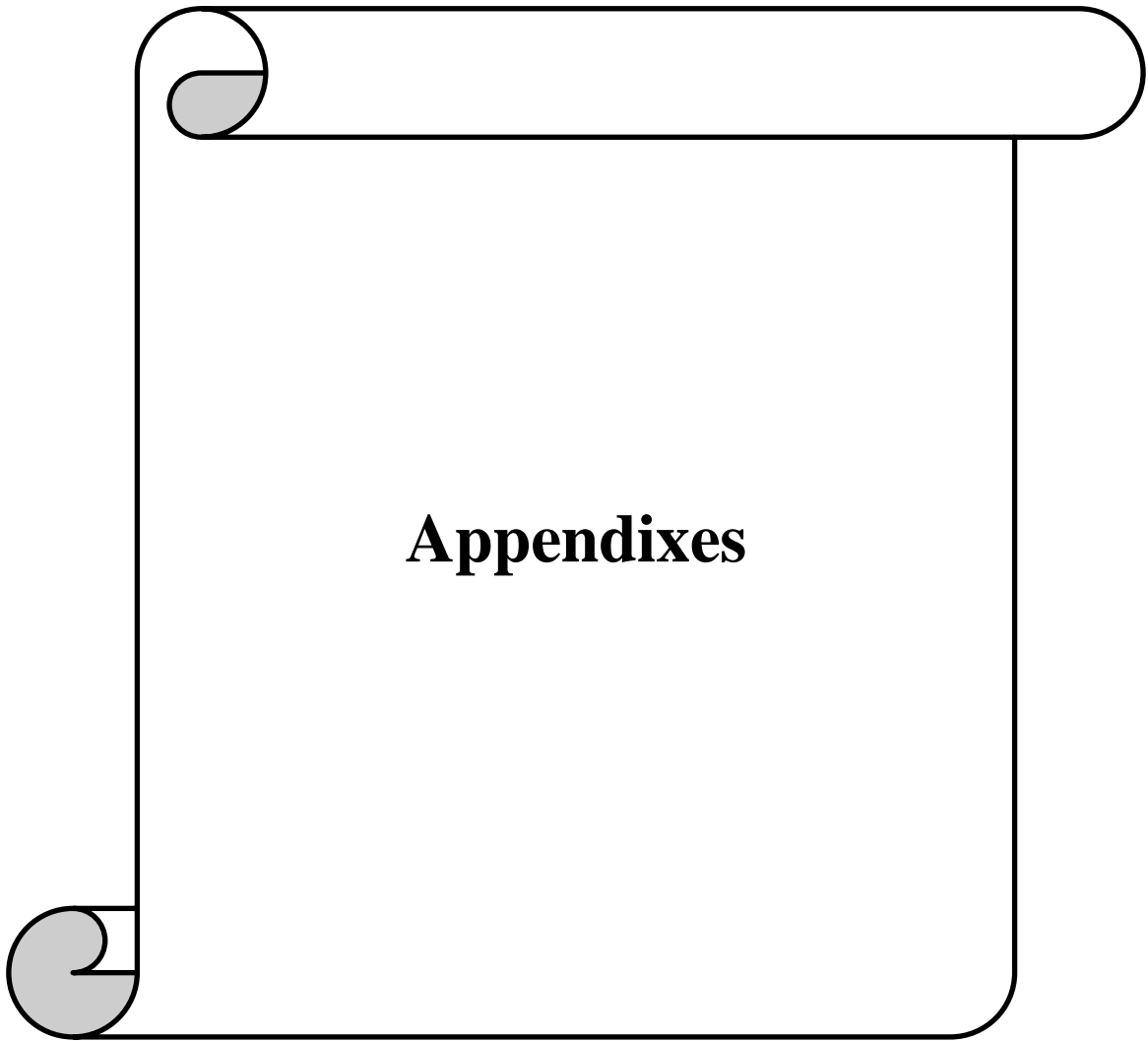
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Appendixes

Appendixes

Appendixes:

Appendix 1: pledge.

ملحق بالقرار رقم 1082... المؤرخ في 27 شهر 2020

الذي يحدد القواعد المتعلقة بالوقاية من السرقة العلمية ومكافحتها

الجمهورية الجزائرية الديمقراطية الشعبية
وزارة التعليم العالي والبحث العلمي

مؤسسة التعليم العالي والبحث العلمي:

نموذج التصريح الشرفي
الخاص بالالتزام بقواعد النزاهة العلمية لإنجاز بحث

أنا الممضي أسفله،
السيد (ة): مالي قريش الصفة: طالب، أستاذ، باحث طالب
الحامل (ة) لبطاقة التعريف الوطنية رقم 20238346 والصادرة بتاريخ 2018-02-11
المسجل (ة) بكلية / معهد العلوم الاقتصادية والتجارية قسم العلوم التجارية
والمكلف (ة) بإنجاز أعمال بحث (مذكرة التخرج، مذكرة ماستر، مذكرة ماجستير، أطروحة دكتوراه)،
عنوانها: global supply chain management and its impact on competitive advantage. case of study: Biskaria Cement
أصرح بشرفي أنني ألتزم بمراعاة المعايير العلمية والمنهجية ومعايير الأخلاقيات المهنية والنزاهة الأكاديمية
المطلوبة في إنجاز البحث المذكور أعلاه .

