

School of High Commercials Studies

EHEC

This dissertation submitted in fulfillment of the requirements for the degree of master in commercial sciences

Option: Distribution and SCM

TOPIC:

Analytical testing of the production logistics contribution to the development of the competitiveness of EPE (Economic Public Enterprise)

Study case: Electronics Industrial Company (ENIE)

Submitted by:

Mss. Badia Hafsa AISSANI

Supervised by:

Mr. Fawzi GHIDOUCHE

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3rd promotion

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ملخص

إن التغيرات التي يشهدها الاقتصاد الجزائري تؤثر بلا شك على بيئة أعمال المؤسسات الاقتصادية الجزائرية، فالانفتاح على الأسواق من خلال اتفاقيات الشراكة مع المجموعات الدولية و الدول الاجنبية و السعي الى الانضمام للمنظمة العالمية للتجارة، يلزم مؤسساتنا على الحصول على قدرات تنافسية مستدامة من أجل الصمود أمام المنافسة الحالية و المحتملة.

و نتيجة لهذه التغيرات أصبح من الضروري البحث عن الوسائل الملائمة لمجابهة المنافسة الحادة، والهدف من هذا البحث البرهنة للمؤسسات الاقتصادية الجزائرية أن لوجستكية الانتاج هي احدى الوسائل الأساسية و الضرورية لمواكبة مستجدات بيئة المؤسسة و التكيف معها و بالتالي الحصول على قدرة تنافسية تمكنها من الاستمرارية و البقاء، و ذلك من خلال توفير التدفقات المادية و المعلوماتية، و التأكد من تأقلم المستخدمين مع هذا المفهوم الجديد.

تعتبر الخدمات اللوجستكية داخل وظيفة الإنتاج أداة فعالة تؤثر ايجابا على سيرورتها وتسمح لها بتنظيم ومراقبة بيئة الإنتاج من أجل الحصول على ميزة تنافسية، هذا ما يجعلها أكثر مرونة مع التغييرات الحاصلة، و تكون قادرة على المنافسة.

في الختام يمكن أن نقول أن الخدمات اللوجستكية للإنتاج والمبادئ التي تنطوي عليها تساهم كثيرا في تحسين القدرة التنافسية للمؤسسات الاقتصادية الجزائرية في ظل التغيرات السريعة التي تحدث في الاقتصاد الوطني.

الكلمات الدالة:

لوجيستكية الانتاج، التنافسية، التكيف مع التغيير، قدرات تنافسية مستدامة.

Résumé

Les changements que vit l'économie algérienne ont sans doute une grande influence sur l'environnement des entreprises économiques algériennes publiques ou privées, l'ouverture sur les marchés mondiaux à travers les partenariats avec les organisations internationales, les pays étrangers et les efforts pour l'adhésion à l'organisation mondiale de commerce oblige les entreprises à acquérir des moyens de compétition durables tel que la qualité, modes d'organisation, systèmes de production et autres, ces critères soulignés par ses organisations permette les entreprises de faire face à la concurrence actuelle et probable, c'est pour cela qu'il est devenu essentiel de trouver les moyens adéquats pour affronter la concurrence rude qui est sur les marchés.

Ce travail de recherche vient pour démontrer aux entreprises algériennes que la logistique de production est l'un des moyens essentiels qui permettent d'être performant par rapport les autres concurrents, d'être différencié et de s'adapter avec l'environnement industriel et commercial sous l'adoption des démarches normalisées, ainsi être compétitif pour assurer la survie de l'entreprise; cela en fournissant les flux nécessaires d'information ou matériels, et en assurant la bonne adaptation des employés, pour qu'elle soit utile pour l'entreprise.

On peut résumer le contenu de ce travail de recherche comme suit : la contribution de la logistique comme un outil efficace au sien de l'entreprise qui influence la fonction production et lui permet d'organiser et surveiller son environnement dans le but d'avoir un avantage concurrentiel, ce qui engendre l'adaptation aux changements, et ainsi pouvoir faire face à la concurrence, en conclusion a tous cela, on peut dire que la logistique de production et ses principes participe beaucoup à l'amélioration de la compétitivité des entreprises économique algériennes dans l'ombre des changements rapides que vit l'économie national .

Les mots clés :

La logistique de production, la compétitivité, amélioration et performance.

Abstract

The changes that live the Algerian economy undoubtedly have a great influence on the environment of the Algerian economic companies public or even private, the opening on the international markets through the partnerships with the international organizations, the foreign countries and the efforts for adhesion with the international organization of commerce obliges the companies to obtain durable means of competition such as quality, management modes, production systems and others, these underlined standards by those organizations enables companies to face the current and probable competition, for this reasons it became important to find the adequate means to face the hard competition which is on the actual markets.

This research comes to demonstrate to the Algerian companies that production logistics is one of the essential means by which they could be more effective and proficient against the other competitors, be differentiated and adapt with the industrial and commercial environment by adopting standardized procedures and be more competitive to ensure the company's survival; this by providing the necessary information or material flow, and ensuring the suitability and adaptability of employees to be useful for the company.

We can summarize the content of this research work as follows: the contribution of logistics as an efficient tool to enterprises which influences the production function and allows it to organize and monitor its environment in order to have a competitive advantage, and this lead to be adaptable to changes and be able to compete. In conclusion, we can say that the production logistics and its principles helps a lot in improving the competitiveness of Algerian economic enterprises in the shadow of the rapid changes that lives the national economy.

Key words:

Production logistics, competitiveness, performance and effectiveness

Dedication

This dissertation is dedicated especially to my dear parents, Mom and Dad whom without their enormous sacrifices and unconditional love and care, I would never become the person that I am now.

To my sisters: Soumia, Nassima, Asmahane, Khadidja, Meriem who shared every moment of happiness and supported me at every moment of sadness in my life.

May god bless you, and keep you all in my future days.

And special dedication to my best friends ever: Rim, Fatima Zohra, Karima, Yasmeeen, Lamia, Hadjira, Chahra, and Hadjer.

To khalil for his great encouragements

And to all who contributed to the success of this work and all who know me

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My thanks also go to all the teachers and workers of our school in general and our department in particular.

This dissertation would not be possible without the help and support of the team of the electronic integration unit of ENIE.

I would like to express my sincere appreciation for the time provided for the interviews and observations.

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Abbreviations

EPE: Economic public enterprise

ENIE: Entreprise National des Industries Electroniques

JIT: Just in time

ECR: Efficient consumer response

ICT: Information and communication technology

MRP: Material requirement planning

ERP: Enterprise resource planning

MRP2: Manufacturing resource planning

MPS: Master production scheduling

SMED: Single minute exchange of dies

R&D: Research and Development

ISO: International standardization organization

EGP: Electronique Grand Public

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GENERAL INTRODUCTION

In the current context of globalization and the new economy, Companies operate in an environment which is more and more complex and changing, where they are required to meet the challenge of performance and competitiveness.

They now confront several problems: saturated markets, increased competitiveness, customers more demanding and less loyal, etc. In this environment, business competitiveness depends increasingly on their flexibility and their ability to innovate in their organizational structure, their mode of production ...etc.

However, in their search for competitiveness, the main problem facing industrial companies is the difficulty of minimizing costs or maximizing its performance and productivity during the production process.

Logistics is today a crucial dimension of management and business competitiveness. The production and productivity performance relies very largely on the efficiency of logistics and supply chain; production logistics as one of types of logistics make sure that everything really does flow during the production process such as information and material flows.

Production logistic that part of logistics which covers all processes, including the preparation and implementation of goods flow and manufacturing processes within a company, ensure the progress of the production operations in a clever way.

So it has become more necessary and helpful inside companies, it is the heart of business and success.

The present research focuses on the importance of production logistics and its impact on competitiveness, the choice of this subject is not the product of chance, our choice was motivated by its importance and originality, and indeed we believe that production logistics is one of the main components of logistics within a company, it covers all activities connected to the supply of production processes. Many businesses rely on this branch of logistics to improve profitability and success rates on a daily basis, no matter what they might be producing.

Thus we are offering our subject we have titled:

«Analytical testing of the production logistics contribution to the development of the competitiveness of EPE (Economic Public Enterprise) »

This study aims to address a general problematic: “*How optimizing production logistics can contribute EPE competitiveness in a highly competitive market?*” that is adopted by the National Electronic integration company in Sidi Bel Abbes “ENIE”. It is a contribution to the knowledge of production logistics.

From this problematic we can derive three secondary questions:

1. What are the key success factors of optimizing production logistics within the company ENIE?
2. What are the factors affecting the competitiveness of ENIE in a competitive market?
3. How mastery of production logistics can improve the performance indicators of ENIE?

The answer of the posed problematic can be approximated by checking the following assumptions:

1. The performance of production system of the company is closely related to the implement of an optimum production logistics.
2. The mastery of production logistics positively affects the competitive position of ENIE.
3. The production logistics contributes positively to the development of the competitiveness of companies.

The methodology used in this research is based on a descriptive and analytical study of the field of production of consumer electronics (assembly of televisions) in a general way, and in a particular view of production logistics, to illustrate theoretical concepts and qualitative scope study on a selected sample consists of six (6) executives, two (2) chiefs of production lines within the company ENIE of Sidi bel abbes.

To carry out this work we inserted several books and academic works, review, cites web and interviews with those responsible for the integration of electronic "ENIE" we have found it useful to converse this memory into three (3) chapters:

*Chapter one (1), titled “The theoretical foundations of the production logistics ”, with the aim of presenting production logistics definition, historic and its main concepts, in order to understand and be more familiar with the topic, it continues with importance of production logistics and its objectives.

*Chapter two (2), titled “The strategic analysis of the enterprise”, this chapter covers the background of the ENIE and its tasks and objectives. In addition, we will analyze the main strategic activities of the company, and its relationship with each customers and suppliers.

*Chapter three (3), titled “The impact of production logistics on the competitiveness of the company ENIE”, this last chapter is finding and discussions, it includes the practical methodology that is applied for this research purpose; and it followed by the recommendations and suggestions.

Finally, we will conclude our study with a general conclusion, limitations and further areas for research.

Chapter one

Chapitre1: The Theoretical Foundations of Production Logistics

Introduction:

The first chapter covers logistics history and evolution, where we intend to clarify the importance of this latter. Then the study continues with the second section by introducing the production management principals and its objectives. The third section emphasizes on production logistics and its components in order to provide understanding on the topic.

Section1: History and Evolution of Logistics:

1.1. Historical development of logistics¹:

Logistics has been playing a fundamental role in global development for almost 5,000 years, since the construction of the pyramids in ancient Egypt, logistics has made remarkable strides. Time and gain, brilliant logistics solutions have formed the basis for the transition to a new historical and economic era.

Around 2700 B.C., to build the Great Pyramid of Giza, which is 146 meters high and weighs 6 million tons, the Egyptians needed sophisticated material transport equipment capable of moving the massive building blocks and putting them into place. Even today, we still cannot fully explain how this level of precision was achieved using the hoisting equipment and means of transport available in this period.

Around 300 B.C., the revolutionary invention of rowing vessels created the basis for rapid travel across the high seas. This invention formed the foundation for the creation of enormous logistics supply systems required by mobile army camps. Using these logistics capacities, Alexander the Great undertook campaigns with his troops, their families and their weapons of war that extended all the way to India.

Around A.D. 700, the construction of the famous Mezquita Mosque in Cordoba, Spain, began in 756 under the Caliph of Cordoba in the Umayyad dynasty. It is considered to be the largest mosque in Europe. Extraordinary procurement logistics was required to transport the pillars of the mosque from all parts of the Islamic empire.

Around 1200 in 1188, the city of Hamburg, Germany, was founded as a base on the North Sea for the Hanseatic League to make travel on the sea more secure and to represent business interests abroad. Up to 200,000 fur pelts were transported by a single Hanseatic cog ship. Hanseatic trade extended from the Black Sea to Reval. From a modern-day vantage point, the league's cross-border trade bears strong similarities to the European Union.

¹ http://www.dhl-discoverlogistics.com/cmc/en/course/origin/historical_development.jsp, in 25/12/2015 at 00:20

Around 1500, under an agreement with Philipp of Burgundy, Franz von Taxis organized the first postal service with strictly defined transit times. Letters were delivered to places such as Paris, Ghent, Spain and the imperial court of Vienna. In view of the infrastructure of the times and the political fragmentation created by the array of small principalities, the mail reached its destination with very little delay.

Around 1800, the practical use of the steam engine, the invention of vehicles, railroads and ships as well as the discovery of crude oil ushered in a new economic era that generated new missions, tools and opportunities for logistics.

Around 1940, during World War I, military logistics was the vital link in the network that supplied troops with rations, weapons and equipment. With the onset of World War II, logistics was further refined. As a result, logistics gained an important place in the business world as well.

In 1956, the invention of the sea container by the American Malcom P. McLean changed production conditions for nearly all industries around the world and, as a result, altered people's consumption habits. Even today, the sea container continues to ensure that harbors gain major contracts, new countries and regions experience commercial booms, markets arise and products from all parts of the world can be bought and sold at reasonable prices. In this way, the container has significantly contributed to globalization.

Around 1970 – 1980, the Kanban and just-in-time (JIT) concepts were developed and introduced at Japan's Toyota Motor Co. by Taiichi Ohno – with the objective of effectively linking logistics to other operational functions. Special emphasis was placed on procurement.

Around 1990, the quick response and efficient consumer response (ECR) technologies were developed and applied by many retail and wholesale companies. These technologies had a major impact on logistics. As a result of this technology, distribution centers are tasked with moving goods instead of storing them. This allows companies to accelerate reaction times to market developments and to set up efficient goods-supply systems.

Today, supply chain management is a term that has grown enormously in use and significance since the late 1980s now is viewed as a holistic consideration of key business processes that extend from the vendor's supplier to the end user. Accordingly, supply chain management is an extremely interactive, complex system requiring simultaneous monitoring of many conflicting objectives. Moreover, global competition began to arise and spread in the 1970s and accelerated in the 1990s and it is still moving forward today. Efficient logistics creates a crucial competitive edge for companies that are expanding in global markets.

Successful logistics efforts in international supply chains can fuel the development of global markets.

That was the great logistics success and evolution story from pyramid construction to the supply chain.

1.2. Definitions of logistics:

The term "logistics" originates from the ancient Greek "λόγος" ("logos"—"ratio, word, calculation, reason, speech, oration").

Logistics is considered to have originated in the military's need to supply themselves with arms, ammunition and rations as they moved from their base to a forward position. In ancient Greek, Roman and Byzantine empires, there were military officers with the title 'Logistikas' who were responsible for financial and supply distribution matters.

The Oxford English dictionary defines logistics as²: "The branch of military science having to do with procuring, maintaining and transporting material, personnel and facilities."

Logistics still covers transport functions, storage and handling in production companies, tends to expand its upstream domain to purchase and supply, downstream to the commercial management and distribution. We often cite the definition of military origin ". Logistics is to provide what is needed, where it's needed and when to".

Some authors have described the logistics for the following five qualities: "ensure the availability of a product or service, in good condition, right time, right place, to the right customer, at the right cost."

In fact the logistics system includes all physical resources, IT infrastructure, people and processes that enable the flow of goods and transmission of information from the point of origin (supply of raw materials) to the point consumption (reception of finished products in the hands of customers).

The American Council of Logistics Management defines logistics as "the process of planning, implementing and controlling the efficient, cost effective flow and storage of raw materials, in-process inventory, finished goods and related information from point of origin to point of consumption for the purpose of conforming to customers' requirements".