التاريخ: 2023.06.05

توقيع المعني (ة)

Stali

Appendixes

Appendix 2: interview questions.

About Supplier Relationship Management:

- How do you select your suppliers? And what are the criteria you adopt in selecting your suppliers?
- Do you consider quality as number one criterion in selecting suppliers?
- Are they from inside or outside the country?
- If you deal with suppliers from outside the country, are they selected from different countries?
- How does your company balance the need for cost savings with the need for quality and reliability in its relationships with suppliers?
- How do you solve problems with your suppliers?
- Do you include your key suppliers in your planning and goal-setting activities?
- Do you involve your key suppliers in new product development processes?

About Customer Relationship Management:

- Since you export your products abroad, who are these countries?
- How do you handle customer complaints with products quality?
- What steps do you take to build strong relationships with your customers?
- How do you evaluate the importance of your relationship with your customers?
- How often do you interact with your customers to set reliability, responsiveness, and other standards for your company?
- How often do you measure, evaluate customer satisfaction and determine your customers' expectations?
- Do you facilitate customers' ability to seek assistance from your company? And how do you facilitate it?

About level and quality of information sharing:

- Do you inform your trading partners in advance of changing needs?
- Do your trading partners (share proprietary information with you/ keep you fully informed about issues that affect your business/ share business knowledge of core business processes with you)?
- How does your company balance the need for transparency and openness with the need to protect sensitive information?
- Do you both of you and your trading partners (exchange information that helps establishment of business planning / keep each other informed about events or changes that may affect the other partners)? And how do you find this collaboration?
- How does information exchange between your company and your trading partners going on is it timely, accurate, complete, adequate or even reliable?
- Is the level and quality of information shared by the company highly efficient?

About postponement (POS):

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- Do you delay ordering of raw materials from suppliers until customer orders have actually been received? And do you find it that much helpful for your production process?
- Do you delay final products assembly activities and some form of value-addition to the product until customer orders have actually been received? If yes, what's the role of inventory here?
- How does postponement help your company reduce costs and improve efficiency?
- How do you balance the benefits of postponement with the need to maintain fast delivery times and respond to customer demands?

About efficiency:

- Which one from the following do you use it to measure SC efficiency in your company and why?
 - ✓ Cost analysis;
 - ✓ Customer satisfaction;
 - ✓ Inventory turnover.
- Does your company do regular meetings with suppliers to improve SC efficiency?
- How much do you evaluate the use of sharing of data and information with suppliers to improve SC efficiency in your company?

About cost and sale:

- How does the company manage and control its costs?
- How does the company determine pricing for its products? Are the company able to offer prices as low or lower than its competitors?
- How does the company handle unexpected changes in costs or revenue?
- Can you describe the sales and revenue growth of the factory over the past few years and how they have evolved it?
- How does the company balance short-term profitability versus long-term growth?
- What are the factors that contribute the factory's sales growth?
- How do you forecast demand for your products?
- How do you measure the profitability of the factory?

About logistics:

- How do you manage the transportation of goods?
- Are there some companies that you rely on for transportation?
- How do you ensure that your transportation is efficient?
- How do you deal with the challenges that you may face it?
- How does your company manage inventory levels to ensure that you have enough stock to meet demand while minimizing excess inventory and associated costs?
- Do you deliver the kind of products needed and customer order on time?
- Is your delivery dependable?

Appendixes

About technology and innovation:

- How do you keep up with the latest trends and development in the field?
- What types of technology are used in your factory, and do they achieve an optimal efficiency and productivity?
- Do you use new technology to facilitate managing and tracking products in the warehouses?
- How does your company utilize technology to improve supply chain efficiency?
 - e. Transportation management system (TMS)
 - f. Enterprise resources planning (ERP)
 - g. Radio frequency identification (RFID)
 - h. Warehouses management system (WMS)
- Do you use electronic commerce that helps to record orders and order state?
- What new technology solutions are you considering adopting in the future?
- Do you provide customized products to your customers?
- Do you alter your product offering to meet client needs and respond well to customer demand for new features?
- Could your organization ability respond to the needs and desires of customers and provide fast services with high flexibility?

About quality and differentiation:

- Are your company able to compete based on quality?
- How does the company handle situations where a product does not meet the expected quality standards?
- Do you offer products that are highly reliable and very durable?
- Does your company have the ability to stand out?
- How does the company differentiate its products or services from those of its competitors?
- How do you measure the success of your supply chain management?
 - e. Reduction lead times;
 - f. Improvement customer satisfaction;
 - g. Increase in profit margins;
 - h. Reduction in inventory levels.
- How does your company plan to improve supply chain management chain practices in the future?