Philip Kotler defines logistics as "planning, implementing, and controlling the physical flows of materials and finished goods from point of origin to point of use to meet the customer's need at a profit".

²The Oxford English dictionary, Advanced Learner's Dictionary, Edition 2000, P.789

1.3. The logistics flows:

Logistics is the task of managing two key flows³:

◆ **Material flow:**

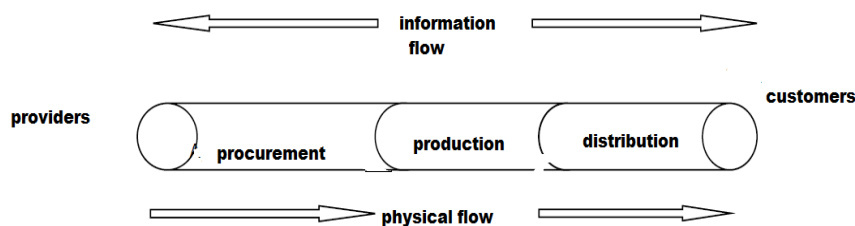
The material flow represents the supply of product through the network in response to demand from the next organization. The issue here is how long it takes to get the product through the various stages from one end of the chain to the other. The focusing on time is important here because it measures how quickly a given network can respond to demand from the end customer. Often it is difficult to see where the flow starts in the chain and where it ends. The negative effect of this is the build-up of inventory and the slow response to the demand of end customer.

◆ **Information flow:**

Information is a collection of facts that is organized in such way that they have additional value beyond the value of the facts themselves. Data on the other hand consist of raw facts, such as an employee's name and number of hours worked in a week, inventory part numbers or sales order. The value of information is directly linked to how it helps decision makers achieve their organization's goals.

Therefore the logistics flows management is like in a pipeline⁴ as shown in figure 01.

Figure I-1: The logistics pipeline concept.



Source: Samii A-K, Stratégie logistique. Supply Chain management, Dunod, 3rd Edition, Paris, 2004, p04.

Over time there has been a growing recognition that it is through logistics and supply chain management that the twin goals of cost reduction and service improvement can be realized. The pipeline can, with better management, serve customers more effectively, at the same time the costs that deliver that service are reduced. To study logistics, there has to be a basic

³Alan Harrison and Remko van Hoek, Logistics Management and Strategy, Pearson, 3rd Edition, England, 2008, p06

⁴Samii A-K, Stratégie logistique. Supply Chain Management, Dunod, 3rd Edition, Paris, 2004, p04.

understanding of supply chain management. The supply chain decisions establish the operating framework and logistics is performed within this framework.

1.4. Objectives of logistics⁵:

Logistics has the following objectives:

Reduction of inventory: Inventory is one of the key factors, which can affect the profit of an enterprise to a great extent. In the traditional system, firms had to carry lot of inventory for satisfying the customer and to ensure excellent customer service. But, when funds are blocked in inventory, they cannot be used for other productive purposes. These costs will drain the enterprise's profit. Logistics helps in maintaining inventory at the lowest level, and thus achieving the customer goal. This is done through small, but frequent supplies.

Economy of freight: Freight is a major source of cost in logistics. This can be reduced by following measures like selecting the proper mode of transport, consolidation of freight, route planning, long distance shipments etc.

Reliability and consistency in delivery performance: Material required by the customer must be delivered on time, not ahead of the schedule or behind the schedule. Proper planning of the transportation modes, with availability of inventory will ensure this.

Minimum damage to products: Sometimes products may be damaged due to improper packing, frequent handling of consignment, and other reasons. This damage adds to the logistics cost. The use of proper logistical packaging, mechanized material handling equipment...etc. will reduce this damage.

Quicker and faster response: A firm must have the capability to extend service to the customer in the shortest time frame. By utilizing the latest technologies in processing information and communication will improve the decision making, and thus enable the enterprise to be flexible enough so that the firm can fulfill customer requirements, in the shortest possible time frame.

1.5. Logistics and value chain of Porter⁶:

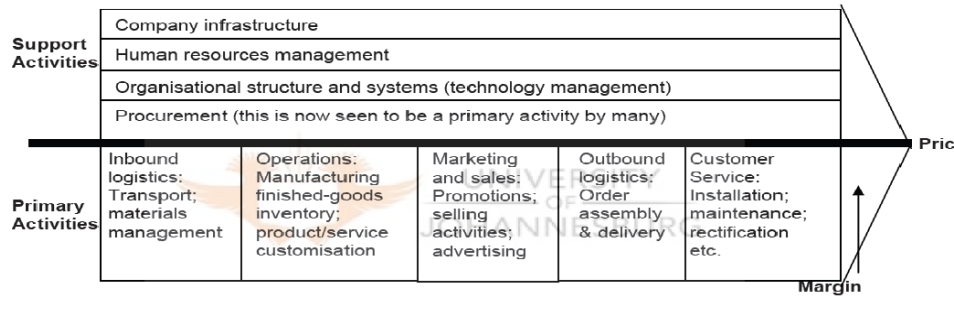
In 1986, Porter introduced the concept of value chain, a concept intended to explain the development of a competitive advantage in a market. The main activities of the value chain include inbound logistics, operations, outbound logistics, marketing, sales and service after sales. It was followed by an awareness of the key role of logistics in the creation and development of a competitive advantage.

⁵<http://www.cii-logistics.com>, in 28/12/2015 at 00:10

⁶Samii A-K, op.cit, p.05.

The value chain shown in figure 02 and described in table 01 indicates total value comprising various activities as well as the link between the logistics and the other organizational functions.

Figure I-2: A logistics view of the value chain of a manufacturing company.



Source: Porter, 1982; adapted by Gattorna and Walters, 1996.

In the logistics of material goods, we will discuss the physical value chain. This model is not only used for industrial management; it plays a very important role in the retail sector, in the financial services industry and services.

The value chain is thus:

- ◆ A dependent system joined by links(i.e. the relationship between performance Of an activity and the performance cost of another);
- ◆ A way of reviewing the activities of an company which are necessary to provide the service or product;
- ◆ The relationship or link between these activities or links in the chain.

Table I-1 : The various company activities and functions in the value chain.

Elements of the chain	Description
Support activities	Activities necessary to enhance value and quality of the product or service (providing the infrastructure to carry out primary activities and including technological development, human resources, infrastructure and procurement)
Systems/technology	Activities that include designing the product, as well as the creation and improvement of the primary activity in the value chain
Human resources management	Activities that focus on the acquisition, maintenance and development of a well-trained employee corps
Company infrastructure	Activities creating the necessary organisational infrastructure such as finance, reporting, general and strategic management
Procurement	Activities that acquire the resources for input to primary activities such as the purchase of materials, comprising the acquisition and provision of input with a view to the transition process
Primary activities	Activities necessary to produce or provide the product or service (including internal/inbound logistics, business/operations, external/outbound logistics, marketing and sales, and service)
Inbound logistics	Activities relating to the flow of goods, services and information throughout the organisation – activities concerned with receiving, storing, handling of raw materials and components
Operations	Activities associated with the transition process from raw materials to the final product – activities concerned with assembly, testing, packing, maintenance
Outbound logistics	Activities relating to the distribution and supply of goods and provision of services to the market – activities concerned with packaging, warehousing, testing
Marketing and sales	Activities that connect the end-consumer with the product or service
Customer service	Activities that enhance the value of the product after sales, providing the consumer with a supportive service
Procurement	Although a support activity providing purchased input, as do human resources, technology and infrastructure, it is also increasingly recognised for its strategic and primary importance to a company
Margin	The excess that the customer is prepared to pay over the costs of the inputs and activities

Source: De Bruyn & Kruger, 1998.

1.6. Typology of logistics⁷ :

Logistics are several different in purpose and methods:

- ◆ Supply logistics that allows to bring factories commodities, components and sub-assemblies necessary for production;
- ◆ General supply logistics that allows to make to service companies or governments the various products they need for their business (e.g. office supplies);

⁷Primor Y, Fender M, Logistique : Production-Distribution-Soutien, 5th Edition, Dunod, 2008, p.04.

- ◆ Production logistics feed the production lines with materials and components necessary for production ; production logistics tends to absorb this entire production management;
- ◆ Distribution logistics, the distributors, which is provide the final consumers the products they need;
- ◆ Support logistics, born in the military but extended to other sectors, aeronautics, energy, industry, etc., which is organize all that is necessary to keep in operation a complex system, including through activities maintenance;
- ◆ After sales logistics close enough to support logistics with the difference that it is exercised in part by a merchant who sold property; we often use the term "management services" to designate the leadership of this activity; However, it noted that this form of support logistics tends increasingly to be exercised by different support specialists of the manufacturer and this called Third Party Maintenance;
- ◆ The reverse logistics, which consists in taking products that the customer does not want or wants to repair , or to process industrial waste, packaging, unusable products from car wrecks to the printers toners.

A convenient distinction is often between logistics flow, production and distribution on one hand, and support logistics on the other hand. Both logistics categories have indeed quite different characteristics, the first being more related to production management techniques and marketing and sales techniques, the second is more related to methods of maintenance and spare parts management, particularly developed in the military or in the maintenance of technical equipment. So there were many different logistics until the concept of supply chain came to bring some unity in this area.

1.7. The performance of logistics⁸:

According to Bowersox and Closs, logistics performance can only be achieved if the company manages to coordinate logistics network design, storage strategy, storing, handling and packaging.

- ◆ The design of the logistics network (network design): design the network means that it is necessary to determine the number, location and the respective

⁸ Resumed from the website, <http://www.123helpme.com/logistics-management-view.asp?id=165981> , in 27/12/2015, at 22:15

tasks of each network element. The latter is composed of factories, warehouses, platforms and distribution centers;

- ◆ **Information:** Mastery, sharing and obtaining information quickly are key elements of logistics performance. ICT today facilitate the implementation of logistics processes.
- ◆ **Transportation:** this is definitely the oldest item that has most interested logisticians. Its cost, despite a significant drop, it is always at the top of the agenda and also the function that most companies prefer to outsource.
- ◆ **Storage:** storage fundamentally depends on the structure of the logistics network and customer service level selected. However, optimizing inventory management remains a goal for any business.
- ◆ **Handling and Packaging:** Very often the choices made in these areas determine the speed of delivery and the achievement of true traceability.

1.8. The functions of logistics:

The various functions of logistics are the following⁹:

Order Processing: Processing the orders received from the customers is an activity, which is very important by itself and also consumes a lot of time and paperwork. It involves steps like checking the order for any deviations in the agreed or negotiated terms, price, payment and delivery terms, checking if the materials are available in stock, producing and scheduling the material for shortages, and also giving acknowledgement to the owner, by indicating any deviations.

Inventory Planning and management: Planning the inventory can help an organization in maintaining an optimal level of inventory which will also help in satisfying the customer. Activities like inventory forecasting, engineering the order quantity, optimization the level of service, proper deployment of inventory etc. are involved in this.

Warehousing: This serves as the place where the finished goods are stored before they are sold to the customers finally. This is a major cost center and improper warehouse management will create a host of problems.

Transportation: Helps in physical movement of the goods to the customers place. This is done through various modes like rail, road, air, sea etc.

⁹<http://www.ciilogistics.com>, in 28/12/2015 at 00:10

Packaging: A critical element in the physical distribution of the product, which also influences the efficiency of the logistical system

1.9. The role and importance of logistics¹⁰:

Bearing in mind the increasing pressures on companies to increase turnovers and/or decrease costs, the growing role which logistics can play in making these achievements reality, is receiving increasing attention. Companies are particularly interested in the strategy of reducing a company's costs of doing business. As companies have thus looked inward attempting to identify areas for cost savings and/or productivity increases, most have found logistics to be an area with the most potential for significant cost savings.

These various factors, and others such as growing global competition, that are increasing companies focus on the role of logistics, and current and continuing trends therein, are making management more aware of the fact that logistics decisions, policies and strategies can influence a company's total sales as well as the cost of its operations. It is therefore necessary to understand the development and importance of such strategies that may influence corporate profit and performance and therefore the competitiveness of a country's and its economy.

Furthermore, as the logistics of a company improves, the nation's efficiency will improve, and this can ultimately result in positive effect on prices paid for goods and services, national debt, currency valuation, international competition, availability of investment capital and economic growth which will result in a higher level of employment and standards of living. However, efficiencies gained by such strategic implementations as logistics, will have a positive impact on the economy of the country as well.

1.9.1. Logistics lead to competitive advantage¹¹:

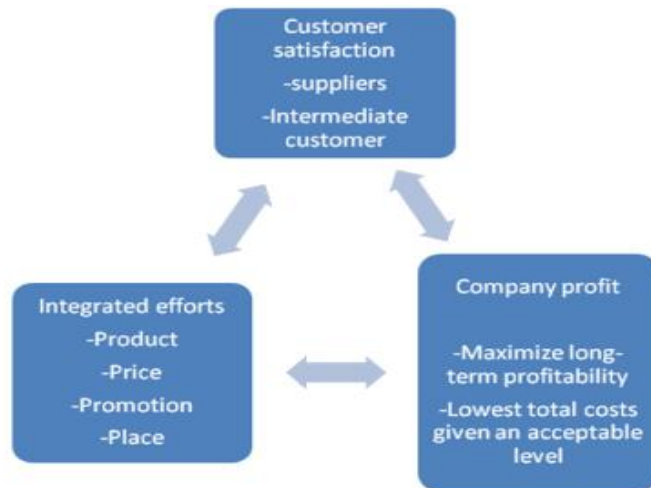
Effective logistic management is the key element to improve both the profitability and competitive performance of enterprise.

As Figure 03 shows below, state the three elements of marketing concept, customer satisfaction, integrated effort and company profit and logistics' relationship, it is easy to see that logistics plays a key role in each of these elements.

¹⁰Michael A P TAYLOR, Proceedings of the Eastern Asia Society for Transportation Studies, Vol. 5, pp. 1657 - 1672, 2005.

¹¹K.KAMAR JAHAN , economic efficiency of logistics management in the global level in recent times, International Journal of Social Science & Interdisciplinary Research, Ijssir, vol.3, 2013.

Figure I-3: Marketing / Logistics management concept.



Source: Lambert and al, Fundamentals of logistics Management, International edn, McGraw-Hill, 1998, p.12.

When enterprise starts focus increase attention on their basic operation capabilities, it would extend beyond the manufacturing and which include logistics activities. Therefore, logistics has become an important basis of competition in enterprise. Low cost, superior customer service, valued-added services, flexibility and innovation are the five sections which enterprise could create competitive advantages from logistics.

Section2: Introduction of production management

2.1. Brief History of Production Management¹

If we assess the past, covering a period of 200 years after Adam Smith, it can be observed that total production capacity as well as productivity has expanded considerably. Production Management has become an empirical applied science.

Undoubtedly, during this period, we have responded to the expansion of markets and large scale business units by using the concepts of division of labour and progressive mechanization in order to achieve economies of large scale production. The history of production management can be studied as under:

Individual Efficiency:

Fredric W. Taylor studied the simple output-to-time relationship for manual labour such as brick-laying. This formed the precursor of the present day 'time study'.

Around the same time, Frank Gilberth and his learned wife Lillian Gilberth examined the motions of the limbs of the workers (such as the hands, legs, eyes, etc.) in performing the jobs, and tried to standardize these motions into certain categories and utilize the classification to arrive at standards for time required to perform a given job. This was the precursor to the present day 'motion study'.

Collective Efficiency:

So far the focus was on controlling the work-output of the manual laborer or the machine operator. The primary objective of production management was that of efficiency-efficiency of the individual operator. The aspects of collective efficiency came into being later, expressed through the efforts of scientists such as Gantt who shifted the attention to scheduling of the operations.

Quality Control:

After the progress of application of scientific principles to the manufacturing aspects, thought progressed to control over the quality of the finished material itself. So far, the focus was on the quantitative aspects; now it shifted to the quality aspects. 'Quality', which is an important customer service objective, came to be recognized for scientific analysis. This field, which has developed over the years, is now known as 'acceptance sampling'.

¹<http://www.citeman.com/4795-brief-history-of-the-production-and-operations-management-function.html>.

2.2.What is production management?

Production management is a branch of management which is related to the production function. Production may be referred to as the process concerned with the conversion inputs (raw materials, machinery, information, manpower, and other factors of production) into output (semi-finished and finished goods and services) with the help of certain processes (planning, scheduling and controlling etc.) while management is the process of exploitation of these factors of production in order to achieve the desired results. Thus production management is the management which by scientific planning and regulation sets into motion the part of an enterprise to which it has been entrusted the task of actual transformation of inputs into output.

A few definitions of production management are being reproduced hereunder to understand the meaning of the term clearly:

Elwood S. Buffa has defined the term in a broader sense as, “Production management deals with decision making related to production process so that the resulting goods or services are produced according to specifications in amounts and by the schedules demanded, and at a minimum cost”².

Therefore, **Production Management** can be defined as the management of the conversion process, which converts land, labour, capital, and management inputs into desired outputs of goods and services. It is also concerned with the design and the operation of systems for manufacture, transport, supply or service.

Also it is, “The job of coordinating and controlling the activities required to make a product, typically involving effective control of scheduling, cost, performance, quality, and waste requirements”³.

Thus production management is concerned with the decision making regarding the production of goods and services at a minimum cost according to the demands of the customers through the management process of planning, organizing and controlling. In order to attain these objectives, effective planning and control of production activities is very essential. Otherwise, the customers shall remain unsatisfied and ultimately certain-activities may have to be closed.

²S.ANIL KUMAR &N.SURESH, Production and operations management, 2nd Edition, New Age, New Delhi, 2008,P.20

³<http://www.businessdictionary.com/definition/production-management.html> .

2.2.1. Objectives of production management⁴:

The objective of the production management is 'to produce goods services of right quality and quantity at the right time and right manufacturing cost'.

RIGHT QUALITY

The quality of product is established based upon the customers' needs. The right quality is not necessarily best quality. It is determined by the cost of the product and the technical characteristics as suited to the specific requirements.

RIGHT QUANTITY

The manufacturing organization should produce the products in right number. If they are produced in excess of demand the capital will block up in the form of inventory and if the quantity is produced in short of demand, leads to shortage of products.

RIGHT TIME

Timeliness of delivery is one of the important parameter to judge the effectiveness of production department. So, the production department has to make the optimal utilization of input resources to achieve its objective.

RIGHT MANUFACTURING COST

Manufacturing costs are established before the product is actually manufactured. Hence, all attempts should be made to produce the products at pre-established cost, so as to reduce the variation between actual and the standard (pre-established) cost.

2.2.2. The functions of production management⁵:

The functions of production are listed and explained below:

Selection of Product and Design:

Production management first selects the right product for production. Then it selects the right design for the product. Care must be taken while selecting the product and design because the survival and success of the company depend on it. The product must be selected only after detailed evaluation of all the other alternative products. After selecting the right product, the right design must be selected. The design must be according to the customers' requirement. It must give the customers maximum value at the lowest cost. So, production management must use techniques such as value engineering and value analysis.

⁴S.ANIL KUMAR & N.SURESH, Op.cit, p.20

⁵ P. Rama Murthy, Production and operation management, 1st Edition, New age international, New Delhi, 2005, pp.5.6

Selection of production process:

Production management must select the right production process. They must decide about the type of technology, machines, material handling system, etc.

Selecting right production capacity:

Production management must select the right production capacity to match the demand for the product. This is because more or less capacity for both short and long term's production. He must use break-even analysis for capacity planning.

Production planning:

Production management includes production planning. Here, the production manager decides about the routing and scheduling.

Production control:

Production management also includes production control. The manager has to monitor and control the production. He has to find out whether the actual production is done as per plans or not. He has to compare actual production with the plans and finds out the deviations. He then takes necessary steps to correct these deviations.

Quality and cost control:

Production management also includes quality and cost control. Quality and cost controls are given a lot of importance in today's competitive world. Customers all over the world want good- quality products at cheapest prices. To satisfy this demand of consumers, the production manager must continuously improve the quality of his products. Along with this, he must also take essential steps to reduce the cost of his products.

Inventory control:

Production management also includes inventory control. The production manager must monitor the level of inventories. There must be neither over stocking nor under stocking of inventories.

If there is an overstocking, then the working capital will be blocked, and the materials may be spoiled, wasted or misused.

If there is an under stocking, then production will not take place as per schedule, and deliveries will be affected.

Maintenance and replacement of machines:

Production management ensures proper maintenance and equipment. The production manager must have an efficient system for continuous inspection (routine checks), cleaning, oiling, maintenance and replacement of machines, equipment, spare parts, etc. This prevents breakdown of machines and avoids production halts.

2.2.3. Activities of production management⁶:

In short, the main activities of production management can be listed as:

- Specification and procurement of input resources namely management, material, and land, labour, equipment and capital.
- Product design and development to determine the production process for transforming the input factors into output of goods and services.
- Supervision and control of transformation process for efficient production of goods and services.

2.2.4. Importance of production management⁷:

The importance of production management to the business firm:

Accomplishment of firm's objectives:

Production management helps the business firm to achieve all its objectives. It produces products, which satisfy the customers' needs and wants. So, the firm will increase its sales, this will help it to achieve its objectives.

Reputation, goodwill and image:

Production management helps the firm to satisfy its customers. This increases the firm's reputation, goodwill and image. A good image helps the firm to expand and grow.

Supports other functional areas:

Production management supports other functional areas in an organization, such as marketing, finance, and personnel. The marketing department will find it easier to sell good-quality products, and the finance department will get more funds due to increase in sales. It will also get loans and share capital for expansion and modernization. The personnel department will be able to manage the human resources effectively due to the better performance of the production management.

Helps to introduce new products:

Production management helps to introduce new products in the market. It conducts research and development (R&D). This helps the firm to develop newer and better quality products. These products are successful in the market because they give full satisfaction to the customers.

⁶ Ibid,p.7

⁷<http://kalyan-city.blogspot.com/2011/12/what-is-production-management-meaning.html,in27/02/2016,at21:31>

Help to face competition:

Production management helps the firm to face competition in the market. This is because it produces products of right quantity, right quality, and right price and at the right time. These products are delivered to the customer as per their requirement.

Optimum utilization of resources:

Production management facilitates optimum utilization of resources such as manpower, machines, etc. so, the firm can meet its capacity utilization objective. This will bring higher returns to the organization.

Expansion of the firm:

Production management helps the firm to expand and grow. This is because it tries to improve quality and reduce costs. This helps the firm to earn higher profits. These profits help the firm to expand and grow.

Minimize cost of production:

The production management helps to minimize the cost of production. It tries to maximize the output and minimize the inputs. This helps the firm to achieve its cost reduction and efficiency objectives.

2.2.5. The role of production manager⁸:

The primary role of production manager is

- To meet the production target and delivery schedule of goods and services planned.
- To optimize utilization of resources in the process of converting them into products and services.

The survival and success of any industry depends on the ability of the manager to make worthwhile profits in the process of converting resources into products or services. This is possible only if the organization is capable of producing and delivering these at the right time, place, price, quality and quantity. This will not only yield high returns but also generate external goodwill and internal harmony.

Productivity can be increased by optimum utilization of resources. A high level of productivity yields more goods at lower costs. This will lead to a lowering in the prices of goods, and in general improve the quality of life. Thus production management is concerned with the appropriate selection and optimum utilization of plant and machinery, processes, materials, labour, technology, money and time.

⁸N G NAIR ,Production and Operations management , 1st edition, Tata McGraw-hill, New Delhi,1996,p.2.

2.3.Production management and planning methods

Just In Time (JIT)⁹:

JIT is based on the concept of delivering raw materials just when needed and manufacturing products just when needed.

The focus of JIT efforts is on minimizing waste in the manufacturing system. The philosophy underpinning waste identification and its elimination is the basis upon which the JIT management approach is built (Karlson and Awstrom 1996). This is accomplished by: 1) minimizing raw materials, work in progress and finished goods inventory; 2) exposing process inefficiencies and streamlining operations, for example poor set-up times, poor maintenance, poor scheduling, and 3) reducing the inefficiencies and streamlining operations (Schonoberger 1982).

These three goals are achieved through a set of ten complementary practices (Davy et al, 1992);

1. Focused factory
2. Reduce set-up times
3. Group technology
4. Total preventive maintenance
5. Multi-skilled employees
6. Uniform plant loading
7. Kanban system
8. Quality control
9. Quality circles
10. JIT purchasing

⁹ KEE HUNG LAI (T), C.EDWIN CHANG, Just-in-time Logistics, MPG Books Ltd, Great Britain, 2009, pp.12, 14

Material Requirement Planning (MRP)¹⁰:

The first application systems for manufacturing companies in the 1960s were systems for material requirements planning (MRP). Even though the roots of MRP are fairly old, most of the MRP functionality is still available in today's ERP systems.

The simplicity of the MRP principle covers the difficulties of implementing it in a full-scale plant. Imagine the case of a manufacturing company of various finished products and each classification would be defined on several levels.

The implementation of the MRP then results in a considerable amount of calculations that generate thousands of work orders and purchase that requires controlling and which must monitor the implementation.

Secondly, the reliability of the orders depends greatly on that of the data used (sales forecasting, capacity load stations or machines, manufacturing range) that must be maintained with great care.

This method leads to a simplified management even if it leads to a greater level of stock.

Manufacturing Resource Planning (MRP2)¹¹:

The concept of MRP2 is a generalization of this approach to all resources needed for production.

Charges are calculated on the machine resources, workforce (possibly for each type of qualification of staff), tools, storage areas, etc.

MRP2 is used to change the MRP system, the MPS and the MSP when resources and the load generated by the demand for capacity requirements are not in line. This important feature has led to a first development of the calculation system of the known needs as the closed loop MRP.

The objective of MRP2 is therefore to extend the MRP system to:

- Share information with a set of functions of industrial management,
- Centralize information,
- Make information available to the functions as needed.

When all activities of the hierarchical planning mentioned above are computerized and linked with business functions such as purchasing, maintenance, accounting and control, marketing and sales as well as other functions related to production, the resulting system is called ERP.

¹⁰G rard BAGLIN and al, Management Industriel et Logistique, 5th edition, Economica, Paris, 2007, pp.304, 305.

¹¹Ibid. p.318

Enterprise Resource Planning (ERP)¹²:

Until the 1990s, information systems consisted of separate specific applications (accounting, sales management, production management) that communicated by periodic interfaces. Now, to achieve the responsiveness required by the market and ensure the consistency of decisions, it is essential to implement integrated systems. This is what is called ERP (Enterprise Resource Planning).

Such systems represent a major investment for companies and profoundly changing the procedures and working methods.

ERP has the following major features:

- A common database for all applications: thus, it can't be distorted between the data used by the various applications,
- A single entry, interrelated data.
- A single application environment, regardless of the field: the user interface is the same regardless of the application,
- Shared repositories, Treatments that work in coherence,
- standardization of processes, management rules that are consistent among the various services of the company,
- faster procedures involving two or more makers thanks to the workflow,
- Integration into the user workspace: office tools, messaging ...,
- A user interface available in many languages,
- Analysis package tooling (EIS: Executive Information Systems) and sophisticated reporting,
- A blanket on the outdoor mode: direct connection (PC to PC) with customers and suppliers, direct access to the Internet.

The Kanban method:

KANBAN (in Japanese sheet, board or card) is management system of production logistics (material flow in production) that uses simple cards for material flow management, usually without using ICT (Information and Communication Technology). KANBAN is applicable for repetitive production¹³.

Japanese approaches developed since the 1960s and based on a mode of operation said Just in time gave birth to a short-term steering system Workshop called Kanban. This technique is

¹²Ibid. pp.593, 594

¹³<https://managementmania.com/en/kanban,in12/03/2016,at17:20>

based on a simple rule: each workstation has to work on the request of the stage downstream of it and no longer forecast. The system becomes drawn downstream and resembles a replenishment system in real consumption of parts¹⁴.

Lean production¹⁵:

The lean production aims to organize the production of a business by optimizing its productive resources. It is thus based on a systematic elimination of waste: inventory reduction, travel, waiting times, waste, defects ... To ensure its effectiveness, the lean production is based on several tools. Among them, we find the SMED method (to reduce the volume of stocks by reducing lot sizes), Kanban or the Takt Time (to balance production lines).

The lean production is the Western version of the Toyota Production System (or TPS) introduced for the first time in the factories of the Japanese automaker in the years 1950. This new form of business organization has little just won against the Taylorist and Fordist production models.

¹⁴G rard BAGLIN and al, Op.cit, pp.495, 496

¹⁵<http://www.journaldunet.com/business/pratique/dictionnaire-economique-et-financier/16564/lean-production-definition-traduction-et-synonymes.html>,in12/03/2016,at18:00

Section3: The Production Logistics

Production logistics has grown in importance in the industry – at the same time that demands on shorter delivery times and quality assurance have increased, as have demands on more flexible production and reduced tied-up capital. Processes and flows are important key-concepts in production logistics.

3.1. Definition of production logistics

Hakan Serner define Production logistics as¹: “a matter of steering, monitoring and optimizing where materials are in production, as well as, where and how the material moves through the subsequent steps of the production chain. Amongst other things, the challenges consist of ensuring that flows, stock keeping and moves are designed to be as efficient as possible”.

²To better understand what production logistics is all about, we should break the term down so we can figure out its meaning.

The word production describes the act of producing something. Normally when logistics is involved, we start thinking about getting something from A to B, focusing on the need for transportation as a result. But production logistics does not work in quite the same way.

This type of logistics focuses in more precisely on the act of creating something from scratch. For example a company may consider making a new product in its factory. But before they could do so, they would have to consider the production logistics of doing this. It's no good simply creating it using the first method they think of. This method might result in making a thousand units per hour. That might sound like a lot but it may not be enough to make the product profitable once you factor in the costs of staffing and the machinery needed to make it.

This is where the production logistics can find a better way forward. Those involved in the process would analyze all the separate parts of it, to see where time and money savings could be made. They might come up with a better way to manufacture the item that would be

¹http://www.prevas.com/production_logistics_coe.html,in08/03/2016at21:02

²http://www.logisticsmanagementguide.co.uk/production_logistics.html,in11/03/2016at18:48

cheaper and faster, creating two thousand units an hour. Thus productivity would be doubled and profits would increase as well.

But even when the process is agreed upon and the manufacturing begins, this is not the end of the logistician's role in this case. Manufacturing processes tend to improve as time goes on, and machinery being used now may be woefully out of date in a year or two. The production logistics team will constantly be analyzing production and results to find new ways of getting better results for the same or less money.

They will also very likely plan contingency processes in case machinery should break down or staffing levels should fall temporarily. Depending on the business and what is being produced, the processes could be scaled up or down as required. As you can tell, production logistics is based firmly inside a factory or manufacturing plant. This is in direct contrast to a more general business logistics outfit, which can take in every part of a business from beginning to end.

This does not make production logistics any less important however. Indeed many businesses rely on this branch of logistics to improve profitability and success rates on a daily basis, no matter what they might be producing.

3.2. The objectives of production logistics³

Production logistics pursues the following objectives:

- minimization of excess reserves;
- minimize the time to complete the main transport and warehouse operations;
- elimination of unsustainable intra-factory transportation;
- care from manufacturing without reservation;
- minimize the downtime of production equipment;
- elimination of defective products.

³Peter Nyhuis, Hans-Peter Wiendhal, fundamentals of production logistics, 1st edition, Springer, Spain, 2009, PP.9.10.

3.3. What is production⁴?

Production has been an explicit topic of study primarily in industrial engineering, which has dealt almost entirely with one type of production; namely, manufacturing (in the sense of 'making'), with only occasional forays into construction, plant maintenance, building maintenance, agriculture, forestry, mining, fishing, etc. Design and engineering have infrequently been conceived as production processes; the focus almost entirely being placed on making things rather than designing them.

Although the meaning of the term at its most universal is synonymous with “making”, “manufacturing” is most commonly used to denote the making of many copies from a single design, and consequently is primarily focused on products for a mass market, most of those products being moveable from the place manufactured to the place of use. There are exceptions to the products being moveable, although still copies from a single design; e.g., ships and airplanes. Within the world of construction, manufacturing in this sense is approached mostly closely by 'manufactured housing'.

Various types of making have been proposed, among them 'assembly', the joining of parts into a whole, as distinct from 'fabricating', the shaping of materials. For example, construction is often categorized as a type of 'fixed position manufacturing' (Schmenner, 1993), along with shipbuilding and airplane assembly. In all these instances of assembly, the assembled product eventually becomes too large to be moved through assembly stations, so the stations (work crews) must be moved through them, adding additional components and subassemblies until the artifact (building, bridge, tunnel, plant, house, highway, etc) is completed.

3.4. Production system

A production system is a collection of people, equipment, and procedures organized to perform the manufacturing operations of a company (or other organization).

3.4.1. Components of production system⁵:

There are two components for a production system such as:

- 1. Facilities:** includes the factory, production machines and tooling, material handling equipment, inspection equipment, and computer systems that control the manufacturing operations. For the facilities, plant layout is a significant factor for the

⁴GLENN BALLARD (Herman): The last planner system of production control, a doctorate thesis en philosophy, The University of Birmingham, 2000, P.2.

⁵Groover(M.K), Fundamentals of Modern Manufacturing, 4th edition, John Wiley and sons, USA, 2010, pp.16.19.

production system to be efficient. The plant layout is the way in which the equipment is physically arranged in the factory.

2. **Manufacturing systems:** includes the logical groupings of equipment and workers in the factory. A combination of a group of workers and machines are termed as Production line. There can be instances where there is only one worker and a machine. This arrangement is called as Stand-alone workstation and worker⁶.

3.4.2. Classification of production system⁷:

There are eight types of production which may be classified in three or four broad groups according to the quantities of production involved [Samuel Eilon].

- **Job production:**

This is the oldest method of production on a very small scale. It is also popularly known as 'job-shop or 'Unit' production. With this method individual requirements of consumers can be met. Each job order stands alone and may not be repeated. Some of the **examples** include manufacturing of aircrafts, ships, space vehicle, bridge and dam construction, ship building, boilers, turbines, machine tools, things of artistic nature, die work, etc. Some of the features of this system are as follows:

- This system has a lot of flexibility of operation, and hence general purpose machines are required.
- Generally no automation is used in this system, but computer-aided-design (CAD) is used.
- It deals with 'low volume and large variety' production. It can cater to specific customer order or job of one kind at a time.
- It is known for rapid value addition.

- **Batch production:**

The *batch production system* is generally adopted in medium size enterprises. Batch production is a stage in between **mass production** and **job-shop** production. As in this system, two or more than two types of products are manufactured in lots or batches at regular interval, which justifies its name the 'batch production system'. It has the following features:

⁶Bellgran (M), Safesten (EK), production development, 1st edition, Springer, USA, 2009, PP.43.47.

⁷K. K. Chatterjee, A grammar of Management in Indian Government Offices, 1st edition, New age international, India, pp.07.12.

- A batch production turns into flow production when the rest period vanishes. In flow production, the processing of materials is continuous and progressive.
- Batch production is bigger in scale than job production, but smaller than that of mass production.
- Material handling may be automated by robots as in case of CNC machining centers.
- A medium size lots (5 to 50) of same items is produced in this system. Lot may be produced once in a while or on regular interval generally to meet the continuous customer demands.
- Plant capacity generally is higher than demand.

- **Continuous production:**

In this, the production activity continues for 24 hours or on three shifts a day basis. A steel plant, for example, belongs to this type. It is impossible to stop the production process on a short notice without causing a great damage to its blast furnace and related equipment. Other examples include bottling plant, soft drink industry, fertilizer plant, power plant, etc). *Mass production* and *Flow production* belong to continuous type only. They are explained below:

- **Mass production:** In this type, a large number of identical items are produced; however, the equipment need not be designed to produce only this type of items. Both plant and equipment are flexible enough to deal with other products needing the same production processes. For **example**, a highly mechanized press shop that can be utilized to produce different types of components or products of steel metal without the need of major changes.
- **Flow production:** In this type, the plant, its equipment, and layout have been chiefly designed to produce a particular type of product. Flexibility is limited to minor modifications in layout or design of models. Some famous **examples** are automobiles, engines, house-hold machinery, chemical plants, etc. If the management decides to switch over to a different type of product, it will result in extensive change in tooling, layout, and equipment.

Continuous production, in general, has the following *features*:

- It is very highly automated (process automation), and highly capital intensive. Items move from one stage to another automatically in a continuous manner.

- It has a fixed or hard automation which means there is very less or no flexibility at all. Layout of the plant is such that it can be used for only one type of product. Each machine in the system is assigned a definite nature of work.
- To avoid problem of material handling, use of cranes, conveyors etc. are made.
- Work-in-process (WIP) inventory in this system is zero.

3.5. The production process

⁸In a company, the implementation process is the flow of activities that will transform raw materials into finished components deliverable to the client.

This concatenation process will start and finish scheduling for shipment. It will include the participation of various company services role in turn will contribute to make available to the customer in products complying with its request on time. This transversal approach to company gathers around the craft production contributors services such as control and supply service.

The production process will have as main activities:

- **Planning:**

Production planning is the planning of production and manufacturing modules in a company or industry.

It utilizes there source allocation of activities, employees, materials and production capacity, in order to serve different customers. Different types of production methods, such as single item manufacturing, batch production, mass production, continuous production etc. have their own type of production planning. Production planning can be combined with production control into production planning and control, or it can be combined and or integrated into enterprise resource planning.

- **The supply:**

Is the business management function that ensures identification, sourcing, access and management of the external resources (raw materials, components, semi-finished products...Etc.) that an organization needs or may need to fulfill its strategic objectives.

⁸Florence (GG), Laurent (M), Toute la fonction production, 1st edition, Dunod, Paris, 2007, P.41.

- **The manufacturing:**

The use of machines, tools and labor to produce goods for use or sale. Includes a range of human activity, from handicraft to high-tech, but most commonly refers to industrial production, where raw materials are transformed into finished goods on a large scale.

- **The packaging:**

Is the technology of enclosing or protecting products for distribution, storage, sale, and use, packaging also refers to the process of designing, evaluating, and producing packages, it can be described as a coordinated system of preparing goods for transport, warehousing, logistics, sale, and end use. Packaging contains, protects, preserves, transports, informs, and sells.

- **The control** (the various stages of the process):

Production control is the activity of monitoring and controlling a large physical facility or physically dispersed service. It is a set of actions and decision taken during production to regulate output and obtain reasonable assurance that the specification will be met.

- **Delivery:**

Delivery is the process of transporting goods from a source location to a predefined destination.

3.5.1. Typology of production process⁹:

The production process is distinguished by type of production organizations which are:

- **Make To Stock :**

Make to stock means that one driver the entire production on budgetary basis (planning on sales forecasting) that led to the stock of finished products. It allows offering customers a very short delivery time, but it is risky because the company must maintain in-stock products without being certain of the sale. Given the likely variability of demand, the level of stock of finished products necessary to ensure immediate delivery can be high and the cost of obsolescence (unsalable products as demand disappeared). Levels of replenishment of stock are determined by the inventory management methods, possibly using a model of demand forecast.

- **Assemble To Order :**

Manufacturing of components - launched in production forecast or reference in their stock- and final assembly begins only when a firm order has been registered. The delivery to the customer is equal to the assembly time. The business risk is limited

⁹Op.cit, Gérard BAGLIN and al, pp.133, 135

because, frequently, the components can be used in many end products, which limits the risk of obsolescence.

- **Make To Order :**

Make to order is characterized by production which begins only at the moment the company has received a firm order. It retains stocks of raw materials. The delivery time is the sum of the manufacturing and packaging cycle. The risks to the company are limited.

- **Engineering to order:**

Engineering to order is characterized by controls for specific products, often in small quantities. This case is similar to the case of production per unit or per project.

3.6.Inventory or stock management:

The stock concept is important in business, which manufactures and stores its products before selling them. Managing stock is at the heart of the concerns of business leaders for several reasons. Storage conditions can affect the quality of finished products and be expensive. The company therefore has every incentive to optimize stock management.

According to Peter Drucker, American management theorist, management is the art of taking a rational and informed decision. The decision thus made from a comprehensive and thoughtful analysis.

André Rambaux, defined the stock as all merchandise or items accumulated in anticipation of future use and more or less close enough to power users as and when they need them without imposing deadlines and the jolts of delivery by suppliers.

So to combine the two definitions, managing stock is kind of taking rational decision about the movement of the goods in stores so that the company could analyze its production situation in order to cover the needs of the markets.

¹⁰A stock is placed between two operations: one for manufacturing and other commercial (sales or production); therefore influenced its operations and sometimes those downstream and upstream.

¹⁰ Ibid, p59

Conclusion:

Production logistics principals and ideas are not limited to any specific company. Basically all kinds of companies can benefit from this concept in order to improve their processes and their competitiveness.

This chapter identified the production logistics as one of logistics types that has been known since the Faraoun period, and also explains the concepts of production management which was the first step before the use of production logistics concepts in companies to improve organizational and production performance and that will be discussed on the next part of this dissertation.

Chapter two

Chapitre2: The Strategic Analysis of the Enterprise

Introduction:

This chapter is divided into three sections. The first section provides the presentation of the company “ENIE”. Second section covers the analysis of the current strategic activity; lastly the third section is about the environmental analysis (SWOT and PESTEL analysis) of the company.

Section 1: Presentation of the Enterprise

1.1. The company Description¹

The national company of Electronic Industries (ENIE) was established on 1 November 1982 following the restructuring of the mother company SONELEC, headquartered in SIDI BEL ABBES. The transition to independence was carried out in March 1989, erecting the company in Joint Stock Company.

Its registered capital is 8.3 billion dinars.

For over 30 years, ENIE is a company of Algerian private law making audio and video products and electronic components.

ENIE's products are available everywhere in Algeria and are guaranteed for 2 years, with many points of sale and after-sales service workshops.

ENIE aims to be the first manufacturer of Audio-video consumer devices in Algeria for a national market that exceeds 500,000 and 1 million PPV audio devices per year; it employs 2650 workers in its various fields of activity.

The main areas of company activity are:

- Consumer electronics: televisions manufacturing color all sizes, reading devices and reproduction of sound and image (video and DVD), audio equipment (radio, cassette and CD player, car radio cassette, and HIFI).
- Electronic Technical Development Center.
- Manufacture of metal parts, plastics, polystyrene and tools (molds and dies).
- Marketing and after sales service network.

¹<http://www.enie.dz,in06/03/2016,at18:47>

1.2. The company history²

In 1975, the National Company of Electronic Industries "ENIE" was called Complex Consumer Electronics "CEGP", who was belonged to the former National Electricity Company "SONELEC".

In 1982, the CEGEP specializes in the mass production of audio and video equipment and the manufacture of electronic components and packaging, it became the National Company of Electronic Industries "ENIE" autonomous, following the restructuring of the SONELEC.

In 1985 ENIE relocate part of its activities in different parts of the country:

- Product assembly Large screen TVs, VCR and DVD products, and manufacture of electronic components, and components Metal plastic packaging, Sidi Bel Abbes unit.
- Manufacture of antennas, Ras El Maa Unit of Sidi Bel Abbes.
- Assembly audio products. Unit Telagh wilaya of Sidi Bel Abbes.
- Product assembly televisions small screen and audio products, Blida Unit.
- Assembly of medical devices (dental chairs, radio ...), Unit Ain Ouassara wilaya of Tiaret.

Creation of Regional Marketing Units of finished products throughout the national territory. Single center "UCRC" east unit "WRCU" west unit "UCRO" and south unit "UCRS".

Creation of after-sales service workshops across all provinces of the country.

In 1989 ENIE becomes a joint stock company.

From 1997 to 2005 ENIE as part of its social plan had liberated much of the staff and therefore localized operations to Sidi Bel Abbes complex while maintaining regional business units and workshops after sales service established throughout the national territory.

It is the current National Foundation Electronic Industries headquarters in the industrial zone on a 3 km from the center of Sidi Bel Abbes city, sits on an area of over 50 hectares, of which 11 hectares are covered, and currently employs 1273 workers including 990 permanent workers in various fields of activities. The total production capacity is 650 units of Electronic devices per day with estimated theoretical capacity to 700 units produced per day by 348 employed.

²Internal documentation of the company

1.3. The Objectives and tasks of the company³

Like other institutions always seek to meet the needs and tastes of consumers and contribute to the national economy through:

- The development of electronic products in line with modern technology and meet the requirements of consumer groups, and allow it to stand firmly in the face of the national competition in general, and foreign, in particular, thus contributing to Algerian reduce the bill for the importation of electronic products.
- Develop special studies in the field of national capacities, and access to achieve the desired goal and ensure the objectives for the priority in the National Development Plan;
- Meet the tastes of consumers, through the production of high quality products.
- Establishment of industrial units with new products that will contribute to the upgrading of the national economy and finance the public treasury of the state and absorbing part of the unemployment.
- Upgrade its local production to the level of global product.

Among the tasks we find:

- Attaches to research and development, production, import, installation, maintenance of equipment and machines allocated to the various sectors and electronic vehicles.
- Ensure the rational exploitation of the unity of human resources and financial possibilities.
- Work on the local market coverage across the entire national territory following the best roads in the distribution.
- To maintain its position and its customers, and this through the presentation of products in accordance with the required conditions in terms of quality and price.
- Provide after-sales services, maintenance of electronic devices from all the damage.

³ibid.

1.4. The role of the company⁴

The Foundation aims to achieve two important roles, one economic and the other social:

- The Social:

like improving standard of living for their workers, thanks to what it offer for them as wages and salaries, grants and compensation, etc ..., and aspire to achieve the welfare of the community, and providing jobs (temporary office in particular) and trainings, etc

- The economic:

1. Continuous training to keep up with tires the company inadvertently innovations, technological developments, modern, and control the production, and the expansion of other industrial areas;

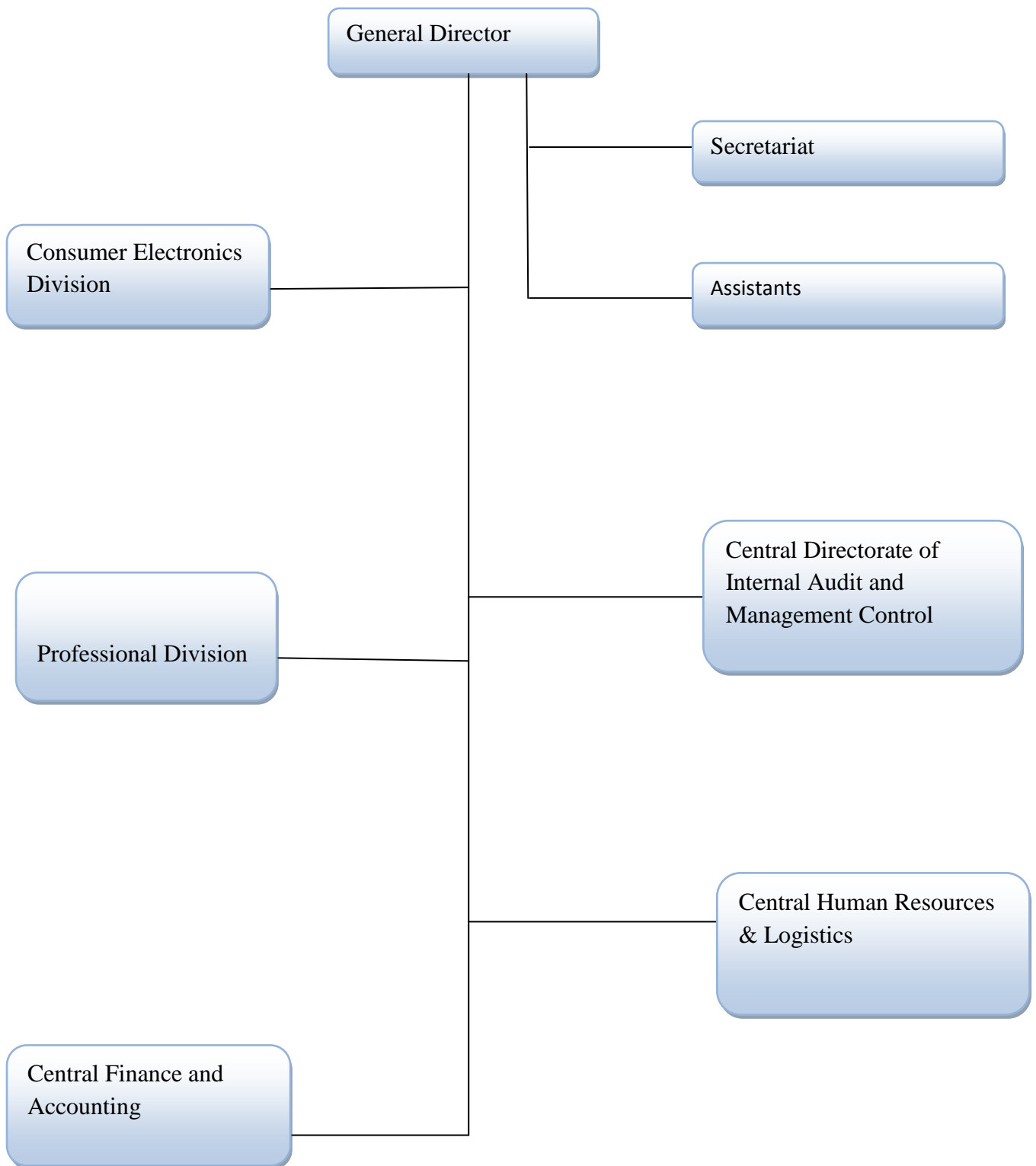
2. Improve the product, through the development of research in the area mail.

3. The development of distribution networks, and works on the local market coverage in order to eliminate all potential foreign competition;

4. Contribute to the state treasury financing through what you pay the institution has, in addition to reducing Import bill through import substitution and the resulting reduction for the exit of hard currency, as opposed to export the surplus, which generates on the state budget in hard currency resources.

⁴ibid

Figure II-4: The General chart of the company –ENIE.



Source: Internal documentation of the company.

As shown at the figure above the organizational chart, here are some details about the departments of the company:

- **General director:**

The Director is the first supervisor, he is responsible for all business functions of the company ENIE, of Supply operations, production and marketing, and he is authorized by the government to act and make decisions in all cases on behalf of and for the account of the company, his job depend on the daily reports from the different departments of the company.

- **Consumer electronic division :**

The function of this unit is to produce audiovisual products with LED and LCD technology in various dimensions, which are very required from customers this times following the winds of evolution all over the world.

- **Central Directorate of Internal Audit and Management Control:**

The Directorate functions through sudden missions and placed at their disposal all the possibilities in order to get the performance of their work, and ensures the correction of deviations from the actual activities and the activities discretion of the institution and highlight the reasons that led to these deviations using budgets, and look for ways to improve performance, and determine the results and control activities analysis.

- **Central Human Resources & Logistics:**

The department does several tasks, including:

- Tracking the movable and immovable property of the institution's records.
- Address the problems and complaints daily workers.
- Organize media activities such as exhibitions, seminars, press, for example, the definition of the institution's activities, organizing meetings, etc...
- Preparation of publications that show the benefits of the good or service offered by the Foundation ENIE.
- Provide advice and tips and suggestions for policies and procedures which stimulate to work, and respect treatment of workers.

- **Directorate of Finance and Accounting:**

The functions of this directorate are several, including:

- Preparing asset; liability; and capital account entries by compiling and analyzing account information.
- Documents financial transactions by entering account information.

- Recommends financial actions by analyzing accounting options.

1.5. The products of the company⁵

The company follows the strategy of products diversification in order to be on the top of the range of competitiveness in and outside the country, some of its products are listed down here:

- TV LCD 42" 71;
- TV LED 32" SD 130 00;
- TV LED 32" L33D;
- TV LED 39" S618;
- TV LED 39" S91;
- TV LED 32 " smart S715;
- TV LED 40 " SD1300;
- TV LED 43" S539;
- TV LED 42 " smart S717;
- TV LED 48" S 59;
- TV LED 42 " smart S715;
- TV LED 50" S68;
- TV LED 65" S8.

⁵ Marketing department

Section 2: The strategic activity analysis of the company “ENIE”

This section is intended to highlight the strategic elements related to the activity of the company including production and commercialization of these products.

The adoption of a quality management system and the development of marketing strategy remain major instruments relied on by the company to strengthen its competitive position.

2.1. The strategic activity

A strategic activity theoretically characterized by a unique combination of technology, product and / or service and it is addressed to a specific market. Therefore it is necessary to mark out a good and efficient strategy.

2.1.1. The strategic activity of the company “production”:

After having opted for a diversified production of electronic components, mechanical, plastic ... etc in the composition of major public audiovisual products, the company has refocused today around the assembly of TVs and audio equipment, by process of kiting, which involves the import of televisions in the form of decomposed elements to perform the assembly, which represents the bulk of the production of the company now.

This field target several customer categories: households, traders, economic and social organizations ... etc. the company wants to cover the total of the national market and be the leader.

The production is based on assembly business. This is justified by the leaders of the company by the need to master the product before strengthening integration.

The competitive advantage is not explicitly defined by the company. The leaders define the product quality as a sign of success beyond low prices.

2.1.2. Assessment of production performance:

Despite a production capacity that exceeds 300,000 televisions and appliances Audio per year, production accomplishments never reached those provided, particularly because of the frequent stock-outs of producing materials which are mainly due to imported purchase orders¹.

The following table shows the evolution of the production completion rate for the last four years:

Table II-2: The evolution of the production

Years Designation	2012	2013	2014	2015
Planned production	100.000	100.000	100.000	100.000
Realized production	72448	29582	31280	49100
Realization rate	72.44%	29.58%	31.28%	49.1%

Source: ENIE.

It is clear that the company recorded a very good realization rate of around 72% for 2012, and then we see a decrease with a very low rate at the end of 2013 despite a marked improvement noted for the years 2014 and 2015 with a rate that swings between 30 and 40%.

Overall we can conclude that, on the one hand the production of ENIE shall be made according an old production process, since based on the system of Taylor's system, thus following a traditional process with technological revolutions knows the field of consumer electronics, and on the other hand that this process is hampered by the low level of qualification of the production staff, which results in the lack of analysis and estimates around parameters production including performance indicators, particularly the rejection rate, time to completion and utilization of production capacity. In such a situation the company is not able to undertake improvement actions for the process. Add to that the cost of production is estimated that approximately in the absence of analytical accounts.

¹ The production department of the company

2.1.3. The industrial development structure and the function of production:

Its main mission is to participate in the choice of products targeted by the company through technical tests for their approval in accordance with a list of well-defined loads. Therefore, ongoing collaboration developed with the commercial structure. Nevertheless, the role played by this structure remains far from that of an R & D function itself.

2.2. The quality policy and the marketing strategy

2.2.1. The quality policy of ENIE²:

Before the adoption of total quality management system, Quality control was embedded in a technical structure, with a limited role in general corrective intervention; customer's claims were not supported so that the quality function was not seen as a strategic aspect.

However, quality must be taken into consideration at all levels of the company for its role in eliminating defects and reducing costs.

The company is committed to this effect in the implementation and development of a quality management system according to the international standard ISO 9001 version 2008.

The quality policy of the company is based on:

- The ongoing effort to improve its processes, products and services;
- Customer satisfaction remaining attentive to their needs and expectations;
- The development of a quality culture at all company departments.

To increase the effectiveness of this system of quality management and ensure its relevance, a quality audit is planned each year to measure the degree of achievement of quality goals and determine responsibility. Indeed, every year the quality objectives set by the company include for example:

- Improve skills and communication;
- Improve existing products;
- Reduce non-quality costs;
- Increase production;
- Increase customer satisfaction;

² The quality and control department of the company

- Improve sales.

2.2.2. The marketing strategy of ENIE³:

The market competition is first manifested by the company chosen by each marketing strategy. We can see the marketing strategy of a company, particularly through its pricing policies, distribution and communication.

To ensure the effectiveness, the company considers marketing as support tool that provides success in the future by conducting market research and promotion of the company's products to customers.

a) The product policy:

The range of products launched by the company is wide since ENIE including both EGP products, namely LED, LCD TVS.

In order to preserve its reputation already acquired over several years, the company ENIE targets more the quality of its products. Therefore it works under load notebook while working with established suppliers internationally.

b) The price policy:

The company sets the price of its products based on the cost and market price. Also setting the margins considers product rotation in sales.

The company provides customers with payment facilities, which can be a force in comparison with its competitors.

c) The distribution policy:

Two distribution channels are in place:

- An ultra-short channel (primary):

In which the company has four regional business units (West, Central, East and South) each runs its own distribution network. Thus the total outlets mobilized by this firm is 45, spread over the entire Algerian territory, the salespeople are trained in sales as well as after sales services (internal training).

³ The marketing department of the company

- A long channel (secondary):

Composed of 20 authorized distributors throughout the national territory, it can be summarized as follows:

ENIE → Wholesalers → Retailers → end customer

In terms of retention of its wholesale customers, several actions are taken:

- Repair of goods out and free transit to the wholesaler.
- The granting of discounts and rebates based on turnover achieved.
- The organization of training seminars for wholesalers.

d) The communication policy:

The company provided 03% of revenues to the actions of communication and advertising. It is in this context that several forms of advertising are established by this firm based on the occurrence of certain events such as the launch of a new product, sporting events ... etc. These forms can be summarized in the following points:

- Technical Data Sheets for each product.
- The press.
- The media including radio.
- Display Panels.
- The Fairs and Exhibition.
- The Mailing.

However, it must be emphasized that ENIE as a state company, suffers from the heavy bureaucratic mechanisms imposed by the state, especially the obligatory passage on advertising by the ANP, which limits its scope to conversely the private competitor who has total freedom.

In addition, trade promotions are often considered include raffles (Tamboula as we say) or price reductions.

2.3. The company's relationship with its market

ENIE faces pressure from multiple competitive forces on the Algerian market in order to be the leader again in this market which has become increasingly competitive because of the different global changes especially technological one. It has some specifics particularly in its relations with suppliers and especially customers.

2.3.1. The company ENIE with its suppliers:

For ENIE, purchased products and services represent 40% to 60% of total expenditure. This gives the purchasing function / supply an important tool in the global effort to reduce business costs and to improve profitability.

Approximately 50% of the costs of this enterprise are from consumption of raw materials, components...etc. It is dependent in its supplies up to 85% of foreign suppliers such as konka (the Chinese company that presents itself in the consumer electronics and household appliances.).

The power of negotiation of ENIE with its suppliers is very low, it belongs directly to them what we can see through the following facts:

- The impact of the quality of raw materials and components purchased in the final product of the company is strong, this makes it difficult and costly operation supplier switching;
- Some components (coil, cables, main-board) are specific to ENIE products. This makes any providers change almost impossible;
- The lack of raw materials in the local markets which make the purchase operation very difficult and depending on foreign providers in terms of prices and supply delays.

The purchased function is very important for the company and has a direct effect on the production logistics where we find this last depended 80 % on it.

2.3.2. The power of the company on its customer:

ENIE's market is composed of households, hotels and enterprises...etc.; where we find the households as the first customer of the company with a proportion of sales of 85%⁴.

The company as the first brand of electronic industries in Algeria, it has a very big relation with its customer and a place in their spirit, so when you ask anyone about the brand he will easily recognized it and even recognizes the logo of the company.

⁴ Internal documents of the company

Section3: Environmental Analysis of the Enterprise

Environmental analysis is a strategic tool. It is a process to identify all the external and internal elements, which can affect the organization's performance. The analysis entails assessing the level of threat or opportunity the factors might present. These evaluations are later translated into the decision-making process. The analysis helps align strategies with the firm's environment.

There are many strategic analysis tools that a firm can use, but some are more common. The most used detailed analysis of the environment is the PESTEL and the SWOT analysis.

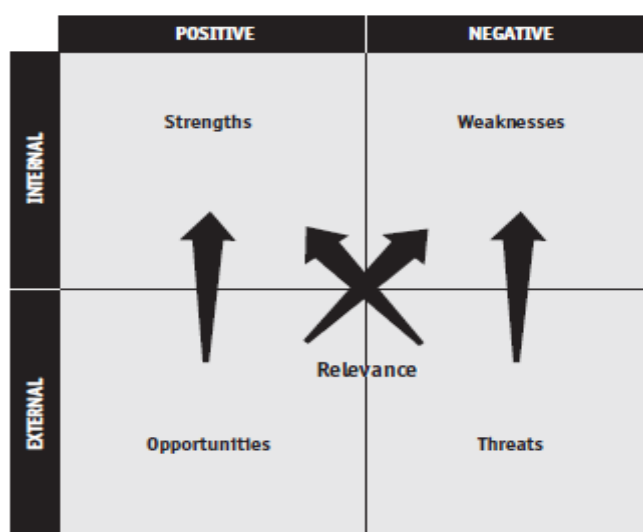
3.1. The SWOT Analysis

The overall evaluation of a company's strengths, weaknesses, opportunities, and threats is called SWOT analysis. It's a way of monitoring the external and internal environment.

A SWOT analysis as shown on the figure could be viewed as bringing together the outputs from the strategic review, in particular:

- The analysis of the firm (internal elements);
- The market analysis (internal and external elements);
- The product, portfolio and matrix analysis (internal and external elements);
- The analysis of the general environment (external elements).

Figure II-5: The SWOT analysis.



Source: Graham (F), Stefan (z), Guide to business planning, the Economist, 1st edition, London, 2004, P86.

3.1.1. External environment analysis¹ :

An **opportunity** is an area of buyer need and interest that a company has a high probability of profitably satisfying. There are three main sources of market opportunities. The first is to offer something that is in short supply. This requires little marketing talent, as the need is fairly obvious. The second is to supply an existing product or service in a new or superior way. How? The problem detection method asks consumers for their suggestions, the ideal method has them imagine an ideal version of the product or service, and the consumption chain method asks them to chart their steps in acquiring, using, and disposing of a product. This last method often leads to a totally new product or service.

An **environmental threat** is a challenge posed by an unfavorable trend or development that, in the absence of defensive marketing action, would lead to lower sales or profit. The threats in the upper-left cell are major, because they have a high probability of occurrence and can seriously hurt the company. To deal with them, the company needs contingency plans. The threats in the lower-right cell are minor and can be ignored. The firm will want to carefully monitor threats in the upper-right and lower-left cells in the event they grow more serious.

Opportunities of ENIE²:

- Market with strong growth potential.
- Qualified human resources.
- Existence of a dense industrial fabric.
- Final acts of domiciliation of import transactions of goods and services are submitted from 15 March 2016.
- The presence on the entire Algerian territory (north, east, west, south), with more than 40 outlets.
- The absence of competitors in the south, which is a very big opportunity for the company.

¹KOTLER (P), KELLER (K), Marketing Management, 14th edition, Pearson, NEW JERSEY, 2000, P.48.

² Developed by the student

Threats of ENIE³:

- The fire, which occurred in October, at the National Company of Electronic Industries (ENIE) and that devastated the electronic integration unit, is the greatest threat that has affected the company and delayed production for months;
- The policy of austerity declared by the state will absolutely reduce the level of state subsidies for the company;
- Lack of public protection (standards or customs-Association Agreement...);
- Outdated equipment such as equipment for production, storage, handling etc....;
- weakness of the expansion investment and / or renewal;
- Neglect of outsourcing capabilities (technology development center, marketing, logistics ... etc.).

3.1.2. Internal environment analysis⁴:

Strengths and weaknesses The strengths and weaknesses analysis should be closely related to the analysis of the firm, which is an input into the strengths and weaknesses analysis. However, it is important to look at strengths and weaknesses in the context of opportunities and threats. The crucial question is relevance.

Strengths matter only if you can use them to exploit an opportunity or counter a threat. Similarly, a weakness is problematic if it relates to a threat. Thus an external factor can be an opportunity or a threat. For example, if new technology is becoming available and an business has an excellent product-development department that can take advantage of the new technology to develop products, this is an opportunity. In contrast, if a business cannot make use of the new technology, there is a threat from substitution if rivals make use of the technology.

³ Developed by the student

⁴ Graham (F), Stefan (z), Guide to business planning, The Economist, 1st edition, London, 2004,P.86

Strengths of ENIE⁵:

- Very reasonable cost of labor and energy;
- Availability of local infrastructure services; the company has a unit located in an industrial zone on a plot of 50 hectares which is provided (roads and highways) and 24/24h secure. The power supply, telecom network and the power supply is assured;
- Local labor availability; more than 1200 workers very qualified from engineers to security agents.
- availability of raw material; the raw materials that make up all of the products will be imported directly from reliable and controlled suppliers whose payment will go through an intermediate bank;
- A very large access to the Algerian market;
- Installation of an ERP which is a software package that allows the company to integrated many applications in order to manage and automate many back-office functions.
- Product diversification (LCD and LED TV...etc.);
- The value for money compared to its peers;
- Strong technology relationships with world-class operators;
- An after sales service qualified and available 7/7 days and 24/24 hours.

Weaknesses of ENIE⁵:

- The low use of a qualified training system;
- Lack of resources to meet the requirements of innovation, robust and security market;
- No intermediate spaces (standardization, metrology, laboratories, institutes formation...Etc.);
- Dependence on imports of raw materials and semi-finished product;
- Low coverage of needs because of the absence of consumer behavior studies;
- low productivity;
- Lack of motivation for the workers;
- The lack of interconnection between the different departments of the company;
- The lack of storage equipment, handling ... etc;
- A very low rate for research and development.

⁵Developed by the student

3.2. The PESTEL Analysis⁶

The PESTLE analysis allows us to understand the environment in which the company operates. In a general perspective, this tool draws the contours of the landscape of the macroeconomic environment by taking into account six key components as shown at the figure below:

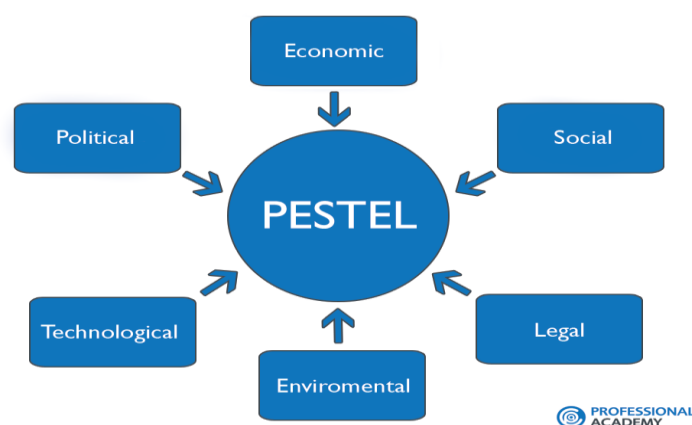
- Political ;
- Economic ;
- Social ;
- Technological ;
- Environmental ;
- Legal.

This type of analysis can objectively show us the variables that can affect the operation of enterprises.

According to Kotler (1998), PESTEL analysis is a “strategic tool for understanding the growth or decline of the markets, the company's positions and decisions”.

A PESTLE analysis should feed into a SWOT analysis as it helps to determine the threats and opportunities represented by macro-environment forces that the organization usually cannot control.

Figure II-6: the components of PESTEL analysis.



Source: <http://www.professionalacademy.com/blogs-and-advice/marketing-theories---pestel-analysis>

⁶Graham (F), Stefan (z), Guide to business planning, The Economist, 1st edition, London, 2004, P.31-35

3.2.1. PESTEL analysis of the company ENIE:

Political variables:

The continuous decline of oil price for the year 2015 give a rise to a public policy of austerity in the new financial law, which reflected negatively on the funding policy for public companies, in particular after the reduction of subsidies directed to the development of the public sector.

The decline in oil prices, a source of concern to the Algerian government, which relies 95% in the financing of economic plans that will be affected, which would decrease the amount of units produced by the company.

Political factors of ALGERIA can be changed at any time, which could affect business of the ENIE at time of change. As well as instability in political situation of country will affect the business.

Economic variables:

As the recent economic downturn has plagued the economy, companies had to restructure their sales and marketing campaigns greatly. Also, with diminishing profits they had to undergo downsizing internally and re-think upon how to penetrate the market.

Economic conditions have the highest influence on a business. Moreover, the economic downturn that started in 2015 resulted in decreased sales and profits of the company.

Social variables:

Enie is highly influenced by Social and demographic trends such as growing demand for better and easy life at lower cost, consumer empowerment, the rise of emerging markets and the need for new and good technology.

Moreover, ENIE had to put its consumers into the golden place of its concerns and change its products to match the rapidly changing consumer preferences. ENIE operates in a local market influenced by the consumers' lifestyle preferences. Socio-cultural factors vary in each country. So, it has to reorient itself accordingly in order to enter the international markets.

Without forgetting the golden rule "customer is king".

Technological variables:

With the advent of the new age in technology, the company must completely integrate itself with all the recent changes that have taken place. To mention a recent trend that has greatly picked up and something that almost every business is turning toward is Social Media such as Face book, Twitter and many others. The social media explosion has allowed for increasingly interactive engagement with the consumers with real time results so the company has to stay ahead of all the developments that take place with keeping in view how the people of today utilizes technology for their benefit and how can it reach them in order to keep on increasing brand recall and brand engagement.

Competitors such as Condor have demonstrated a strong ability to duplicate ENIE's products and services. This means that many of ENIE's signature services and products are no longer unique.

Environmental variables:

All businesses impact its environment. Some have a positive impact while others have a negative effect. The degree of impact varies too. ENIE must keep pollution or waste in mind by adopting a green logistics concept in the future, this can also have a positive impact on the environment by processing and cleaning waste. These factors will affect the company, but they will not have an immense toll on its trade and profit generation.

Legal variables:

Legal factors have to do with all the legislative and procedural components in an economy. Also, this takes into account certain standards that the business might have to meet in order to start production/promotion.

Conclusion:

The analysis of the strategic activity and the internal and external environment of the company lead as to know more about the current situation of “ENIE” on the Algerian market, also we could have more information about its strengths, limits, opportunities and weaknesses.

Chapter three

Chapter 3: The Impact of Production Logistics on the Competitiveness of the Company ENIE

Introduction:

This chapter is also divided in three sections. In first section we are going to present the production process of the company. The second section is about the analysis of the production logistics and its components. Lastly the third section is a presentation of the methodology of the survey, results of the interview, proposals and suggestions.

Section1: Presentation of the production process of the company

1.1. The main activities of the production process of the company

- **Production planning:**

This structure has the key role, firstly, to ensure the optimal use of production capacities of the production lines, and secondly, to help avoid the most of out of stocks of finished products and thus ensure better customer satisfaction in terms of product availability and delivery times.

The planner does its work in direct collaboration with the commercial structure and the production and maintenance. Indeed, as soon as orders are received, the scheduler starts the following steps:

- Schedule production lines and ensure their optimal use by analyzing their production capacities based on the production plan (see appendix 01);
- Identify the needs and supply the production lines.
- And finally, establish a strict monitoring of production through the exploitation of a completed form by the agents of production, whose elements are: the number of employees, the quantity produced (Q), downtime, scrap and waste, and parameter measurements (see appendix 02).

In the end, the objective of the planning process is to reach 80% of production capacity, a rate that is generally achieved (with exceptions), due to careful planning of production following a good collaboration between the different structures.

- **The supply:**

Due to the nature of the activity currently carried out by the company ENIE which consists of assembling televisions, the procurement process is done in two parts:

- 1. The component supply (kit):**

With an industrial policy based on kiting, this first installment is considered the beating heart of the company ENIE. It is in this sense that it is working with a number providers who are world famous. Relations ENIE-providers can be described as flexible, confident, because of the support which benefits the company by its suppliers, due to its position that remains important in the Algerian market (35% market share). This support clearly appears in the following:

- Allow the company ENIE be up to date with the rapid technological developments in consumer electronics sector.
- provide financial support, particularly in marketing and customer service support (specialized documentation and spare parts).
- And finally, provide technical assistance and staff training at the level of production for new products.

- 2. The supply of raw materials and consumables:**

Regarding this aspect, it should be noted that the bulk of purchases made locally in addition to some external purchases.

These two types of supply are used to feed the two production lines after having planned the quantities to produce and identify needs in materials and necessary parts. A material demand (see appendix 03) will be transmitted through the production floor to the warehouse so that latter can satisfy the need of the assembly line in components and then the request will take the way back with a goods issue document(see appendix 04) to account the feed stream.

- **The manufacturing:**

An assembly workshop specialized for his part in the assembly of televisions in a Taylorist production chain, whose phases are: the insertion ⇒ welding (solder bath) ⇒cuts and retouches⇒ the TV final assembly.

In each production line we can divided the production operations into three main stages, it can be accomplished as follows:

The first stage:

1. **The preparation operation:** in this operation the employees prepare multiple components such as strength, coil, diode, and connector, capacitor... on a frame to compose a power board or the mother board of the television in order to facilitate the process of assembly after. This step is done by 2 or 3 persons.
2. **The operation of welding and insertion:** The employee in this phase begins with paste components on the frame and put it on the conveyor to move on to the second stage welding and attachment.

The second stage:

3. **Operation cutting and retouching:** This phase is to cut the excess legs and controlling if the components are well placed on the mother board, if not a retouching phase will be launched to ensure proper product quality.
4. **Alignment operation:** In this phase the employee will do an electricity test or well said a stress test to check if the motherboard is working or not before the final assembly of the product.

The third stage:

5. It is the phase of final product assembly, in which the employee will assemble the motherboard and the slab with the cabinet, at the end of this step the television is almost ready, then another alignment test will be done before the final packaging product (see appendix 05).

- **The packaging:**

This step is concerned with the packaging of finished products in cartons which are made by local companies such as TONIC, and then stapling and gluing these cartoons in a traditional working tools, a manual procedures which is a very negative for the company because it takes time and consume energy of workers and that make them very tired by the end of the first shift of the day so their productivity will certainly decrease as we observed at the second shift.

Moreover, according to the director of the production department this step has more than one simple function which is the marketing function including the format, the design packaging and others, in addition we can find also logistics function which could provide information about conditions and locations, facilitate distribution ...etc, and there is also environmental aspects like recyclable and no toxic packaging.

- **The control:**

Quality control is performed in 03phases:

- 1. The control at the reception:**

This first control concerns elements of the kit, it is initially in a visual comparison between the received one and a standard already retained sample. Secondly, other tests (mechanical, chemical, electronic) are performed in the analytical laboratory. After this first phase a status report is established, including the currently tuned quantity and quality aspects compared to the standard sample.

- 2. A control during the production process:**

This is a quality control at the production line; it can be summarized in the following steps:

- A visual check after inserting coins.
- A second visual check after the cut phase and retouching done by two inspectors.
- A third control which consists of an electrical test of the complete frame before final assembly.
- Functional control after assembly (color, image, geometry ...).

3. A client control:

It includes the following:

- Operation of heating (for 2 hours).
- A life test (500H, 150H, and 50H) following tables international standards.
- A functional test is performed before packaging by several inspectors that consist in checking signals, colors, image, sound and aesthetics.

Anomalies and defects found during the different control phases will be recorded and given to the quality control responsible for any well rehabilitation operations.

- **Delivery and distribution:**

ENIE distributes its products mainly through its own distribution network over some authorized distributors. This policy allows it to minimize the finished product storage costs and ensure total coverage of the national market (south, east, west, and north).

Note that several competitors (Samsung, LG ...) are moving increasingly towards the attainment of stores or agreement of exclusive sales for some retailers. This represents a hard competition for the company at the current moment.

1.2. Typology of the production process of the company

The company uses the make-to- stock strategy. ENIE uses that kind of process for TV sold in its own stores. The company first estimates the consumer demand for its products. It then calculates its available manufacturing capacity and the quantities of raw materials it will need to build enough computers to meet consumer demand. ENIE's strategy is to purchase raw materials and reserve manufacturing capacity ahead of time to maximize the cost efficiencies of buying materials in bulk quantities and doing large production runs. The company then produces a specific quantity of each TV model and ships them from the factory to the stores and other retail outlets for sale. When customers come into the store, they expect that the product they want to buy will be there and that they can take it home immediately after purchasing it.

Section 2: Analysis of the production logistics of the company

Production Logistics concerns itself with streamlining and controlling the flow through the supply chain from point of entry to the end, which is distribution logistics. Production logistics activities are related to organizational concepts, layout planning, production planning, and control.

2.1. Analysis of layout planning of the company

A layout planning is deciding on the best physical arrangement of all resources that consume space within a facility. We remarked that the company uses traditional methods of warehousing raw materials and also semi-finished products which it uses for production and for the assembly, where the employees find problems in finding the correct pieces in order to feed the production lines and that takes time and delayed the operation; there is no perfect planning and everything is in a big disorder, the layout planning is absolutely lacking at this company.

2.2. Analysis of production planning of the company

As mentioned at the previous section, the production program is so important for the company so as the other activities. However, it is so negligible by the responsible of the production department. We observed that the company does not give importance to the first step of the production ladder; it uses a traditional method of planning so we find the planner try to give approximately the quantity that they must produce yearly after he quantified the sales of the previous year, which is a very obsolete manner and that will affect the performance of the company and also its competitiveness.

2.3. Analysis of the control activity of the company

In ENIE, Control is one of the managerial functions just like planning. It is an important function because it helps to check the errors and take the corrective action rapidly so that deviations from standards are minimized and stated goals of the organization are achieved very well.

For that the company adopted the quality management system “Iso 9001 version 2008” not only for verifying the quality of the final product but for all the activities of the logistics chain.

However, there are also limits that make this operation even hard to do, for example we find the responsible workers ignored several steps during the production process so they forget about making sure that the pieces are well placed on the mother board and sometimes they remove the gloves which make their hands in direct contacts with the electronic piece and that will definitely mess up the piece and even destruct it.

2.4. Analysis of components of production system of ENIE

A production system or logistics system is an addition process value of goods or services that meet the requirements of amount, price, quality and time limit.

- **The facilities of ENIE:**

A fire broke out on the night of 8 to 9 October 2015 at the Complex of the National Company of Electronic Industries (Enie) of Sidi Bel Abbes. According to the Ministry of Industry, no casualties were reported but there was a huge loss at the electronic integration, the company has five assembly lines, a workshop for making local motherboards for TVs instead of importing them.

Unfortunately, the fire destroyed these lasts so as mentioned in the precedent sections, the company now have only two lines of production, we find at these lines about 577 employee and all other equipments that facilitate the process of production so as the assembling tools, inspection and control materials, conveyor, forklift and many others.

According to the assistant director of the production department the number of employees is very big compared to the assembly lines so they plan to recover in the near future as possible the units and workshops that they have lose.

- **The information system of ENIE:**

The enterprise information system fails, due to a side in the absence of a common database for all business functions that can facilitate a better transfer of information in a timely manner and thus better decision making [the exchange of information is done through conventional

computer media (floppy disk, USB, ...)], and on the other hand, low security of the computer system set up (in the absence of reliable security procedures).

The company is currently in the installation phase of an IT solution such as ERP (enterprise resource planning), who founded the foundation for its information system by creating a single database that will work directly on the same data from conception to commercialization. The establishment of such a system will enable the company to benefit from two key benefits:

- Better decision-making (as provided reliable information in real time);
- Editing reporting statements.

Moreover, several missions are assigned to the IT organization:

- Minimize the number of attacks by adopting a reliable antivirus and ensuring its daily update;
- Secure and backup data through the ultra-back-of software to restore data that can be lost in case of computer failure;
- Providing internal training for users of PCs;
- Ensure reliable processing time and cost of IT operations.

2.4.1. The production system classification of ENIE:

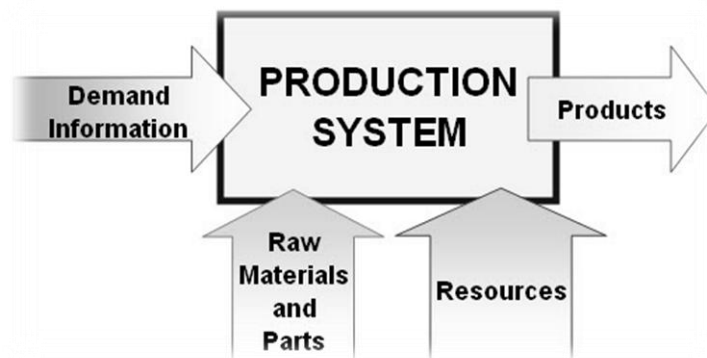
Basically the company follows a flow shop system; the assembly line of this company is a manufacturing process in which parts are added as the semi-finished assembly moves from workstation to workstation where the parts are added in sequence until the final assembly is produced. By mechanically moving the parts to the assembly work and moving the semi-finished assembly from work station to work station, a finished product can be assembled faster and with less labor than by having workers carry parts to a stationary piece for assembly. ENIE in order to facilitate the moving of the different parts of the final product uses a conveyor.

2.5. The inventory management of the company

The mission of this structure within the company ENIE consists firstly to take delivery of the goods through quantitative and qualitative control for their placing in storage and the establishment of a good reception document, and then meet the needs of production and the establishment of a good output document. It is therefore a simple input and output operations because it does not exist rigorous monitoring of inventory levels or preventive failure analysis, a situation that worsens by poor cooperation with other structures, including supplies, which induces frequent ruptures that result in unfulfilled customer orders, and therefore a decrease in revenue.

2.6. Interpretation of production system of the company

Figure III-7: Resume of the production system



Source: Elaborated by the student.

As seen at the figure above, the production system resumed at: demand information, raw materials and resources passing by the production process and finally having the finished products.

At first, I would like to start with the definition of the production system? The production system is a system to convert demand information into products. This system is composed of humans, machinery and the space provided by normally a kind of building which all in our case are available. They are generally called resources, human resource and mechanical resource. Using these resources, the production system converts demand information into the products to be supplied.

Within the company ENIE, firstly the production department receives the demand information as an incentive for the production operation; this will launch the production process after the planning not only for the quantities produced but also for the use of facilities and resources of the company both human resources and machines, at the same time a raw materials and parts planning will be executed by the department in order to facilitate the process and minimize time of feeding the assembly lines.

Finally, finished products will be out of the line to be packaged and delivered to the sales points in order to meets the final client needs.

Section3: The impact of the production logistics on the competitiveness

3.1. Methodology of the survey

About our problem, we considered it appropriate that the production logistics is a main driver of the company's competitiveness in the production sector of television as an EPE.

In our case, we will treat the relationship between the production logistics and competitiveness in ENIE. So we will take the adequate research technique with our problem, and the best choice of the research tools.

3.1.1. Research tools:

Our search tool in this case is the interviews, this tool have more technical suitable for qualitative analysis, because they allow to deepen our subject and work on a cognitive dimension, based on interrogations with actors and interviewers using their knowledge, their beliefs, their experiences, their feelings , motivations on the production function.

Finally, the treatment of this research process is made by the transcript of records, the selection and analysis of the interviews, the overlap between the various interviews, to abstract all the results of each proposed questions and to make the results of inquiry, to achieve our goal.

3.1.2. Our interview guide:

After considering all the tools of our research, we have to define our interview guide from our initial problematic. So what is the population need to know? And how we define the questions that run throughout our interview?

Our goal is to select the employees that they have the best experience in this company and especially on the production function. With the best choice for the questions we must ask. These questions must be in the form of our problematic and secondary questions of our research. To achieve answers align with the proposed assumptions.

3.2. The conditions of progress of our interview

3.2.1. The interview sample size:

It is a case of qualitative research, where in our case the selected sample consists of 6 employees within ENIE. They have good experience and they have the best skills on the workflow of all production logistics activities. In addition we took information on this subject through workers in the production and assembly line.

3.2.2. Date, place and time of the interview:

- **The date?**

We did our interview on April 21st, 2016 in the company ENIE, Sidi Bel Abbes.

- **The place of the interview:**

For that interviewees are more comfortable, their place was chosen to work as a place of interview.

- **The time of the interview:**

The beginning of the interview was devoted to explain the purpose of our research, and then the first minutes were important to help create a climate of confidence to facilitate the flow of the interview. So we can devise the duration of the interview on the steps bellow:

- **Preamble:** This step was done firstly to present ourselves and our research, secondly to properly present the company and the position of works of each, so we spent between three (3) and five (5) minutes to start the discussion.
- **Development:** Fifteen (15) minutes have been devoted to this second step "ask questions" so we entered into the subject.
- **Conclusion:** The last five (5) minutes were devoted to this stage, which allowed the interviewees to express their selves, give as instructions and advices to work on, and the final word of the interview.

So we spent an average of twenty-five (25) minutes for each interview.

3.2.3. With whom I did my interview?

We developed our interview with a group of directors and executives of the company ENIE which are:

- The director of the electronic integration unit.
- The assistant director of the IE unit.
- The chief of planning and control department.
- Stock manager.
- The chief of production department.
- The chief of quality department.

In addition, we interviewed two production line managers.

3.2.4. The data processing method:

We took the easiest method which allows as summarizing each answer acquired by interviews as an information processing tool.

3.3. Results of the survey

3.3.1. Interview with the employees:

Question n°1: Could you present briefly your company?

ENIE is an Algerian state company that specializes since about 30 years in the manufacturing of audio and video products and electronic components; its main activity is the assembly of smart TVs beside many other activities, the head office is located in Sidi Bel Abbes located 450 km west of Alger's.

Question n°2: What is your position within the ENIE?

The answers to this question were as follows:

The first two occupy a post of director and assistant director for seven years in the electronic integration unit. The 3rd person is a chief of planning and control department for four years, follows the other, there is a stock manager for two years, and the last two, a chief of production department, and the other is a chief of quality department the both are working at the company for 10 years.

And for more information we asked also two others, which are a line production manager, they have been working for the company for many years.

Question n°3: What are the determinants of competitiveness in the field of EGP (consumer electronics)?

The determinants of competitiveness in our field are: the speed of having the right information on the new technology and all the needs of consumers, also efficiency, and adaptability with any internal or external changes, the most important is the price according to the Algerian society and also quality that define one of our strengths at the current time.

The efficiency can be related to:

Having the right technology;

The good financial capacity;

A developed infrastructure capacity;

Skills and expertise of our workers (operational and functional teams)

Question n°4: Could you give us a simple description of the logistics of production?

production logistics is like an infrastructure of the production function in our company, it is the support materials and information flow as the name suggests, it consists of all internal procurement activities feed assembly lines, the Planning and control, also includes an informational network as a tool of interconnection between the production chain and the various departments, it also plays a very important role in the management of our stock certainly cause our strategy to make stock.

Question n°5: How could you achieve better competitiveness in your field from production logistics?

Competitiveness can be achieved from a production logistics by: better use of hardware and tools, optimizing time “delivery delays, procurement delays of the assembly line, operating time...etc.” The best management of information flow between the different directions of the company, manage storage areas in a rational manner, maintenance and support of the work equipment. This competitiveness is based mainly on the level of performance of various activities of the production logistics. The latter is determined by key indicators such as the

optimization of time "Average time of realization of the assembly operation, improvement of transit time from one activity to another, saving time of finished products rotations. And the movements time of raw materials from stocks to production lines in order to feed this operation very well ... etc." The best quality service and cost minimization.

Question n°6: What are the key components of the logistics of production?

We find that the planning and control of either product quality or operations performed by our employees are the main components of production logistics.

Question n°7: What does mean both words logistics and Production to you and what kind of relationship is between them?

Logistics is the support and production is the assembly operation we do to reach our goals, between the two there is a complementary relationship so without the interconnection that will be born from logistics the production function can't be managed perfectly. Therefore, we could say that the performance of our production system must be carried out by an optimum production logistics in order to improve productivity of all steps of the production operation.

Question n°8: What place takes production at your company, and how affect production logistics on this function?

The production is a key element that terribly influence on competitiveness of our company and its dynamism, then it is the heart of our system and its main mission. Without this feature there will be no progress, and of course we will not find an accurate way to achieve our goals as an industrial and commercial enterprise, production logistics affect positively on this last and for sure affect the competitive position on the market.

Question n°9: Is there any development of your production function during these last years?

Through this question, all the member of the sample responded by YES.

Question n°10: What is this development?

It is found that the production function today become easier than before, thanks to new technology, new high-quality material, the company has reduced the number of human strength and replaced that by machinery, tools and hardware, so we obtained a reduction of

costs, minimization of assembly time operations, which allows a better optimization of goods delivery times to customers. Moreover electronic integration direction has recruited young graduates more competent and well trained in the place of those retired.

Question n°11: what are the obstacles and problems that can be found during the production operations?

We have two types of problems or obstacles:

First external obstacles that are all related to the importation operations of the raw material either bank problems or sometimes maritime transport and the most common are customs problems which can delay the entire production system, secondly there is internal obstacles such as lack of skills and the level of qualification of workers which brings us several times to problems with them and with the employee union and also the difficulty of adaptability to the new technology, finally we can't forget to mention the lack of communication between the production team or with the administration.

Question n°12: According to you, how to avoid these problems?

About the external constraints there is a State strategy which poses a real problem and we can do nothing to change the situation unless the state will do something to fix that, but for internal constraints we can eliminate some by: training workers, make aware of and negotiation meetings with the employee union, develop a strict monitoring strategy of production operations, try to have more efficient work environment and communicate workers using daily briefings to motivate them, develop the information system to facilitate coordination and communication between the electronic integration direction and the general direction.

Question n°13: What makes you different from all the competitors on the Algerian market?

As we are a State enterprise we have few limits as all the public companies (EPE), but for us the most important as a competitive advantage is transparency of all procedures and operations carried out within our company, we also have the quality of our products which has been known since the birth of this sector in Algeria and don't forget the low prices that we present to our customers, the value for money is very important strategy that we must keep it in our company.

Question n°14: What are the limits that will affect the competitive position of your company as a public enterprise (EPE)?

In our case the state is the most powerful economic engine, we depends 100% on its subsidies, its strategies and also of its decisions, if we compare our company with others in the private sector, all of these companies has a kind of a financial autonomy and a dependency and that what can limits us day after day, we can give the simple concern, for example for our marketing strategy if you ever ask the question why we do not do much advertising, it is because we are limits by the strategy defines by the state which makes us a little bit behind our competitors.

Question n°15: How do you see ENIE in 5 years or 10 years later?

This is a State company, so we have to develop it. Our goal is to be leadership in Algeria and also be the first company in the EGP sector in Africa and in the Mediterranean, have a research and development center in order not to be always depends on the technologies of others, we have the means and skills so we must just be ambitious, everything is possible thank you.

3.3.2. Analysis and Summary of results:

The analysis of the results was carried out by collecting data and summarizing what was taken from interviews with executives of ENIE. This analysis helps as to conclude that the production is the main activity and mission of the company, it strengthens the effectiveness and influence on the dynamism of this latter.

This efficiency that translates to the role of production logistics in the best use of this function and affect for good its competitiveness, we take into account the planning, quality, time and economic constraints of each transaction "costs" to achieve a goal profit, although this is the maximization of annual profit. For ENIE it is not only industrial entity as well as commercial one.

Furthermore, like any industrial company meets with logistics and professional problems. The problems of the production function that influences negatively on the dynamism of our progress and decline of the production logistics levels are: the lack of skills "ENIE needs

qualified and competent persons to ensure the progress of the latter¹ "the inadaptability with the new material" some people have difficulty handling or better say adapted to the new materials...because the new is more developed than before²", the lack of handling tools and control tools that facilitate the quality controller mission as the bar code reader "... there is a lack of tools and resources such as lift trucks, receipt verification tools or output products of our platforms³", the lack of communication between employees also poses a problem that affects the company's performance.

Also based on responses of our interviewees we can withdraw some weak point which can affect the competitive position of the company as the standards imposed by the state and the external constraints (bank transactions, shipping and delays, the customs problems), and about the positive points we found the installation of a new information system (ERP), modernization of production equipment that improves the performance of ENIE's products in terms of quality compared to other competitors.

Finally, the company gives importance to the utility of production logistics during its production operation from the procurement of raw material to the assembly of the final product in order to make its customers satisfied.

3.4. Recommendation and Suggestions

To solve these problems "weak points" records of interviews or observed by us during our practical training and mentioned at the previous sections, a set of proposals to be proposed in the short, medium and long term:

- Recruit new qualified people operating with the dismissal of employees who are older.
- Buy comfortable handling equipment to minimize the risks (helmets, gloves, shoes, jackets and relief to avoid work accidents).
- Simplify the coordination and communication between the workers and personal executives.
- Organize language sessions and English classes with the operational and administrative personnel in order to avoid errors in the processing of information, and

¹DJELLAOUI (A), Electronic Integration Director, interview 21st April, 2016 at 09:20

²KANDSI (B), Production Department Chief, interview 21st April, 2016 at 11:05

³LAREK (Z), Quality and Control Department Chief, interview 22nd April, 2016 at 10.00

also facilitates communication with suppliers, because English is the most used language in the world today.

- Organize training sessions for workers to increase their work efficiency and especially the specialized training in the workplace.
- Improve research and development, innovation and production technology and marketing level.
- Exploit the synergies between the departments, for example establishing a layout plan in common.
- Make Customer loyal, while most of them continues having a positive perception of quality of its products;
- Ameliorate the production planning and try to develop this activity in order to organize and facilitate the work and maximize the productivity.
- Give instructions and advices to new workers so that the technical problems during the assembly operation will be reduced.
- Adopt a new production system instead of the old one which it depend on the Taylor's method.
- Try to automate the production line respecting the international norms and standards.
- The company uses a make to stock strategy, it must pay extremely close attention to both its retail sales and the amount of finished goods inventory it has in stock in order to estimate its demand as accurately as possible. If ENIE overestimates the demand for a particular product, the company will be stuck with a large inventory of very expensive finished goods that customers don't want to buy and that will decrease in value while they sit on the shelf. Conversely, if it underestimates the demand for a product, most opportunities will be out of count.

Conclusion:

Production logistics plays a key role within the company "ENIE"; it has a positive influence on the dynamism and performance of the production function of this latter.

GENERAL CONCLUSION

The final part of this research will cover the conclusion and limitations of the study. It is divided in three parts. The first part is conclusions, second part covers the limitations of the study, and final part includes further areas for research.

The purpose of our present within the national enterprise ENIE was to study the impact of production logistics on the competitiveness of this company as a public enterprise.

Production logistics helps ENIE to eliminate the waste of time, extra costs, and bad quality of products...etc, during the production process which enables the value added activities to run smoothly, we find that the concepts of this last is just like the doctor of production function prosperity.

From this study, we can conclude that production logistics is not difficult to succeed in this company; it is just obvious that the change must be inside the spirit and mind of the workers within ENIE in order to improve the performance of the concept.

The main research objective is to evaluate the production function of the company and to diagnostic the performance of production logistics, also to analyze the internal and external environment of the ENIE in order to understand challenges that are associated to its activity within the highly competitive surroundings.

Research framework was derived to answer the research questions. Qualitative data was collected from semi-structured interviews and observations which help to detail analysis where the discussion was carried out.

This research led us to answer and verify our assumptions according to the results we can confirm first that the performance of production system of ENIE's is closely related to the implement of an optimum production logistics for the simple reason that executives rely on this last to improve productivity based on their responds on our questions.

Also we confirm that the mastery of production logistics positively affects the competitive position of ENIE, based on results from our study we conclude that production logistics ameliorate the performance of the production function which influence on competitiveness.

At last, we confirm that the production logistics contributes positively to the development of the competitiveness of the company and this seems very logic because the second assumption was confirmed at first.

These are some of the limitations that were identified during the research:

- There were limitations of production logistics resources in the library; this is because the subject is relatively new area of research not only in Algeria but in whole world.
- The unavailability of executives because of their work plan which affect our time of interview and limit it in some cases.
- Another limitation was that due to confidentiality reasons we were unable to access some information which affect our analysis and interpretations.

Through our study of this subject we found several other items that can be addressed and treated as an academic work namely:

- Logistics inventory management which is one of the activities of production logistics.
- Reverse logistics by the reason of the casual cases of product returns and also overstocks management.
- Strategic optimization of the supply chain.

Finally, this experience as training in ENIE was a rewarding and worthwhile experience for beginners to active and professional life. This allows acquiring both the organizational skills and team spirit.

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Documents of ENIE's company

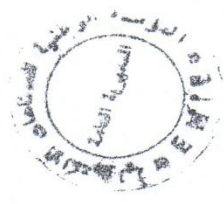
- Internal documentation of the company
- The marketing department of the company
- The production department
- The quality and control department

List of Appendixes

Appendix 01	The production plan
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Appendix 01 : The production plan

Budget Annuel		 المؤسسة الوطنية للصناعات الإلكترونية ENTREPRISE NATIONALE DES INDUSTRIES ELECTRONIQUES												ISO 9001 CERTIFIED 7/2015		Exercice 2016	
Programme de Production																	
Activité EGP																	
Produit	Janvier	Février	Mars	Avril	Mai	Juin	Juillet	Août	Septembre	Octobre	Novembre	Décembre	Total	Total			
TV LED																	
LED 29/32"				1 000	2 000	1 000			2 000			2 000	10 000				
LED 39/40/42/43		2 000			2 000	2 000			2 000	2 000			6 000				
LED 46/47/48/49				1 000					2 000			2 000	7 000				
LED 50/52/55					1 000					500			2 500				
LED 60/62/65													500				
LED 29/32 SMART 3D			2 000	2 000		1 000			2 000				9 000				
LED 39/40/42/43 SMART 3D			2 000	2 000		1 000				2 000			8 000				
LED 46/47/48/49 SMART 3D	2 000												2 000				
LED 50/52/55 SMART 3D	1 000	1 000				1 000					1 000		4 000				
LED 60/62/65 SMART 3D													2 000				
INCURVE 55/65			50						50				100				
Total Valorisé au coût Mat	155 742	101 642	168 408	165 095	115 860	134 582	96 849		139 994	148 776	147 796	104 802	1 479 546				
Total Valorisé au coût de prod	187 590	137 287	221 718	231 196	168 974	176 785	131 172		203 972	200 962	199 674	156 597	2 015 927				



Appendix 02 : Process record



المؤسسة الوطنية للصناعات الإلكترونية
Entreprise Nationale des Industries Electroniques

FEUILLE DE PROCESS						
POSTE N° 01				Modèle	VERSION	DATE
Insertion carte principale				<i>DLED 43D2050</i>	<i>VI</i>	03/2016
N°	N° D'ORIGINE	N° ENIE	DÉSIGNATION	COEF	OUTILLAGES GABARITS MACHINES ÉQUIPEMENTS	
01	0000	00000	carte principale semi inséré		-gant - Bracelet	
02	0000	906-	Fixture			
03						
04						
Étapes	DESCRIPTION DES OPÉRATIONS			Temps Normal	Marge	Temps TOTAL
01	Prendre la fixture et placer sur convoyeur					
02	- prendre la carte principale semi inséré et placer sur la fixture					
03	Évacuer la fixture avec la carte sur le poste suivant.					
TEMPS TOTAL ALLOUE AU POSTE						
N°	Préconisation					

ETABLIE PAR :

BENMOUSSA KHEIRA

MAROUF KHEIRA



FEUILLE DE PROCESS						
POSTE N°0 2				Modèle	VERSION	DATE
Insertion carte principale				<i>DLED</i> <i>43D2050</i>	<i>V1</i>	03/2016
N°	N° D'ORIGINE	N° ENIE	DÉSIGNATION	COEF	POSITION	OUTILLAGES GABARITS MACHINES ÉQUIPEMEN TS
01	004.037.0000197	653-0752	TUNER,75ohm,IEC,XF-3SDT-H,XINF	01	TRF3	
02	004.036.0000032	653-0748	RCA terminal RCA Jack,AV1,H,Orang	01	AV1	
03	004.036.0000204	653-0712	B terminal DB15 Jack,Single,H,Blue	01	CN6	
04	004.036.0000282	653-0714	USB	01	CN5	
05	004.036.0000416	653-0710	Earphone terminal Earphone Jack,	01	CN8	
06	004.036.0000417	653-0751	Earphone Jack,H,Ø3.5,CH2.5,Black,	02	AV2,AV5	
07	004.036.0000466	653-0715	Gold Needle pin connector,2×20Pin	01	CN14	
08	004.003.0000105	413-7566	CAP POLYSTER MP,450V,0.47uF	02	CB2,CB3	
09	004.003.0000440	417-4316	CAP electrolytic AL,10V,470uF	01	ED1	
10	004.002.0000339	402-1578	Metal oxide film resistor RES MOF,2WS,100Kohm	01	RB147	
Étapes	DESCRIPTION DES OPÉRATIONS			Temps Normal		M a r g e Temps TOTAL
01	- prendre les composants et inséré sur la carte principale suivant les positions					
TEMPS TOTAL ALLOUE AU POSTE						
N°	Préconisation					
01	vérifier la désignation et polarité de chaque composant					

ETABLIE PAR :

BENMOUSSA KHEIRA

MAROUF KHEIRA

FEUILLE DE PROCESS							
POSTE N° 3				Modèle	VERSION	DATE	
Insertion carte principale				<i>DLED 43D2050</i>	<i>VI</i>	03/2016	
N°	N° D'ORIGINE	N° ENIE	DÉSIGNATION	COEF	POSITION	OUTILLAGES GABARITS MACHINES ÉQUIPEMENTS	
01	004.036.0000396	653-0749	earphone terminal Earphone Jack	01	CN15	-gant -bracelet	
02	004.036.0000596	653-0750	Connecting socket connect jack,14Pin	01	CNK2		
03	004.036.0000671	653-0629	Connecting socket connect jack,4Pin	01	CN16		
04	004.003.0000332	411-5231	Y CAP Céramique Y1,CD,220Pf	02	CYB1,CYB2		
05	004.003.0000133	417-4376	CAP electrolytic AL,25V,470uF	03	EA1- EB102,EB104		
06	004.005.0000271	421-5285	diode DIO FRD S,2A,1000V	03	DB106,DB306 ,DB308		
07	004.036.0000627	653-0736	Connecting socket connect jack,2Pin	02	CNB2,CNB80 1		
08	004.003.0000040	411-5215	CAP Ceramic CD,1KV,220pF	02	CB208,CB209		
Étapes	DESCRIPTION DES OPÉRATIONS			Temps Normal		M ar ge	Temps TOTAL
01	- prendre les composants et inséré sur la carte principale suivant les positions						
TEMPS TOTAL ALLOUE AU POSTE							
N°	Préconisation						
01	vérifier la désignation et polarité de chaque composant						

ETABLIE PAR :

BENMOUSSA KHEIRA

MAROUF KHEIRA

Appendix 03 : The material demand

ENIE - SPA
UNITE ASSEMBLAGE

DEMANDE DE MATERIEL

D.M.N° **SA**

PRODUCTION (2) CONSOMMABLE (2) PIECES DETACHEE (2)

N° Piece	Description	U/M	Qté Demandée	Qté Délivrée	Centre Administratif : 220 Pw	
3/473-488	C.A.P.	Pc	3000	3000	Responsable : FANTARÉ	
					Demandeur : BRANTIM	
					Date : 07/03/2016	
Contrôle De Production (1)						
Nom :			Nom :			
Date : 07/03/2016			Date :			
Inventaire			Magasins			
Nom :			Nom :			
Date :			Date :			

1 : Matériaux de Production = Accord CP Obligatoire
2 : Outillage Consommation, pièce détachée = Avis du C.I.

1-Inventaire (B S)
2-Centre Adm. Après livraison
3-Centre Adm. Souche

Appendix 05 : Assembly operations

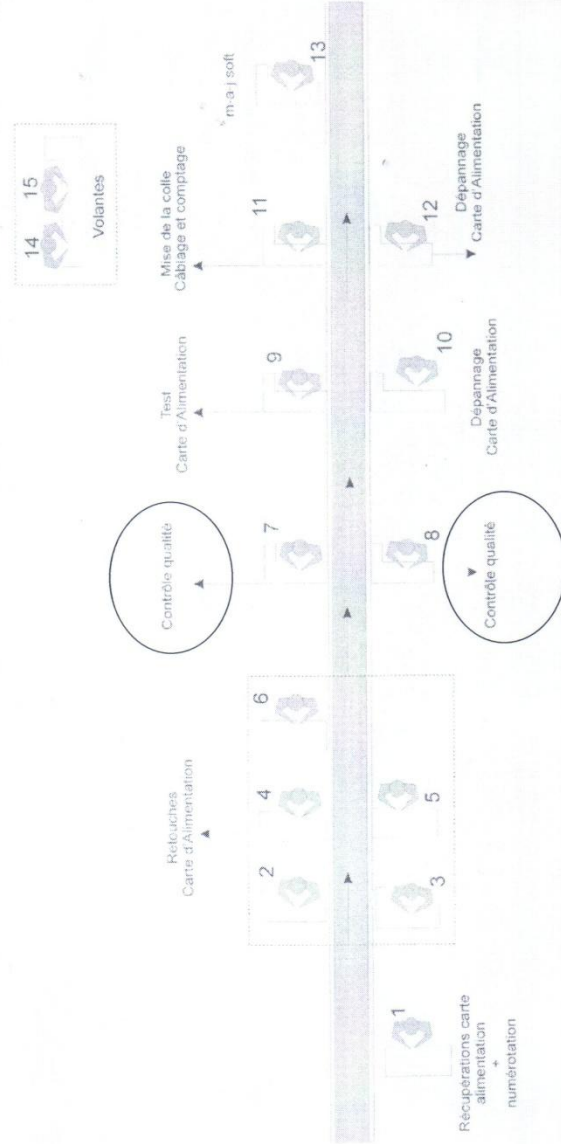
الشكل (4-5): شكل توضيحي لمراحل إنتاج جهاز التلفاز و مراكز التفتيش له بوحدة التركيب بسبدي بلعباس (المرحلة الأولى)



المصدر:

ENIE/D.E.G.P/U. d'assemblage/S.D Technique/ D. Engineering assemblage, « Effectifs pour carte d'alimentation D-LED 39°j 618A »

الشكل (5-5): شكل توضيحي لمراحل إنتاج جهاز التلغاز و مراكز التفقيش له بوحدة التركيب بسيدي بلعباس (المرحلة الثانية)



المصدر: نفس المصدر السابق

Appendix 06

The interview:

Name and Surname of the interviewee:

Date of the interview: The...../...../2016.

Time of interview:^h:

Question n°1: Could you present briefly your company?

.....
.....

Question n°2: What is your position within the ENIE?

.....
.....

Question n°3: What are the determinants of competitiveness in the field of EGP (consumer electronics)?

.....
.....

Question n°4: Could you give us a simple description of the logistics of production?

.....
.....

Question n°5: How could you achieve better competitiveness in your field from production logistics?

.....
.....

Question n°6: What are the key components of the logistics of production?

.....
.....

Appendix 06

Question n°7: What does mean both words logistics and Production to you and what kind of relationship is between them?

.....
.....

Question n°8: What place takes production at your company, and how affect production logistics on this function?

.....
.....

Question n°9: Is there any development of your production function during these last years?

.....

Question n°10: What is this development?

.....
.....

Question n°11: what are the obstacles and problems that can be found during the production operations?

.....
.....

Question n°12: According to you, how to avoid these problems?

.....
.....

Question n°13: What makes you different from all the competitors on the Algerian market?

.....
.....

Appendix 06

Question n°14: What are the limits that will affect the competitive position of your company as a public enterprise (EPE)?

.....

.....

Question n°15: How do you see ENIE in 5 years or 10 years later?

.....

.....

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